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Report on enhanced planning strategies and decision making for urban fringes, including land use scenarios for future land use development. Warsaw report

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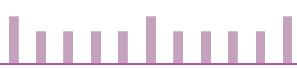
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Abstract

Scenarios are a tool for investigation of possible future conditions and trends, risks and opportunities. Scenarios can take different forms: stories (fictional or realistic), models (quantitative or qualitative), images (visual or narrative), and visions (positive or negative). Scenarios can also be used as arguments in discussions on priorities and directions of future spatial, economic, and social development policies. In this case they can serve as a base for evaluation of existing development strategies and policies and formulation of their amendments. This report contains information on building process of development scenarios for the Warsaw Metropolitan Area, how effective existing development strategies will be in the future, and what shall be changed in the strategies to face impact of these scenarios on development conditions in the future. In the first part of the report the context of the deliverable is presented. Then process of formulation of scenarios and scenarios themselves are described. MOLAND simulation of land use changes in the Warsaw Metropolitan Area and strategies to address development challenges are contained in the next two parts of this report which ends with conclusions.



Spatial scale for results: Regional, national, European	regional
DPSIR framework: Driver, Pressure, State, Impact, Response	all
Land use issues covered: Housing, Traffic, Agriculture, Natural area, Water, Tourism/recreation	all
Scenario sensitivity: Are the products/outputs sensitive to Module 1 scenarios?	yes
Output indicators: Socio-economic & environmental external constraints; Land Use structure; RUR Metabolism; ECO-system integrity; Ecosystem Services; Socio-economic assessment Criteria; Decisions	Land Use structure, Decisions
Knowledge type: Narrative storylines; Response functions; GIS-based maps; Tables or charts; Handbooks	Narrative storylines
How many fact sheets will be derived from this deliverable:	1



Introduction

Practice of spatial development of the WMA proves, that existing strategies have not provided sufficient basis for sustainable development of the metropolitan region itself as well as of particular municipalities located within its borders. There are several reasons for that: legal, institutional, organizational, political.

Development strategies are mainly focused on solutions of specific problems (they are sectoral, not comprehensive), usually of economic nature, and can hardly be called area-based policies. They do not address peri-urban areas problems (they do not identify them for planning purposes); additionally local dimension of development is superior, relations with other areas are often disregarded. Efforts are concentrated on specific problem areas, which not necessarily share borders with peri-urban areas. If they share borders or overlap then some benefits will be transferred to peri-urban zone. But it will happen rather by accident, which means efforts or resources may not be used efficiently. Properly prepared strategies and plans do not work because the system of planning is not design to coordinate development undertakings.

In the PLUREL Analysis Report on the Warsaw Metropolitan Area the region was described with respect to history, land use, planning context, actors and their strategies regarding spatial developments. These strategies were evaluated with respect to their performance. The next step of the research activities was to develop scenarios using adopted for all case studies scenarios framework. This report is the result of a workshop with stakeholders from the Warsaw Metropolitan Area supplemented with results of MOLAND – modeling land use changes – which results were presented and discussed with stakeholders during the workshop. Two scenarios were developed during the workshop. These scenarios reflect the main challenges, obstacles and constraints in the WMA development.

1. Context of the deliverable

This deliverable shall be considered as the final result of cooperation with stakeholders and studies conducted. Information and data gathered during period of several months served as a base for final conclusions concerning approaches to peri-urban development and instruments used to guide development processes.

In the first step of research stakeholders from the region decided about the issues crucial for development processes. These issues were addressed under adopted for all case studies JAF Remix Analysis Framework. Then report *Analysis of Regional Planning and Decision-Making Strategies and their Impact on Land Use in the Urban Fringe* was prepared and existing strategies were evaluated in the *Assessment Report*.

Scenarios developed for the Warsaw Metropolitan Area were based on general scenarios developed in the PLUREL Module 1 (fig. 1, 2).

Fig. 1

Scenario framework - summary

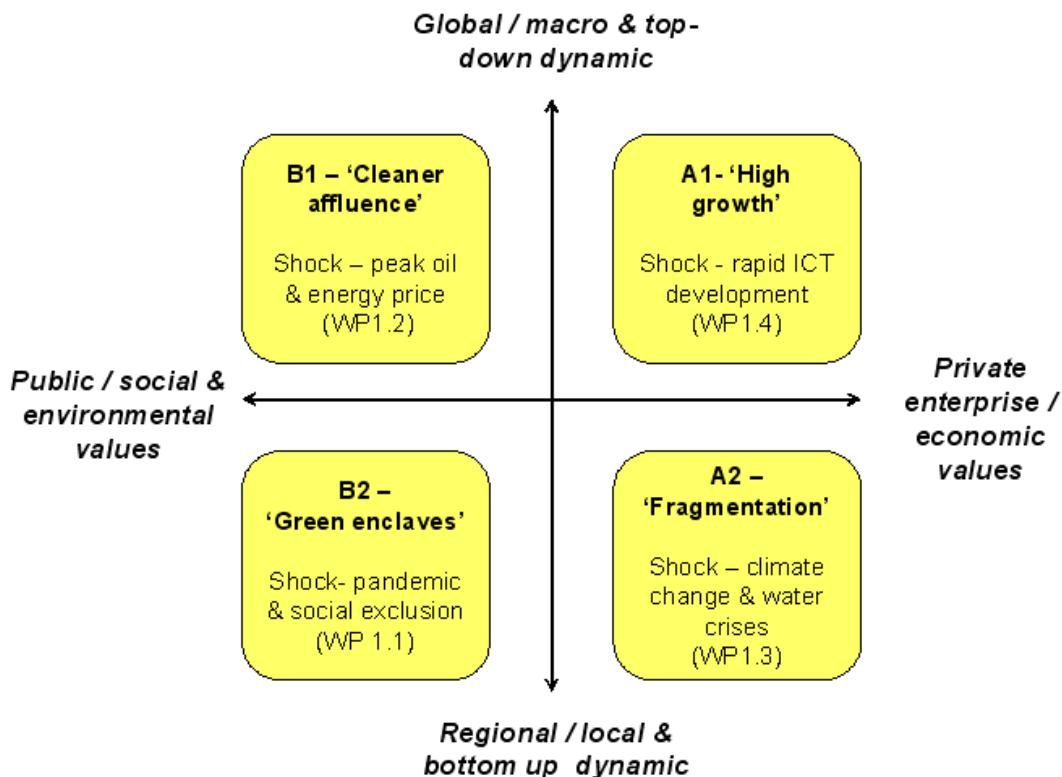
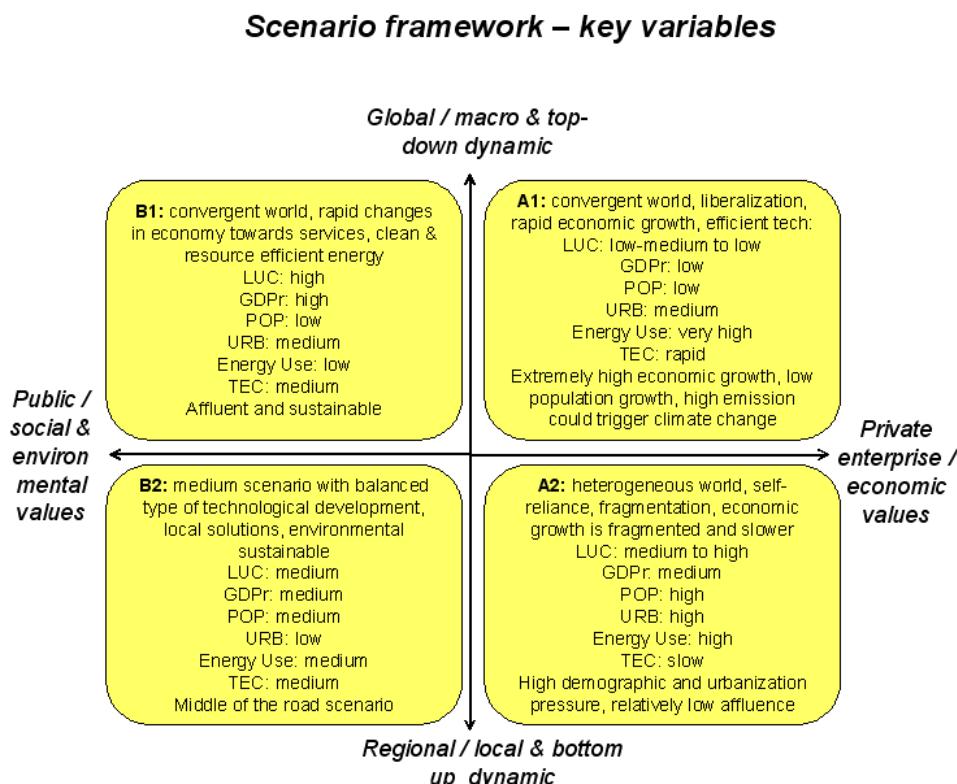


