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Analysis of the current situation of post-industrial sites in urban areas of three functional zones: Capital City of Warsaw, the City of Plock and the City of Radom together with the city of Pionki

Subtitle

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Index

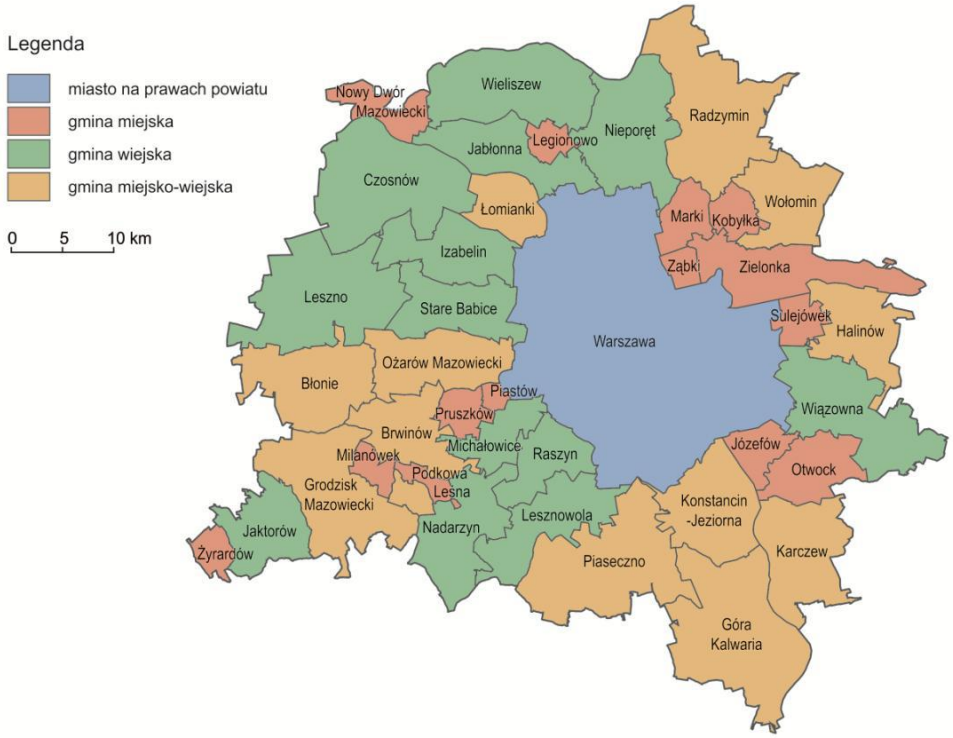
1. GENERAL BACKGROUND AND LOCATION OF THE POST-INDUSTRIAL SITES

Urban functional zone of the Capital City of Warsaw

The Warsaw Functional Area (WFA) includes 40 local governments / municipalities, including the City of Warsaw as the core area and 39 municipalities making up the outer FUAs zone. This structure is varied, it consists of the city with the rights of county (powiat, the city of Warsaw, 14 urban communes (gmina miejska), 12 urban and rural communes (gmina wiejsko-miejska) and 13 rural communes (gmina wiejska).

The surface of is 2,730.23 km^2 with a total population of 2.7 million people, while in Capital City of Warsaw has 1.7 million inhabitants, and in the outer zone approx. 1 million. So specific functional area of Warsaw is one of the largest urban functional areas in the country. The city of Warsaw is the core of WFA. Regarding the potential of the core the analysis of other centers WFA was omitted.

Figure 1. The Warsaw Functional Area (WFA) by type of municipalities[1]



Source: Strategia Zintegrowanych Inwestycji Terytorialnych dla Warszawskiego Obszaru Funkcjonalnego 2014-2020+, Załącznik do Uchwały nr 12 KS ZIT WOF z dnia 9 października 2015 r., s. 8.

The basis for identification of post-industrial zones in the Capital City of Warsaw were findings and records of planning and strategic documents for the Capital City of Warsaw, including Studium

[1] Obszar WOF zatwierdzony uchwałą Zarządu Województwa Mazowieckiego Nr 1466/391/14 z dnia 28 października 2014 r. Kryteria jego delimitacji przedstawiono w dokumencie *Założenia Strategii Warszawskiego Obszaru Funkcjonalnego Zintegrowanych Inwestycji Terytorialnych*. Warszawski Obszar Funkcjonalny wyznaczony dla potrzeb ZIT wchodzi w skład Miejskiego Obszaru Funkcjonalnego Warszawy, którego zasięg opisano w dokumencie „*Kryteria delimitacji miejskich obszarów funkcjonalnych ośrodków wojewódzkich*", MRR, luty 2013 oraz w skład Obszaru Metropolitalnego Warszawy, określonego przez Zarząd Województwa Mazowieckiego w dniu 24 stycznia 2006 r. Zasięg terytorialny Warszawskiego Obszaru Funkcjonalnego zasadniczo zawiera się również w delimitacji MOF ośrodka wojewódzkiego, który wynika z projektu rozporządzenia MIR w sprawie szczegółowych warunków określania obszarów funkcjonalnych i ich granic.