Fig. 2



However, due to specific situation of the Warsaw Metropolitan Area in terms of development conditions and interests of stakeholders these general scenarios had to be adopted and reformulated.

The general objective of this deliverable is to integrate former results of studies and provide information on how, under current conditions and development trends observed, the future of the region may look like and what can be done in terms of strategies building to be prepared for future challenges.

2. Process of scenarios' formulation

The stakeholders from the Warsaw Metropolitan Area were involved in all stages of the studies conducted. However, their role was especially important in the process of scenarios formulation. In this case it was decided to broaden the group of stakeholders. The goals of the enlargement of the group of stakeholders were as follows:

- a. to have broader representation of different ideas and perspectives on the Warsaw Metropolitan Area development;
- b. to enrich a direct interaction between stakeholders and scientists on issues related to different aspects of the WMA development;
- c. to provoke discussion among stakeholders representing different opinions and perspectives resulting from different professional background or from representing different interests' groups;
- d. to generate added value and additional information from observation of interactions between stakeholders;
- e. to stimulate proactive participation in discussions about the future of the WMA and establishment of network of interested parties;
- f. to initiate social learning process among stakeholders;
- g. to ensure a larger acceptance for the results of final results of scenario building exercise.

At the beginning of the workshop the PLUREL project was presented to the audience. Then, more specifically, Module 3 was characterized. In the next part general M1 scenarios were outlined followed by discussion about the WMA development problems and scenarios.

Discussion about the problems was dominated by the following topics:

- a/ the path of spatial development of the WMA which is spontaneous and seems to be uncontrolled. In this context participants of the workshop addressed issue of system of spatial planning – its coherence and effectiveness;
- b/ polarization of development processes of the WMA – economic situation of Warsaw – the central city of the WMA – is very good compared to situation of other parts of the WMA and other areas of the region of mazowieckie voivodship. Warsaw is the growth pole of the WMA and the region. It triggers migration to Warsaw from the WMA and the whole country and out-migration flow from Warsaw to surrounding municipalities. In the latter case this is metropolitan class that is moving out looking for better living conditions. It results in suburbanization and urban sprawl;

-
- c/ increasing social differentiation – income disparities are being translated into social stratification. Uneven development may result in social exclusion and generate social conflicts. Strategies shall ensure sustainable development in its social dimension.
 - d/ ongoing development processes bring strong urbanization pressure which may have negative impact on environmental conditions. The issue of environmental awareness was pointed out as an element that is often neglected in preparation of economic development plans.
 - e/ transportation system / problem of physical accessibility / access to places of work and services – since inhabitants of the WMA are becoming more mobile (private cars ownership) road traffic increased significantly. The system of railroads is developed poorly and people have to rely on road transportation, including public transportation. The latter one, however, does not meet people's expectations. Road traffic generates pollution, forces people to spend hours in cars commuting.
 - f/ resources of the WMA – there numerous resources and assets possessed by the WMA. Due to underdevelopment of the transportation system, polarization of development processes, inefficient management of development processes, fragmentation of the WMA in terms of jurisdiction of specific local governments from the area – these resources and assets are not used properly from the perspective of sustainable development. In this case the future of rural areas (agriculture or open space as valuable assets) was pointed out as a problem that is underestimated.

The discussion was very lively. Stakeholders represented all parties interested the most in the development of the WMA. It was decided that the work would proceed in one group: stakeholders and researchers. The dialogue between these two groups was very active and led to formulation of opinion accepted by all, that the current path of development resulted in formation of "aggressive octopus" model of development of the WMA. The question was whether development according to the "aggressive octopus" model could be stopped.

Discussants pointed out the role of cooperation among local governments from the WMA in sustainable development of the area. This issue was related directly to arrangements concerning management of development processes in functionally integrated areas. It was also pointed out that without harmonization of development strategies of the City of Warsaw and the WMA further development of Warsaw as metropolitan city will be hindered or stopped.

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. Stakeholders pointed out, that new systemic conditions for development resulted in mobility of firms and population, which are looking for the best location which meets their needs and expectations. Ongoing suburbanization and urban sprawl have strong impact on the landscape, land use pattern, and functional relationships among municipalities situated within the metropolitan area. A need for coordinated development of metropolitan area has been articulated many times by those who suffer from congestion, pollution, spatial and functional conflicts. Also by planners and representatives of many local governments.

While discussing possible future development an issue of local democracy was raised in the context of responsibilities and power local government in Poland has. It was stated several times that development of local democracy has not been followed by appropriate changes in regulations concerning spatial development management. The planning code enacted in 2003 increased additionally liberalism by disqualifying previously existing hierarchical planning system and providing for the possibility of instant, investor-driven development. When development is based on the private acquisition of undeveloped agricultural land, this may effect in a totally dysfunctional configuration of built-up areas, including huge surplus costs for construction and for operation in particular. It may also lead to further “colonization” of the countryside.

Referring to PLUREL's general scenario discussants stated, that two scenarios: hyper-tech and peak-oil shall be considered. It was also stated that there was some overlapping of these two scenarios in some respects.

In the case of hyper-tech scenarios two options were discussed: situation of rigid control of development processes and laissez-faire approach to development processes. The latter one could be described (although it may seem to be exaggeration) as Business-as-Usual approach (and scenario at the same time). Discussants pointed out that in the case of hyper-tech scenario the key problems would be migration and acquisition of new land for development. That's why they proposed to “freeze” land for development and continue investments in areas already developed.

The discussion ended with conclusion, that during workshop two scenarios should be developed, both connected to PLUREL's hyper-tech scenario. However, the first scenario assumes that the system of planning and control remains the same; in the second scenario there are fundamental changes in regulations concerning spatial planning and management of metropolitan areas development. The two scenarios are presented in the next part of this report.

The workshop was very successful from a process point of view. Stakeholders with researchers assistance developed two scenarios that represent both the most likely developments and a future that is possible.

3. Development scenarios for the Warsaw Metropolitan Area

Implementation of the PLUREL project and activities performed together with stakeholders brought back to life the debate on the future of the WMA. The workshop was important part of this debate and resulted in formulation of two scenarios: limits to growth scenario and spatial containment scenario. These two scenarios are outlined below:

Limits to growth scenario

Basic assumptions:

Dynamic economic development of Warsaw and the WMA based on new technologies, under stable macro economic conditions and with use of current practice of spatial planning and management of development.