Uwarunkowań i Kierunków Zagospodarowania Przestrzennego m. st. Warszawy [2] (Studium), Integrated Regeneration Program of Warsaw till 2020[3] (ZPR) oraz Urban Development Strategy of Warsaw till 2022[4]. For the analysis also were used findings from the Local Regeneration Programme for the Capital City of Warsaw 2005-2013 (LPR) and microprograms for the regenerated Districts (microprograms).

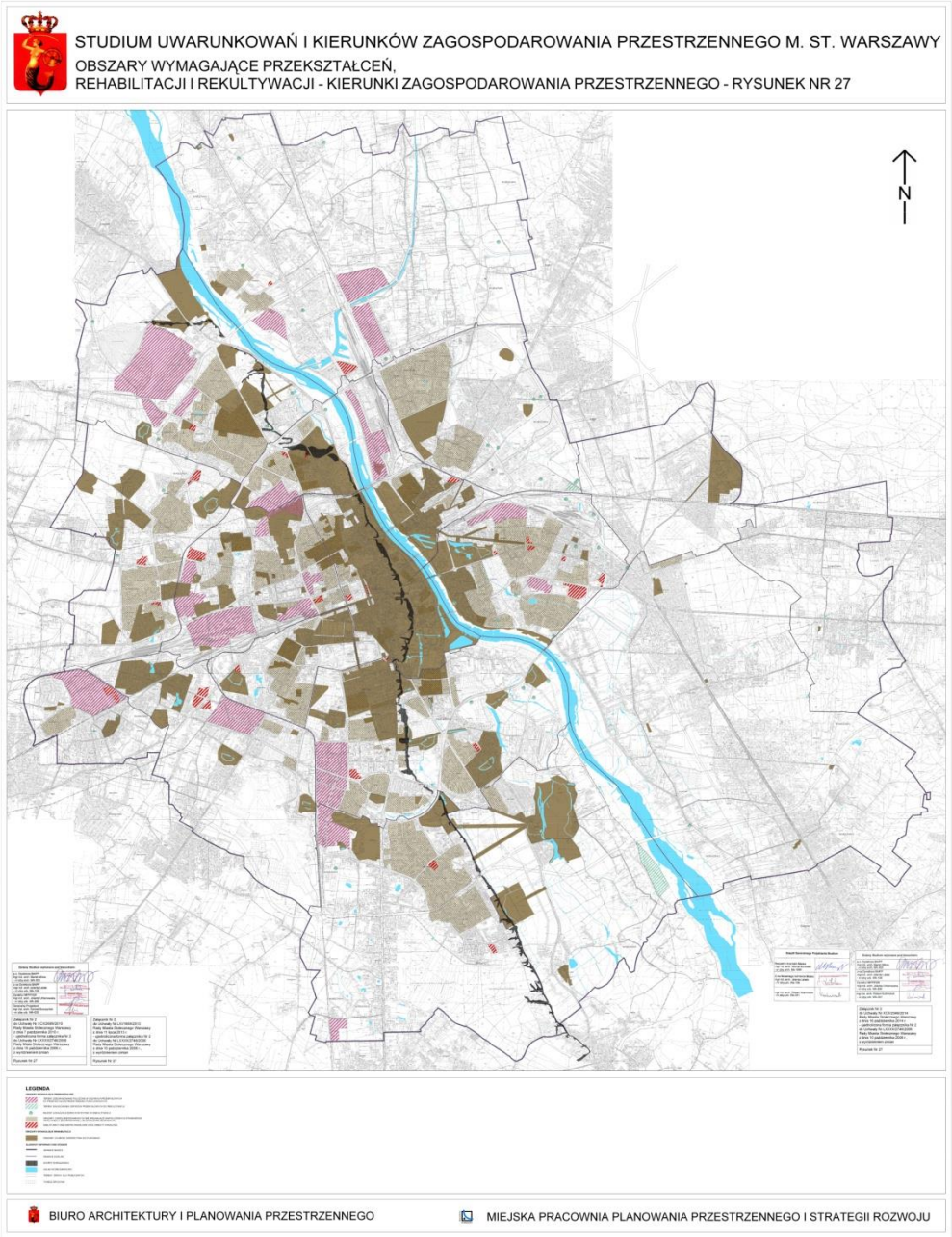
Analysis of the current situation was prepared for the post-industrail sites in the Capital City of Warsaw
in relation to:
1. degraded areas and urban regeneration areas with particular emphasis on the priority areas identified in ZPR, LPR 2005-2013 and microprograms and
2. areas in need of spatial and functional transformation, rehabilitation and reclamation indicated in Studium.
Such an approach to the analysis points to the post-industrial areas that are unused or under-used and in need of regeneration and spatial and functional transformation and at the same time are crucial for the sustainable development of the whole city.

To the problems of post-industrial areas located in deprived areas of the Capital City of Warsaw refer the most important planning documents.
In the study of conditions and directions of spatial development of the Capital City of Warsaw (Studium) the following areas for transformation were identified:

1. areas in need for transformation after reclamation:
   - storage areas for industrial waste from: EC Żerań, Huta Lucchini, identified in Studium for the functional change;
   - areas of illegal dumps located in the protection zone of the main aquifer of quaternary valley of middle Vistula;
2. areas in need for spatial and functional transformation:
   degraded areas located in post-industrial areas, that do not serve their original function, and existing building has been deteriorated. The largest areas of degraded lands are in areas:
   - Żerań (Praga Północ i Białołęka),
   - Lucchini Ironworks (Bielany),
   - Mechanical Plant „Ursus”,
   - Żoliborz Przemysłowy,
   - Czyste i Odolany (Wola),
   - Targówek Przemysłowy,
   - Służewiec Przemysłowy.

[2] Studium Uwarunkowań i Kierunków Zagospodarowania Przestrzennego m.st. Warszawy, Uchwała Rady Miasta st. Warszawy nr LXXXII/2746/2006 z dnia 10 października 2006 r., zmieniona Uchwałą Rady Miasta st. Warszawy nr L/1521.2009 z dnia 26 lutego 2009 r., uzupełniona Uchwałą Rady Miasta st. Warszawy nr LIV/1631/2009 z dnia 28 kwietnia 2009 r., zmieniona Uchwałą Rady Miasta st. Warszawy nr XCII/2689/2010 z dnia 7 października 2010 r. oraz Uchwałą Rady Miasta st. Warszawy nr LXI/1669/2013 z dnia 11 lipca 2013 r., zmieniona Uchwałą Rady Miasta st. Warszawy nr XCII/2346/2014 z dnia 16 października 2014 r.
[3] Zintegrowany Program Rewitalizacji miasta stołecznego Warszawy do 2022 roku, Uchwała Rady Miasta st. Warszawy nr XVII/367/2015 z dnia 17 września 2015 r., zmieniona Uchwałą Rady Miasta st. Warszawy nr XXXIII/809/2016 z dnia 25 sierpnia 2016 r.
[4] Strategia Rozwoju m.st. Warszawy do 2020 roku, Uchwała Rady Miasta st. Warszawy nr LXII/1789/2005 z listopada 2005 r.

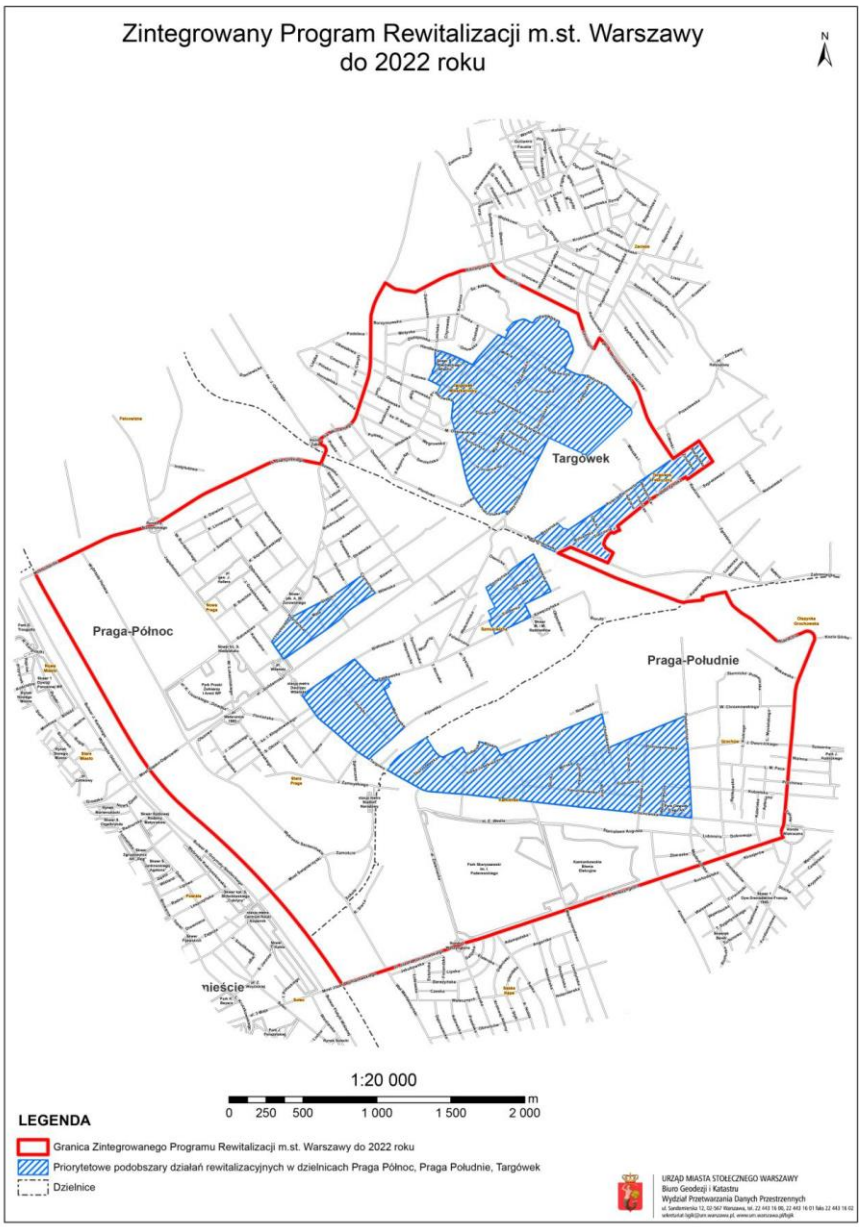
Figure 2. Areas in need for transformation in Studium