Story:

Warsaw is taking advantages of its development potential. R&D sector is a leading sector of the regional economy. Trends of development remain the same as they have been since 1990. Warsaw is a growth pole of the WMA and Mazowieckie voivodship. Further polarization of development processes takes place. Majority of firms are concentrated in Warsaw.

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 there are no investments in transportation infrastructure new investments are still coming to Warsaw and 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 function. 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. Its partly because Warsaw is losing its attractiveness as a place of living.

Migrations bring significant changes in social and demographic structure of Warsaw population, which is aging. The number of population in the WMA is rising. Demand for housing brings reduction of agricultural areas and open space.

There is no reaction of public authorities responsible for development management. Planning regulations and procedures are not changed. There is no cooperation among municipalities concerning preparation and implementation of development plans. Very dynamic but uncoordinated development of Warsaw and the WMA leads to functional paralysis of the system, which happens around the year 2020. Since then the number of inhabitants is slightly decreasing.

Consequences:

Warsaw is not becoming more attractive 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. The concept of “Green Ring” surrounding Warsaw has no chance to be realized.

Spatial containment scenario

Basic assumptions:

Dynamic economic development of Warsaw and the WMA based on new technologies. Stable macro economic conditions. New regulations concerning development of the Warsaw Metropolitan Area. There is a new legislation concerning development of metropolitan areas in Poland. This legislation enables integrated approach to spatial and economic development of functionally integrated areas. Rigid planning regulations allow rational use of assets in accordance with vision and strategy of the WMA development.

Story:

Warsaw is taking advantages of its development potential. R&D sector is a leading sector of the knowledge based economy. Development incentives appear in the whole metropolitan area thanks to institutionalized cooperation among regional self government, government of Warsaw and local governments of municipalities from the WMA. Coordinated efforts help to create and offer proper conditions for economic activities in different parts of the WMA. Although Warsaw still dominates in the spatial pattern of the WMA this pattern has features of polycentricity. Functions are deconcentrated.

Warsaw still attracts migrants. New housing development are located In Warsaw and surrounding municipalities according to plans of development of social and technical infrastructure for the WMA. Development of public transportation system is a priority in strategies and plans. Pragmatic and well prepared investments lead to rational use of space. Conditions of natural environment are improving. Services for tourists are becoming integral part of local economies.

Consequences:

The flow of migrants is significantly lower as well as pressure to commute because services are more evenly distributed. The WMA is becoming more attractive as a place of living and working. The level and quality of life of inhabitants from the WMA is increasing. Warsaw becomes attractive European metropolitan city. Creative class finds Warsaw the right place to settle which triggers development of new forms of economic

activities including services. Agricultural areas and open spaces are protected and the concept of the “Green Ring” is under implementation. Traditional agriculture is a part of local economies and contributes to vitality of peri-urban areas. The spatial system is cohesive and functional and costs of functioning of the system are lower. The WMA acquires features of polycentric type of region.

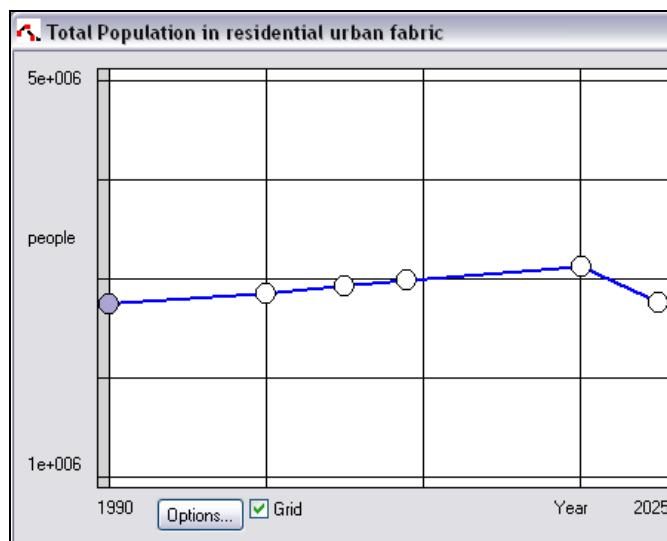
The two scenarios served as a base (in a form of specific parameters) for simulation of potential changes in land use pattern within the WMA. This simulation is presented in the next part of the report.

4. MOLAND simulation of land use changes

To visualize potential spatial consequences of realization of the two scenarios projections of the situation in the period from 1995 to 2025 were prepared using MOLAND model. The experiment with modeling was successful and met expectations i.e. indicated the nature and spatial extent of changes. The results of simulation based on the two scenarios differ considerably.

According to the limits to growth scenario the area covered by urban fabric will increase in the period 1995 – 2020 from 55156.3 ha to 61431.3 ha (11% increase) and then will decrease to 54450.0 ha (tab. 2). Agricultural areas will decrease by 8% in the same period. This scenario enhances processes of suburbanization and urban sprawl that may result in expansion of green urban areas (as indicated in the simulation), since cities may lose inhabitants moving outside their borders. Thus limits to growth scenario can trigger process of “shrinking” of city /cities/. The area of urban fabric will increase by 11.4% till 2020; then will decrease by almost the same percentage. The crisis envisaged in year 2020 will have serious implications for future development of Warsaw and the WMA. Dissolution of spatial conflicts will require additional financial resources and available land. Development opportunities may not come back for several years since degradation of physical, economic, and social space will be so serious.

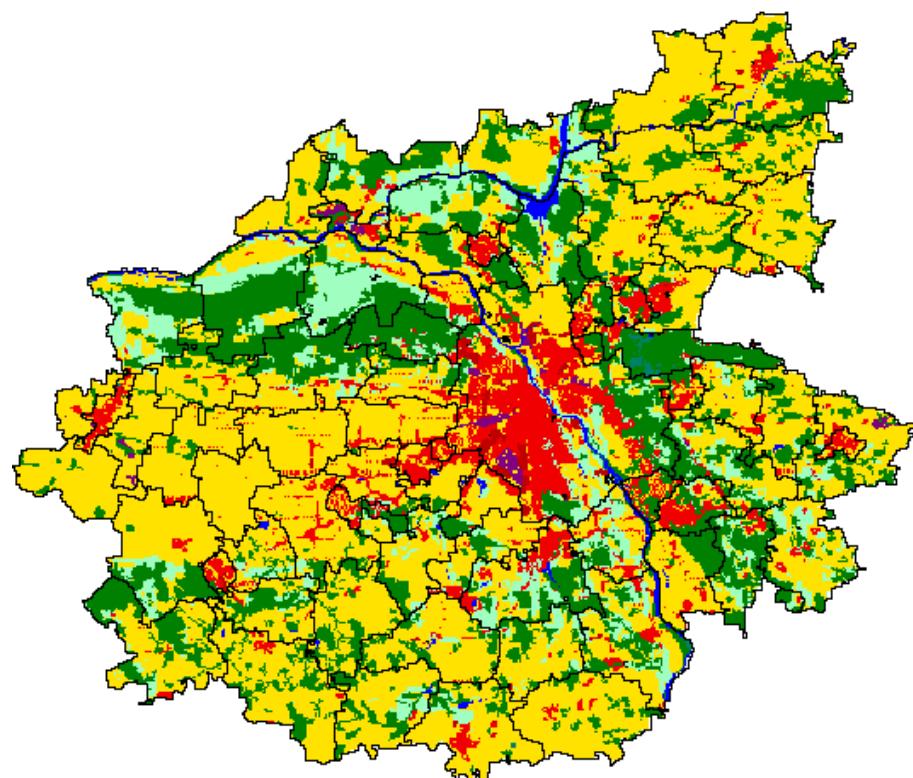
Fig. 3 Total population in residential urban fabric in WMA region 1990-2025
(limits to growth scenario)