Source: Studium uwarunkowań i kierunków zagospodarowania przestrzennego m.st. Warszawy

Integrated Regeneration Program of Warsaw till 2020 as both a strategic document and operational for Development Strategy for Warsaw till 2020 suggests the concentration of regeneration measures in priority areas. Namely in two functional zones: downtown and urban right-bank of Warsaw (Praga Północ, Praga Południe and Targówek – see Fig. 3).

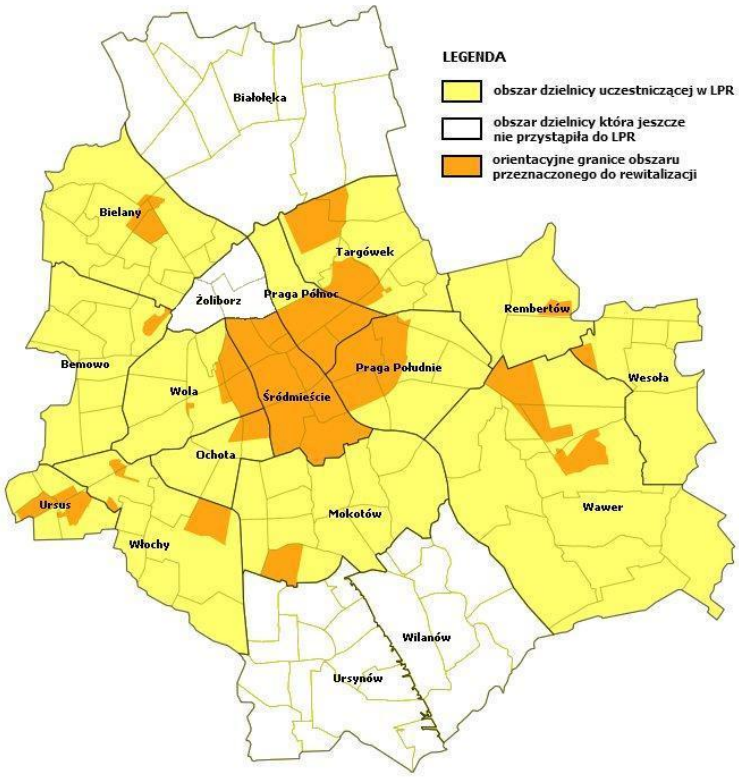
Figure 3. Urban regeneration areas in ZPR



Source: ZPR m.st. Warszawy do 2020 r. s. 29

The problem of degraded brownfield sites has been also included in LPR. This document served as the revitalization strategy of the city of Warsaw, but also the activities of a spatial, social and economic sphere were implemented by the districts (approved at the meetings of the Monitoring Committee for Regeneration). Every individual districts concluded the diagnosis of crisis areas, as well as developed own ways to work towards the revitalization of these areas. Revitalization process included more than 11% of the Capital City of Warsaw (see Fig. 4), including former industrial zones (see Table 1).