Tab. 1 Simulated area (ha) of land use classes in WMA region 1990-2025
(limits to growth scenario, Metronamica ML)

Land use	1994	1995	2000	2005	2010	2015	2020	2025
	ha							
green urban areas	38900.0	39106.3	31525.0	32293.8	36068.8	56156.3	56125.0	58506.3
agricultural areas	355981.3	355562.5	361568.8	359506.3	349725.0	328287.5	326987.5	332525.0
urban fabric	54993.8	55156.3	56062.5	57606.3	59100.0	60268.8	61431.3	54450.0
industrial or commercial units	6256.3	6293.8	6493.8	6787.5	6837.5	6925.0	6975.0	6481.3
transport areas	3006.3	3006.3	3037.5	2937.5	3125.0	3181.3	3231.3	2950.0
mineral extraction or dump or construction sites	1400.0	1412.5	1575.0	1131.3	1143.8	1181.3	1250.0	1087.5
standing forests	148118.8	148118.8	148443.8	148443.8	152343.8	152343.8	152343.8	152343.8
natural and semi-natural vegetation	1237.5	1237.5	1193.8	1193.8	1193.8	1193.8	1193.8	1193.8
water courses and bodies	9106.3	9106.3	9100.0	9100.0	9462.5	9462.5	9462.5	9462.5

Fig. 4 Simulated land use in WMA region 2025
(limits to growth scenario Metronamica ML)



- █ green urban areas
- █ agricultural areas
- █ urban fabric
- █ industrial or commercial units
- █ transport areas
- █ mineral extraction or dump or construction sites
- █ standing forests
- █ natural and semi-natural vegetation
- █ water courses and bodies

Following the spatial containment scenario the increase of urban fabric will continue and reach the level of 62956 ha in 2025 (increase of 12%) (tab. 3). Green urban areas will slightly shrink. The same concerns agricultural areas. However, not just number of cells is important in this case but the degree of concentration of areas of different types.

Fig. 5 Total population in residential urban fabric in WMA region 1990-2025
(*spatial containment scenario*)

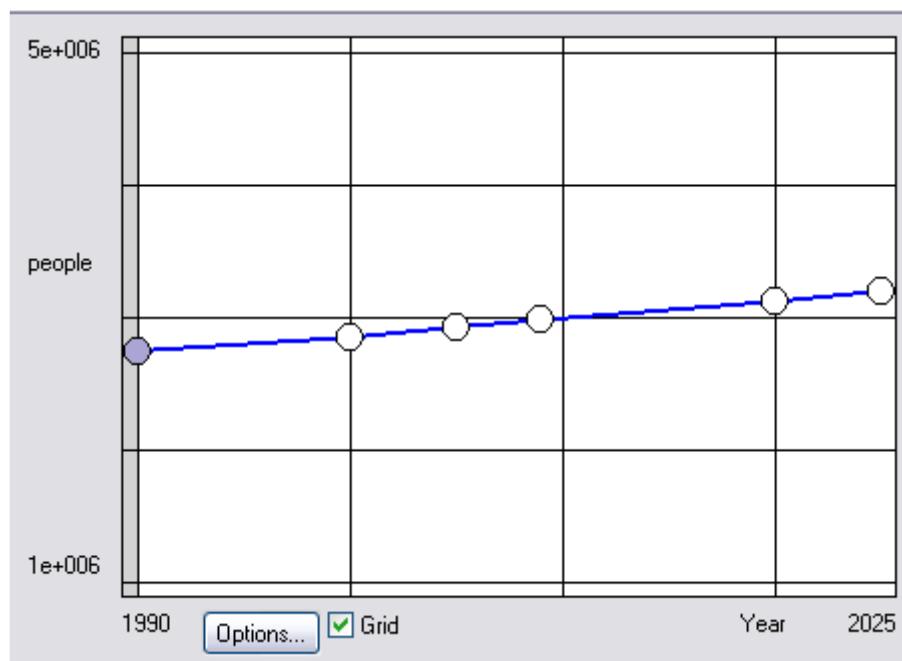


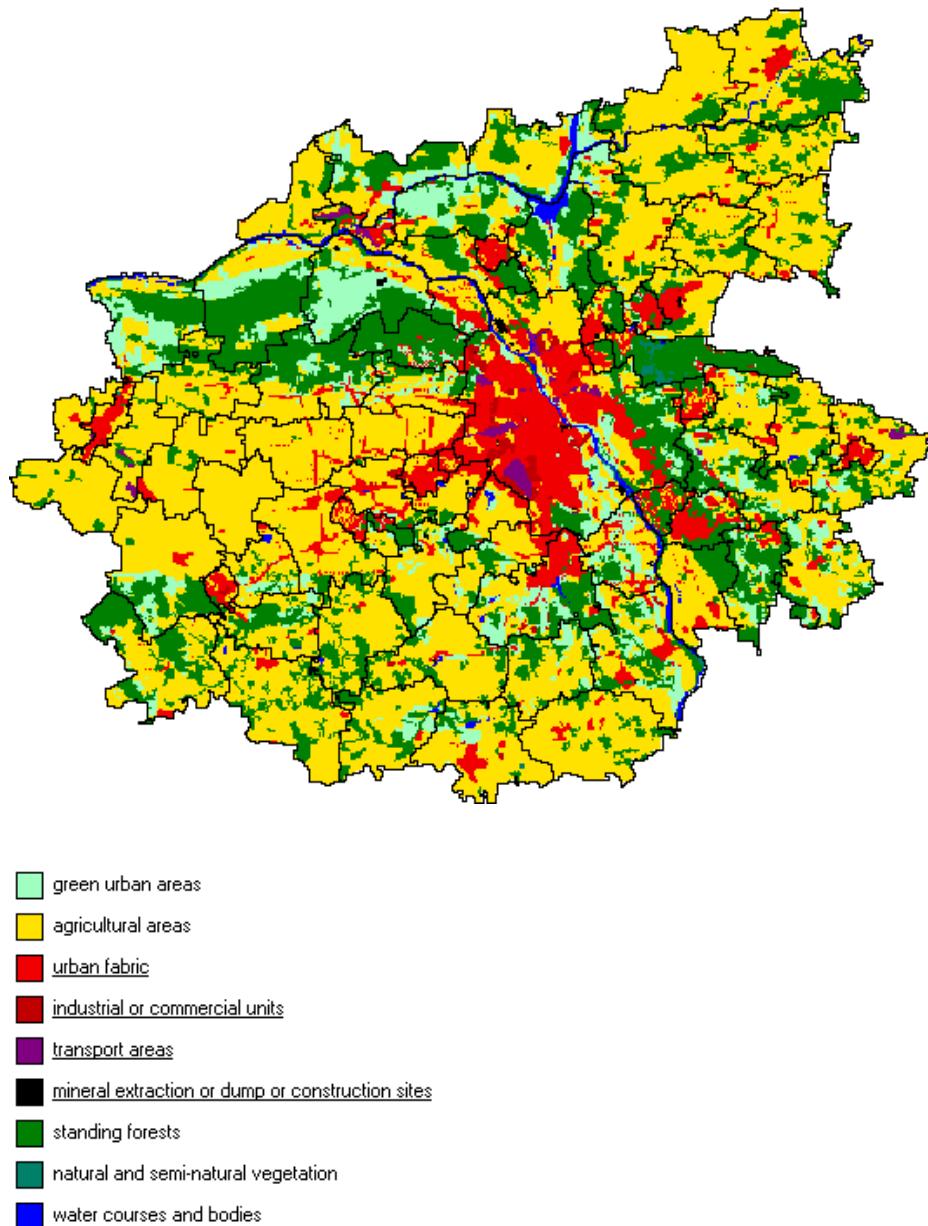
Table 2. Simulated area (ha) of land use classes in WMA region 1990-2025
(spatial containment scenario, Metronamica ML)

Land use	1990	1995	2000	2005	2010	2015	2020	2025
green urban areas	7706.3	43075.0	31581.3	33218.8	37243.8	56637.5	56581.3	56612.5
agricultural areas	387718.8	351593.8	361512.5	358581.3	348550.0	327806.3	326531.3	324793.8
urban fabric	54593.8	55156.3	56062.5	57606.3	59100.0	60268.8	61431.3	62956.3
industrial or commercial units	6143.8	6293.8	6493.8	6787.5	6837.5	6925.0	6975.0	7031.3
transport areas	2987.5	3006.3	3037.5	2937.5	3125.0	3181.3	3231.3	3306.3
mineral extraction or dump or construction sites	1387.5	1412.5	1575.0	1131.3	1143.8	1181.3	1250.0	1300.0
standing forests	148118.8	148118.8	148443.8	148443.8	152343.8	152343.8	152343.8	152343.8
natural and semi-natural vegetation	1237.5	1237.5	1193.8	1193.8	1193.8	1193.8	1193.8	1193.8
water courses and bodies	9106.3	9106.3	9100.0	9100.0	9462.5	9462.5	9462.5	9462.5

According to spatial containment scenario the process of urban sprawl will be hampered. Rigid zoning will reduce number of functional conflicts. Mosaic pattern of location of functions will be replaced by well organized structures formed according to earlier developed appropriate technical infrastructure. It will bring additional incentives for economic and social development.

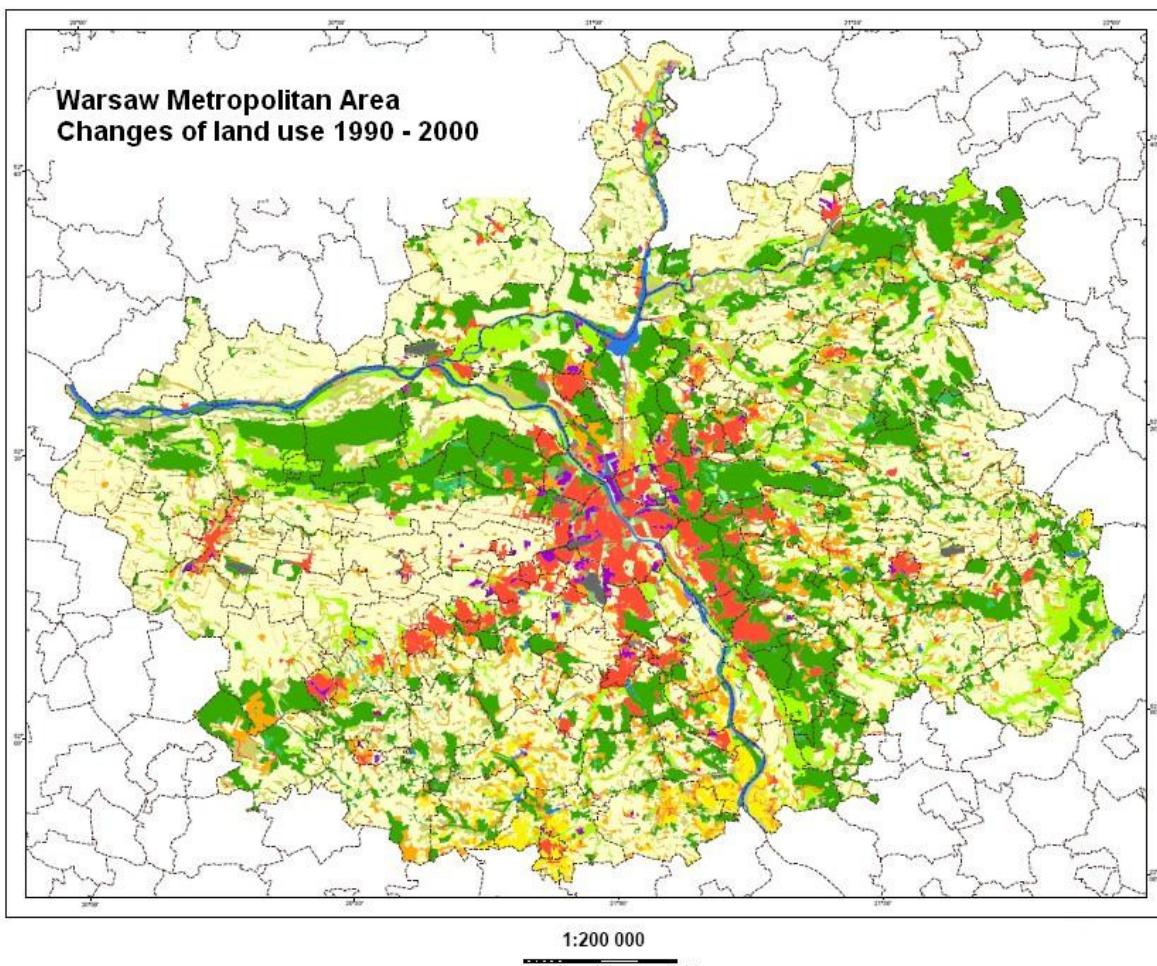
Initial assumptions and parameters characterizing situation in the WMA and development trends for both scenarios brought interesting pictures of the future situation. Although in the year 2020 no difference in the total cover of urban fabric was noticed there were differences of spatial distribution. As it was anticipated the urban fabric was characterized by much higher spatial concentration. The same concerns industrial and commercial areas.

Fig. 6 Simulated land use in WMA region 2025
(spatial containment scenario, Metronamica ML)



Results of simulations shall be considered carefully by policy makers and planners. Supply of and demand for land differ in time and are determined by needs of inhabitants and investors and by the quality of space. Extensive use of space may lead to its degradation, as it was pointed out in the limits to growth scenario. Intensity of land use is equally important as spatial arrangements in terms of location of functions.

Fig. 7



TM - residential areas
 ZUR - mixture of functions (agric., forests)
 TP - dominant industrial functions
 TK - transportation functions
 EO - open-pit mines
 ZH - mine waste dump
 B - constructions
 ZM - urban green areas
 TSR - sport and recreation
 GO - arable land
 SP - orchards and plantations
 LPM - meadows, pastures
 URL - mosaic: arable land and forests
 L - forests
 LZ - forests under transformation
 ZW - bushes, moorlands
 PWP - beaches, dunes, sand
 BG - swamps
 W - stream, rivers, water reservoirs

Formulated scenarios supported by MOLAND modelling are strong arguments for introduction of changes in development paths of the WMA. Additional arguments are provided by earlier detailed studies covering the WMA and concerning land use changes (see fig. 7, source: B. Degórska, A. Deręgowska: Changes of the Landscape of the WMA on the turn of XX and XXI Century; Atlas Warszawy; z. 10, PAN IGiPZ, Warsaw, 2008). The first decade of the new century has brought more significant changes as a results of continuity of development trends started in 1990.