Figure 4. Urban regeneration areas in LPR



Source: http://rewitalizacja.um.warszawa.pl/lokalny-program-rewitalizacji-mst-warszawy

Table 1. Selected brownfields included in the strategic and planning documents

Lp.	Obszar poprzemysłowy	Dzielnica m.st. Warszawy	Strefa funkcjonalna na podstawie Studium	Obszar w dokumentach planistycznych i operacyjnych
1.	**Kamionek**	Praga Południe	strefa śródmieścia funkcjonalnego	priorytetowy podobszar działań rewitalizacyjnych Praga Południe (podobszar Kamionek) prawobrzeżna część Warszawy
2.	Obszary na terenie osiedla Szmulowizny (Szmulki)	Praga Północ	strefa śródmieścia funkcjonalnego	obszar położnych w granicach Zintegrowanego Programu Rewitalizacji prawobrzeżna część Warszawy
3.	Obszary na terenie Starej i Nowej Pragi	Praga Północ	strefa śródmieścia funkcjonalnego	priorytetowy podobszar działań rewitalizacyjnych Praga Północ (podobszar Stara Praga, Nowa Praga) prawobrzeżna część Warszawy
4.	Tereny położone na północ od ul. Starzyńskiego, Tereny poprzemysłowe Pragi Północ	Praga Północ	strefa śródmieścia funkcjonalnego	
5.	Targówek Fabryczny/ Przemysłowy	Targówek	strefa miejska	priorytetowy podobszar działań rewitalizacyjnych Targówek (podobszar Targówek Fabryczny), obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych prawobrzeżna część Warszawy
6.	Ursus Obszar poprzemysłowy byłych Zakładów Przemysłu Ciągnikowego ,,Ursus”	Ursus	strefa miejska	obszar przeznaczony do rewitalizacji w ramach MRD Ursus, obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych lewobrzeżna część Warszawy
7.	Żerań	Praga Północ i Białołęka	strefa miejska	obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych
8.	Służewiec/ Służewiec Przemysłowy	Mokotów	strefa śródmieścia funkcjonalnego	obszar przeznaczony do rewitalizacji w ramach MRD Mokotów, obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych lewobrzeżna część Warszawy

9.	Czyste, Odolany Historyczny teren poprzemysłowy wraz z osiedlem Wawelberga	Wola	strefa śródmieścia funkcjonalnego	obszar przeznaczony do rewitalizacji w ramach MRD Mokotów, obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych lewobrzeżna część Warszawy
10.	Rejon Huty Lucchini	Bielany	strefa miejska	obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych
11.	Żoliborz Przemysłowy		strefa śródmieścia funkcjonalnego	obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych

Source: own.

As seen above, degraded post-industrial areas that were covered by revitalization activities in ZPR and are indicated in Studium for the spatial - functional transformation are located mainly in the areas Żerań (Prague North, Białołęka), Lucchini Ironworks (Bielany), Mechanical Plant "Ursus" (Ursus), Żoliborz Przemysłowy, Czyste and Odolany (Wola), Targowek Fabryczny, Służewiec Przemysłowy (Mokotów) and Kamionek (Praga Południe).

These areas include mostly industrial districts created in the late nineteenth and early twentieth century. Such as Wola, Targówek, Praga, and in the 50’ in twentieth century (Służewiec, Ursus, Bielany, Żerań). They are mostly areas that do not act now its primary function and existing building were significant deteriorated. Degradation of these areas is related to, among others, the change in the structure of the industry and the collapse of area-consuming production branches. Within these districts, part of the area has been transformed in the last few years and now features service, office, commercial and cultural functions (Studium, 2006, s. 18).

Taking into account the priorities of the urban regeneration policy in ZPR, for the analysis two areas were selected located in the districts of Praga Południe and Targówek.

1. Kamionek
2. Targówek Fabryczny

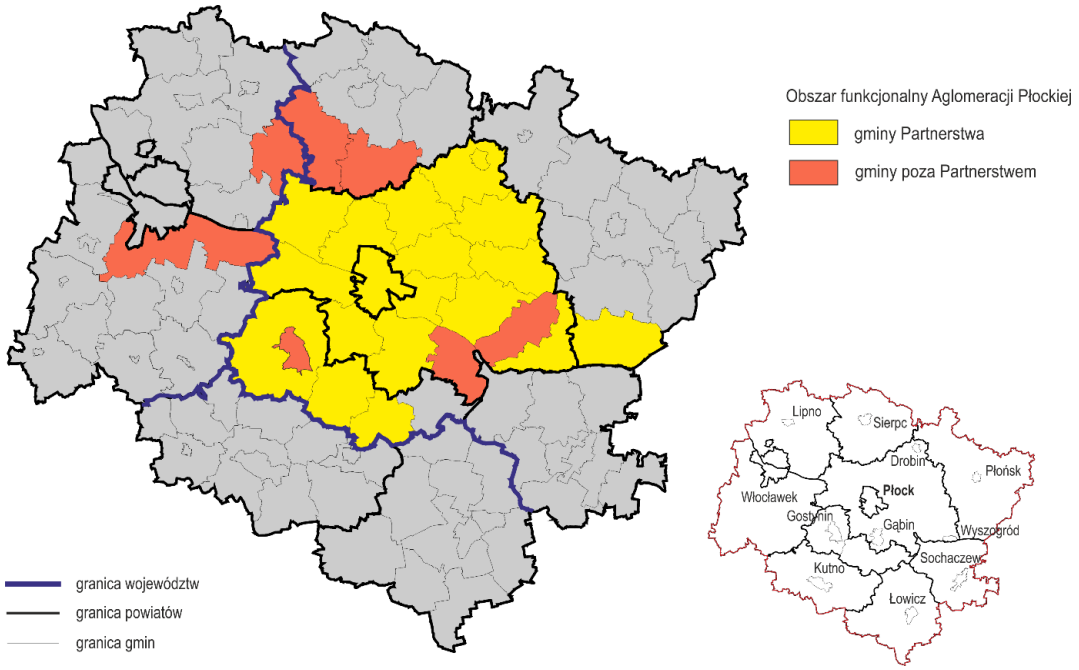
This choice was also dictated by the fact that ZPR points for these sites specific urban regeneration measures and dedicated budget.