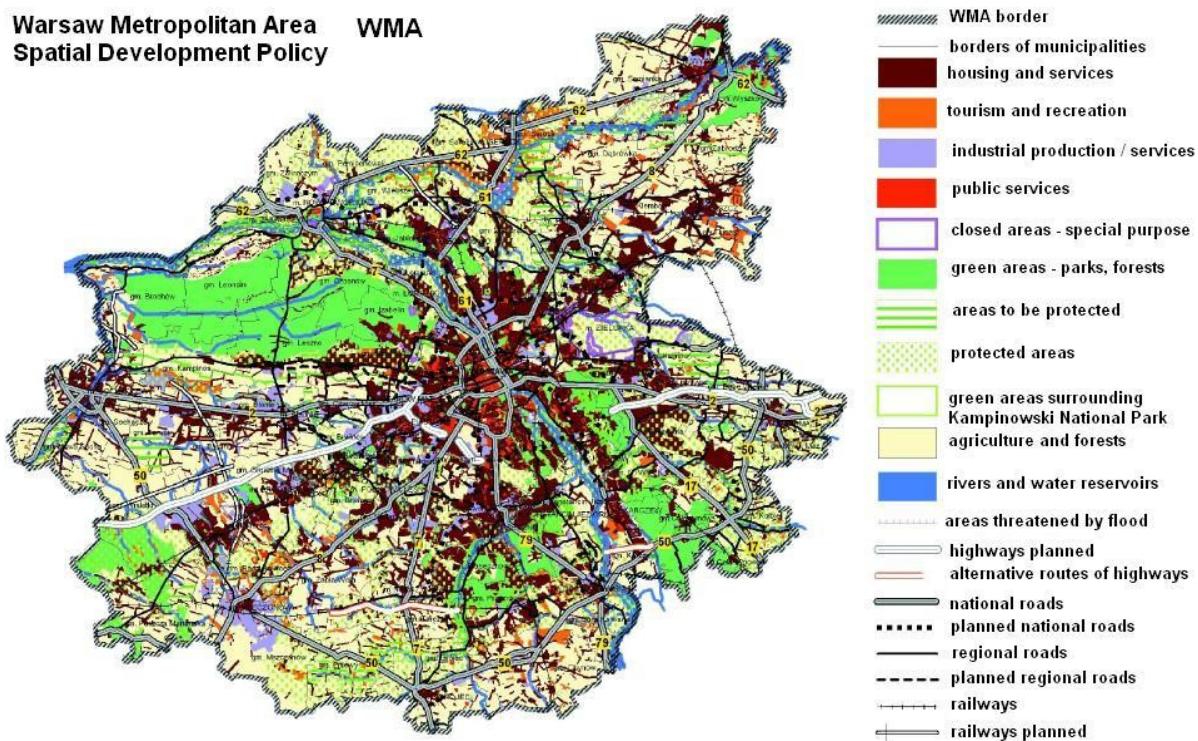
Thus planning intervention is needed in order to stop development according to “aggressive octopus” model. In the next part of the report an issue of adequacy of current development strategies vis-à-vis scenarios is addressed.

5. Strategies to address development challenges

In earlier stages of studies on the WMA development three strategies were selected for evaluation: Strategy of Mazowieckie Voivodship Development, Project of Spatial Development Plan for Warsaw Metropolitan Area, Development Strategy of Warsaw.

The first strategy: the Strategy of Mazowieckie Voivodship Development provides fundamental guidelines concerning strategic development goals and measures that shall be used to reach them. The main assumption of the strategy is that general economic situation of the region (despite existing differences and polarization of the development - as was described earlier), applied cohesion policy and principles of sustainable development will facilitate development processes and allow to reach strategic goals formulated as follows: development of the rural areas; cohesive development of Warsaw and its environment; harmonious development of the WMA metropolitan functions; dynamic development of technical and social infrastructure; elimination of areas of poverty; improvement of the healthiness and the quality of life of the inhabitants.

Fig. 8



Source: Warsaw Metropolitan Area, MBPR, GUS, Warsaw, 2008

The second key document is the project of the Warsaw Metropolitan Area Spatial Development Plan. This project of the plan outlines spatial development policy of the WMA (fig. 8). The project covers much smaller area and is more specific, as it is required by the Law on Spatial Planning. There are five strategic goals in the Plan.

To secure sustainable development of the WMA and its surroundings: this goal will be achieved by improvement of territorial cohesion of the WMA and the voivodship. It will allow to increase access to metropolitan functions.

To increase attractiveness of WMA as a regional growth pole: It is planned that regional government will support efforts to build appropriate technical and institutional infrastructure to foster development of innovative economy within a framework of polycentric pattern of settlement system. It shall reduce the scale of suburbanization and urban sprawl and contribute to protection of natural environment resources.

WMA as an area of high quality of life: Under this goal efforts will be focused on improvement of housing conditions and living conditions generally. The concept of “Green Belt” around Warsaw is a crucial element in reaching this strategic goal.

Harmonious spatial development of the WMA: Under this goal activities will be focused on improvement of quality of natural environment including such unique assets as the Wisła Valley and Kampinoski National Park. It is also envisaged, that processes of revitalization of cities from the region and from the WMA will be intensified. Improvement of living conditions in these cities shall reduce significantly migration flows to Warsaw and surrounding municipalities.

WMA as area with identity: This goal was formulated to increase the level of social integration and to contribute to building and mobilization of social capital as important endogenous asset.

The third analyzed strategic document was the Development Strategy of the City of Warsaw. The following goals and objectives that may have impact on situation in the WMA are present in the strategy:

Development of metropolitan functions, strengthening Warsaw's position on the regional, national and European level

Warsaw is the most important regional and national cultural centre, the home of international institutions and the largest transport hub. Consolidation of metropolitan functions will increase the international status of the Polish capital and will allow it to compete successfully with other European metropolises. Warsaw's development will be harmonized with the development of its surrounding area (neighboring municipalities, the region, other cities). Potential competition must give way to a network of cooperative connections and collaboration of respective centers, whose specialization will allow all to participate proportionally in the growth of the metropolitan area of Warsaw.

To ensure efficient internal and external transportation systems for the metropolitan area of Warsaw the following programs are being developed: a/ improvement of external road links; b/ improvement of public transport in the metropolitan area. In order to reinforce Warsaw's position as an important European economic, financial, scientific and political centre the following programs are designed: a/ attracting European economic and financial institutions to Warsaw; b/ construction of new congress, trade and exhibition centers; c/ participation of Warsaw in international networks of cities.

To establish institutions necessary for the efficient functioning of the metropolitan area of Warsaw the following programs are designed: a/ organization of institutions concerned with the development of the metropolitan area of Warsaw; b/ institutional integration of strategic planning on a regional scale.

The strategy emphasizes, that efficient functioning of the metropolitan area of Warsaw requires the cooperation of all local government units. According to the strategy Warsaw will play a key role in the creation of the basis for the functioning of metropolitan structures. In cooperation with the Marshal of the Mazowieckie voivodship, presidents and mayors of the towns and municipalities of the metropolitan area, goals and appropriate measures will be specified to ensure fast development of the whole area. The strategy also envisages establishment of institutions that will deal specifically with the development of the metropolitan area of Warsaw.

Organization of the spatial structure of the city, that will protect green areas forming the basic ecological system

Zoning will be carried out consistently with the requirements of the natural environment systems and the functions of urbanized zones. Protection of the areas constituting the city's natural system, as well as green belts and borderlines, is a prerequisite for a good quality natural environment throughout the city and in recreational facilities for the inhabitants. In the strategy the suburbs zone was distinguished. The most important tasks for this zone include the protection of environmentally valuable areas and the ordering of the housing development, especially along exit roads.