Urban functional zone of Płock

The Functional Area of Płock Agglomeration (FAPA) has been defined for the project "Cooperation in the Area of Functional Płock Agglomeration Key to the Integrated Development of the Sub-Region", co-financed by the Technical Assistance Operational Program (2007–2013). The Płock inter-municipal partnership is an institutionalized one, in the form of the Association of Municipalities of the Region of Płock.

The FAPA consists of the municipalities forming the Association of Municipalities of the Region of Płock: City of Płock, city and commune of Drobin, city and commune of Gąbin, city and commune of Wyszogród, commune Bielsk, commune Bodzanów, commune Brudzeń Duży, commune Bulkowo, commune Czerwińsk upon Vistula, commune Gostynin, commune Nowy Duninów, commune Łąck, commune Radzanowo, commune Pacyna, commune Słupno, commune Stara Biała, commune Staroźreby oraz commune Szczawin Kościelny and the Płock County[5].

Figure 5. The catchment area of the Functional Area of Płock Agglomeration (FAPA)



Source: Zintegrowana Strategia Rozwoju Obszaru Funkcjonalnego Aglomeracji Płockiej, Warszawa, 2015, str. 6

As part of the project "Cooperation in the Area of Functional Agglomeration Plock key to the integrated development of the sub-region" the boundaries of functional area were identified, there were set common goals for FAPA development in various sectors, strengthened existing cooperation within the framework of local government in FAPA. As a result of the project was to strengthen the functions of agglomeration of Plock, along with the expansion of ties between the city and its surroundings - thanks to the implementation of the project few strategies were developed, including sectoral ones:

a. Integrated Strategy of The Functional Area of Płock Agglomeration (FAPA),

[5] http://www.drobin.pl/index.php/58-ofap/309-obszar-funkcjonalny-aglomeracji-plockiej

b. Strategy for Energy Efficiency,
c. Strategy for sustainable transport,
d. Concept for coherent plumbing system,
e. Strategy for urban regeneration FAPA.

At the level of the abovementioned strategic documents was the formulation of development directions of FAPA in 2025, including integrated impact on the economic, social, environmental and spatial sphere. In the first four documents there were no brownfields in FAPA identified, nor any action been dedicated to them.

The strategy of urban regeneration - as the only remaining documents dedicated to FAPA - is restricted to the area of the city of Plock and 3 other cities, which are the centers of urban and rural municipalities, i.e. Drobin, Gabin and Wyszogród. Those municipalities have a total surface of 13.9 thousand ha and 132.7 thousand residents. Strategy for urban regeneration FAPA created a system in which the action in Plock are completed by the projects planned to be implemented in small towns located concentrically in other three cities of the functional area[6].

The strategy of urban regeneration FAPA identified degraded areas within the limits set by the regeneration programs of Plock, Drobin, Gabin and Wyszogród, and in particular:

- Local Urban Regeneration Program for Płock – update for 2007 – 2013 and next years (Płock, May 2009),
- Local Urban Regeneration Program for Gąbin 2007 – 2013, then 2014 – 2021 (prepared in 2006),
- Local Urban Regeneration Program for Wyszogród 2008-2020 (2007),
- Local Urban Regeneration Program for Drobin 2005-2015 (update July 2007).

In the city of Plock there were distinguished 10 areas eligible for urban regeneration because of the concentration of high levels of poverty and exclusion, high long-term unemployment, high rates of crime and delinquency, low rate of economic activity, low level of housing value. Two main types of intervention are designed for these areas i.e.:

- Integrated urban renewal measures dedicated for these 10 areas: Osiedle Stare Miasto, Osiedle Kolegialna, Osiedle Dworcowa, Osiedle Kochanowskiego, Osiedle Dobrzyńska, Osiedle Skarpa, Osiedle Łukaszewicza, Osiedle Międzytorze, Osiedle Radziwie, Osiedle Trzepowo, Osiedle Tysiąclecia;
- Housing infrastructure – w obrębie sześciu obszarów Osiedle Stare Miasto, Osiedle Kolegialna, Osiedle Dobrzyńska, Osiedle Skarpa, Osiedle Międzytorze, Osiedle Radziwie, Osiedle Trzepowo.