To secure smooth implementation of the development plans the city government is planning to develop a multi-year plan of property sales and acquisitions, which will take into account the requirements resulting from execution of the city's development strategy. The City will determine which properties are required for the execution of planned investments and the scope of its property purchases for the purpose of such investments. Properties unnecessary for the execution of public tasks will be sold or provided under perpetual usufruct, rented, leased or made available in some other way. The city will formulate uniform, city-wide rules and procedures for the sale and acquisition of property. This applies to, among others, procedures for attaching neighboring properties or their parts to shared properties, changes of shares in shared properties and settlement and refund of investments made by purchasers in properties. The City will prepare an offer of sale for selected properties, directed mostly to outside investors. It will also prepare an offer of multi-year lease of property and equipment to entities which, after the requisite investment, will conduct specified public services at those locations.

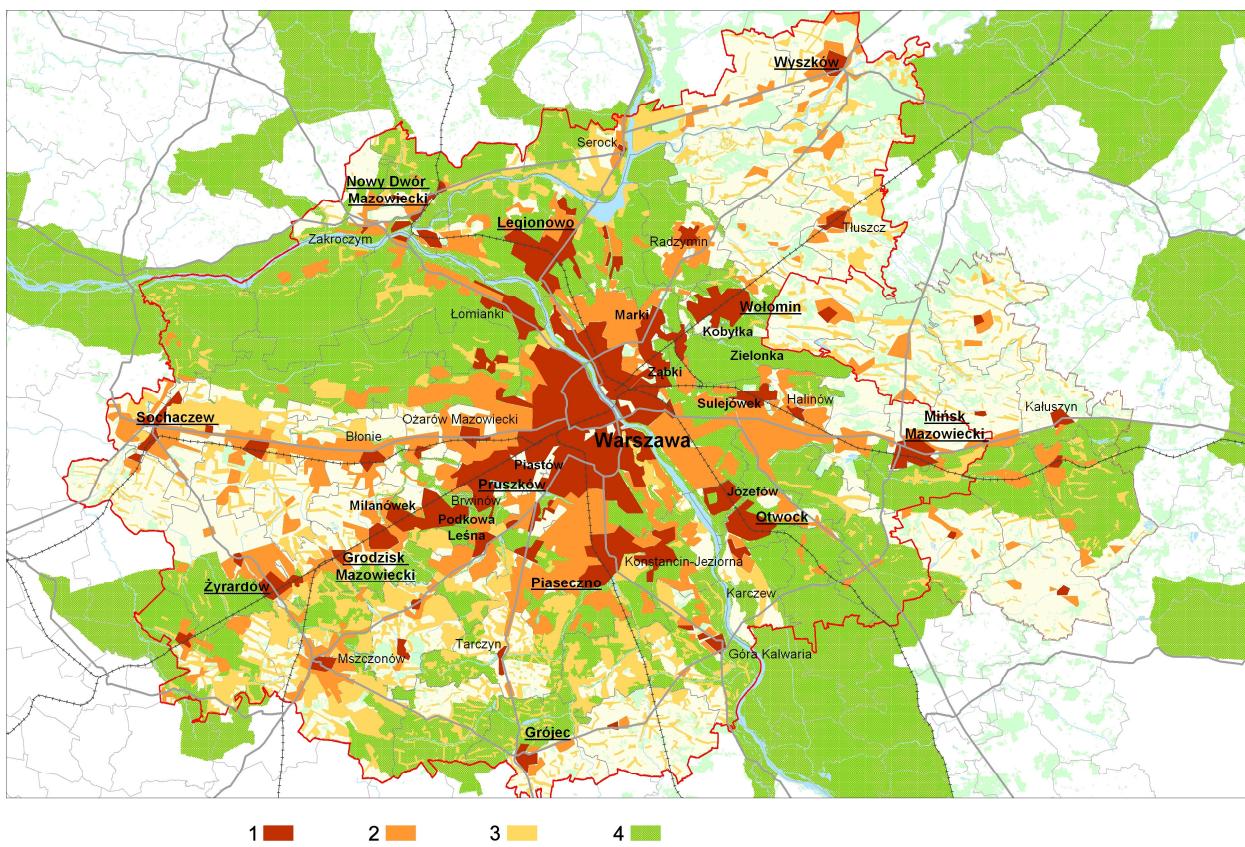
Strategic environmental assessment of spatial development scenarios in the Warsaw Metropolitan Area

Adequacy of current development strategies vis-à-vis scenarios

Results of analysis of the three strategies allow to draw conclusion, that development goals formulated in these documents refer correctly to challenges of future development of the three areas that the strategies were prepared for. Additionally, in all strategies the WMA is present as a key element of the functional structure of the whole region (voivodship).

However, the practice of development of the Warsaw Metropolitan Area as well as specific areas – “transition zones” and “zones under transformation” (peri-urban areas are examples of the two types and are distributed within “mosaic” pattern all over the WMA in territorial units under jurisdiction of different local governments; see fig 9) proves, that these documents do not properly fulfill their tasks.

Fig. 9



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)

Source: Project of Spatial Development Plan for Warsaw Metropolitan Area, MBPR, Warsaw, 2009

The first reason for that is that every strategy addresses the WMA development from different perspective determined by competencies, responsibilities, and power of authority that was responsible for the strategy preparation. The second reason is that every strategy plays different role as an instrument of spatial development management. The third reason is that the spatial planning system is set this way, that strategies and plans prepared at the regional (voivodship) and sub-regional (in this case: metropolitan) levels can be reduced to merely blue prints (structural) plans, that provide guidelines not obligatory bindings for those who are responsible for local development plans.

Even if the strategies from these levels are prepared properly, according to rigid methodology, they may not be translated into real world action. Goals, objectives, rules and guidelines incorporated in strategies from regional and sub-regional level are formulated in a general way. Thus it is pretty easy to prove, that goals from the strategies and plans prepared at the municipality level are not in conflict with them. It is just a question of wording and interpretation. Strategies do not work because the system of planning is not design to coordinate development undertakings. Under current spatial planning legislation there is no hierarchy of plans. Regions and municipalities are obliged to agree upon and incorporate into their plans guidelines from the national level. It concerns especially so called “investment of public benefit”. At the same time the system is set this way, that municipalities can chose to not prepare development strategy or spatial development plan. In this case they govern spatial development through mechanism of “administrative decisions” – permissions to locate investment. Even if a municipality has spatial development plan and development strategy vertical coordination can secure merely growth – there is no guarantee that coordinated vertically efforts will result in growth and sustainable spatial development.

Thus, it might be stated, that the adequacy of existing strategies vis-à-vis challenges and scenarios is a “formal adequacy” not “functional adequacy”, which means that the strategies has actual causal power and contribute effectively to sustainable development of the WMA and address issues of peri-urban development.

Conducted in earlier phases of studies interviews and results of workshops organized for researchers and stakeholders allow also to formulate opinion, that at least three non-formalized strategies are under consideration to be employed to cope with problems of spatial development of the WMA:

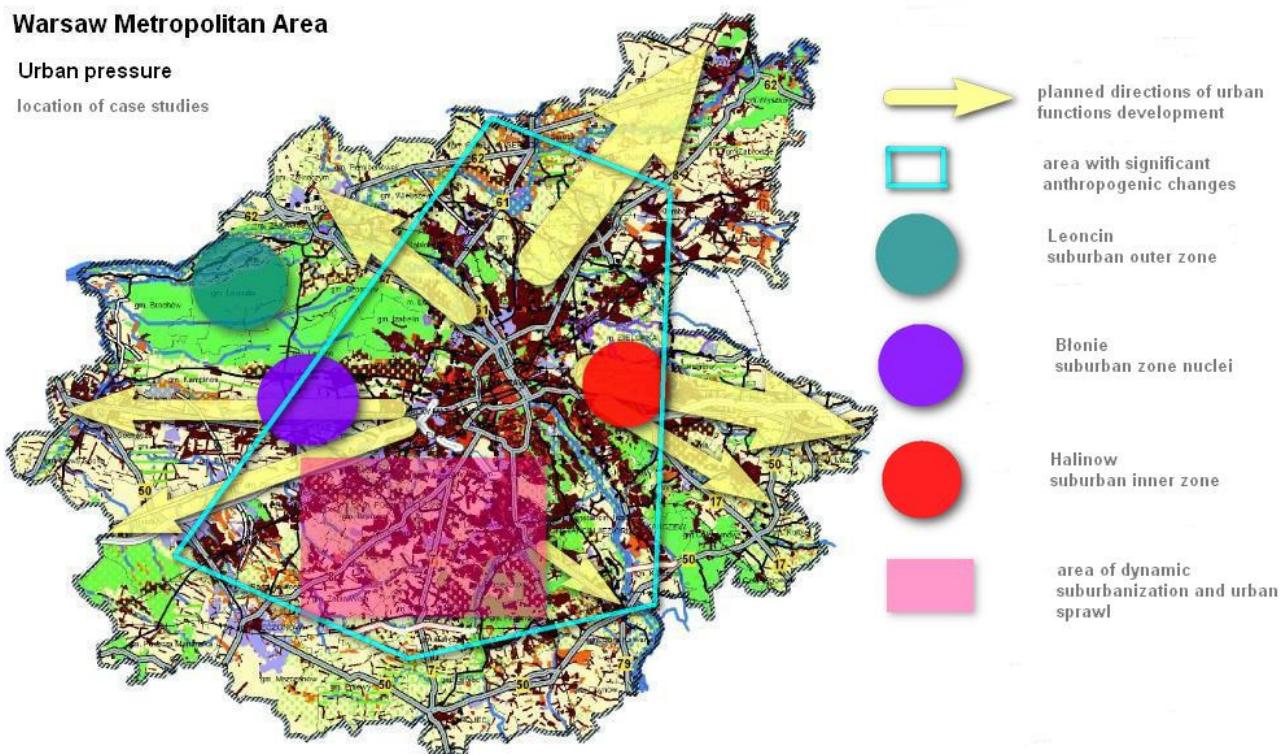
Strategy: *building framework for effective development planning in the region and metropolitan area.*

This strategy is a “strategy of multi-level governance” – that’s the key issue for development of the WMA. Under this strategy long-term (strategic) planning is supposed to be integrated with medium-term and short-term (operational) planning. Leading role is played by the regional authorities. This strategy is aimed to form development coalition that will be instrumental in searching consensus among conflicting interests. Under this strategy programs of protection of agricultural land, organic farming, eco tourism, and improvement of agricultural production can be formulated and potentially implemented through programs and projects prepared both on regional and local level. Players from the regional level are involved in discussions on formal regulations concerning legal framework for spatial planning and management of functional urban areas. System of monitoring of development processes, forecasting methods, and development models are specific tools to be created under this strategy.

Strategy: *harmonization of development of the Warsaw Metropolitan Area.*

The strategy's goal is to create a spatial concept for sustainable development of functionally integrated Warsaw Metropolitan Area. Under this strategy rules and parameters of land use are being formulated (in the project of the Plan of Spatial Development of the Warsaw Metropolitan Area). Planners from regional level are responsible for the concept preparation. The strategy will allow to reach the following goals: establishment of set of regulations to be followed by entities subordinated to regional authority and coordination of sub-regional development programs and projects. The spatial development concept will serve as a platform for negotiations of goals and development ideas among different municipalities and counties. An important goal of the strategy is to promote sustainable development idea and to educate the public about chances and threats resulting from specific development paths. Implementation of this strategy is crucial for solving problems of spatial chaos and finding effective instruments to respond to urban pressure (fig. 10).

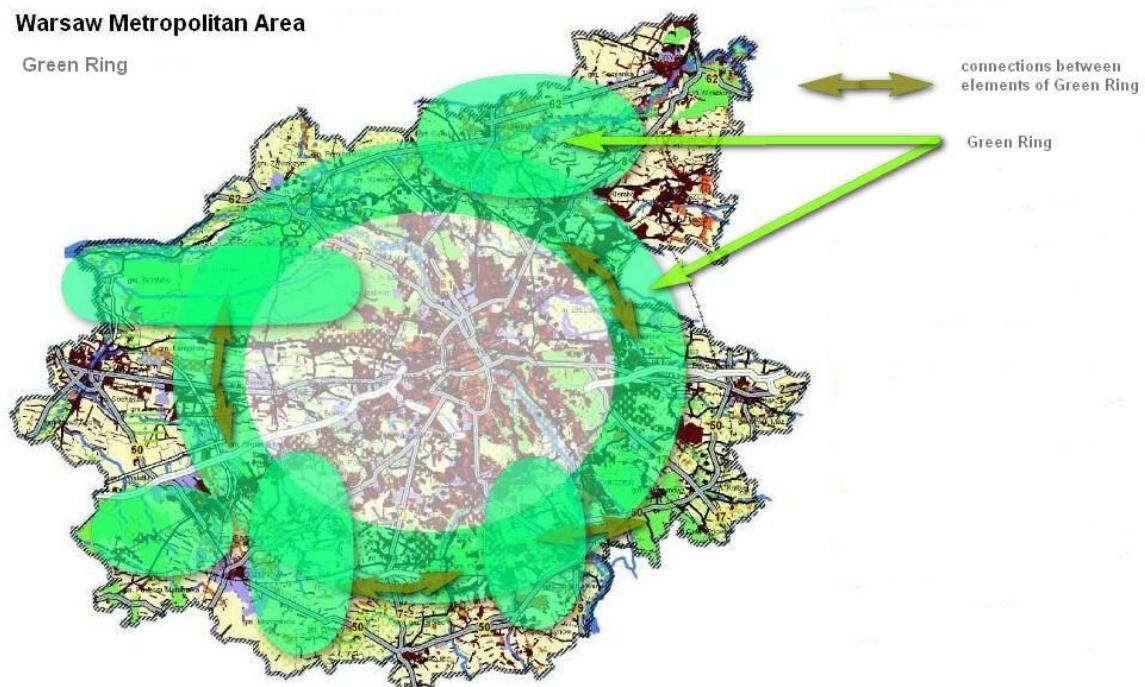
Fig. 10



Strategy: *sectoral programs as a tool to facilitate sustainable development of peri-urban areas (suburban zone nuclei, suburban inner zone, suburban outer zone).*

Sectoral programs lack spatial dimension. This strategy results from the “Strategy of Development of Mazowieckie Voivodship” and concepts incorporated into of WMA spatial development plan and will enable to tailor sectoral programs to specific local conditions. The strategy is being seen as a tool to be used to achieve goals of spatial character like creation of Green Belt around Warsaw (fig. 11).

Fig. 11



6. Conclusions

Building development scenarios was inspiring experience for all participating in the project and confrontation of scenarios with their spatial consequences was educative exercise. Analysis proved that institutional and managerial conditions for sustainable development of the Warsaw Metropolitan Area are lacking.

Casual power of development strategies are limited considerably. Developed scenarios and MOLAND simulation proved that planning intervention is needed urgently. The status quo in terms of development trends and instruments used to guide development processes will lead to deterioration of natural environment resources and dysfunctional character of the Warsaw Metropolitan Area as a territorial socio-economic system.

Limits to growth scenario calls attention not only to the issue of harmonization of development strategies but also to programs and projects resulting from these strategies and their efficient implementation. Continuation of current development trends under existing practice of planning and managing development processes will bring crisis both to Warsaw and municipalities from the Warsaw Metropolitan Area. It seems that the issue of development of peri-urban areas within the WMA will disappear because it will be rapidly shrinking as a results of progressing urbanization. It will be nothing to take care about soon.