The methods used to identify degraded areas at the level of local urban regeneration programs: Plock, Gabin, Wyszogród, Drobin made it possible to identify regeneration areas mainly in the downtown and historic city centers.
Degraded industrial areas have been identified at the level of LPR City of Plock, in the form of:

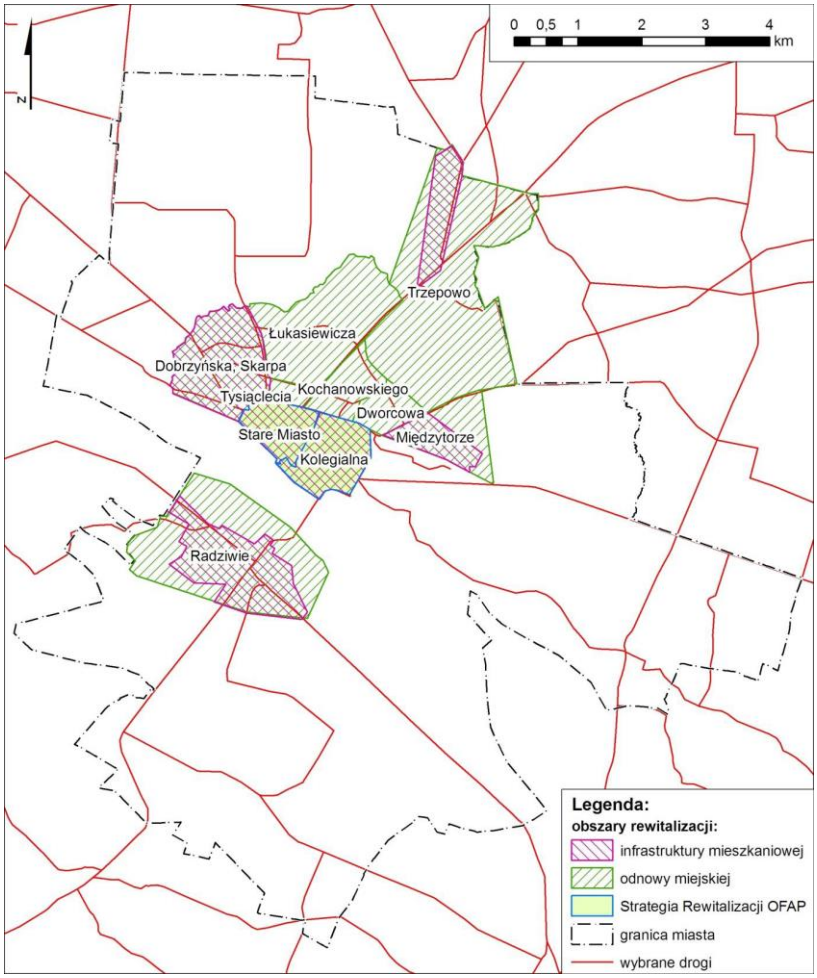
- **Osiedle Łukasiewicza** so called ”Nowe Centrum”. The area combines the function of the industrial and the residential function. In the 60s, the construction of an industrial area –

[6] Strategia rewitalizacji obszarów miejskich dla Obszaru Funkcjonalnego Aglomeracji Płockiej, W-wa, 2015 r., str. 7

Kostrogaj – were complete, which function is preserved to this day. In this area some firms operate, warehouses and industrial plants are also located. Despite the measures taken this area requires further transformations.

- **Osiedle Międzytorze** – created in the 70s in the technology of "big board". This place serves as a typical bedroom with a team of 11-storey buildings and a 4-storey. At the same time the area is Levi's factory and the site of the former department of knitting manufature COTEX, which is subjected to the process of revitalization also.
- **Osiedle Radziwie** - estate at the left bank of the city, connected to Plock in 1923. In the 1920s it served as a commercial port, which in the following years was extended. Currently in this area, among others, river shipyard produces floating objects. Areas adjacent to the shipyard require a transformation.

Figure 6. The boundaries of urban regeneration area defined by the Local Urban Regeneration Program for Płock 2007-2013



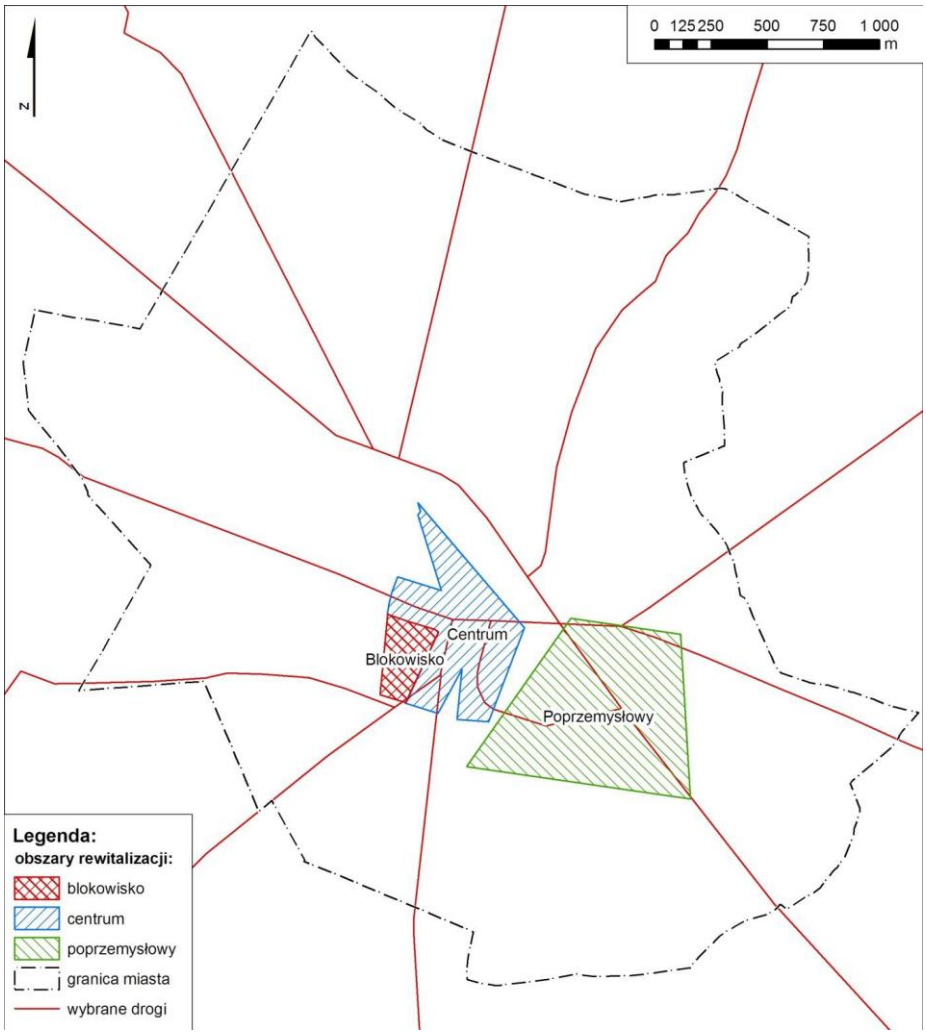
Source: Strategia rewitalizacji obszarów miejskich dla Obszaru Funkcjonalnego Aglomeracji Płockiej, str.22

and Local Urban Regeneration Program for Drobin 2005-2015 in the form of:

- Post-industrial areas limited by the streets: Piłsudskiego, Płońska, Nowa, Kopernika, Ogrodowa, Tupadzka. Formerly the biggest plants were located there. This area is characterised by huge devastation. Only few buildings were leased or sold by the private owners. These buildings still need refurbishment and renewal. The area is inhabited by 299 people (2014), covers 54 ha (5,6% of the city area).

Due to the intensity of the phenomena of a crisis in the central area, it was adopted as priority. Other areas - due to the fact that together with the area of the centre – don't exceed the limits in terms of the number of inhabitants and the total area of the community, treated as areas in which revitalization activities may or may not be implemented.[7]

Figure 7. The boundaries of urban regeneration area defined by the Local Urban Regeneration Program for Drobin 2005-2015



Source: Strategia rewitalizacji obszarów miejskich dla Obszaru Funkcjonalnego Aglomeracji Płockiej, str.36

In the Local Regeneration Programme Cities Drobin for 2005-2015, there is no detailed diagnosis of post-industrial area. There were planned only one undertaking - "Reconstruction of the street in the Garden Drobin" on the length of 0.246 kilometers (to be exercised until 2009.).

The main objective of the Strategy for urban regeneration FAPA was indicated "strengthening the central areas of cities through their multi-faceted and integrated renewal." Thus, in the programming phase of urban regeneration FAPA there was no proper identification of degraded or not planned activities dedicated to these sites.

At the level of implementation of the Local Regeneration Program of Plock - Update for the years 2007 - 2013 and the following years carried out activities dedicated area within the post-industrial

[7] Strategia rewitalizacji obszarów miejskich dla Obszaru Funkcjonalnego Aglomeracji Płockiej, W-wa, 2015 r., str. 35

site New Centre, among others in the form of a project entitled "BUDMAT - Revitalization of the area of the former factory Harvest Machine in Plock - Stage VII."

In summary, within FAPA accumulation of brownfields occurred in the area of Płock. Due to the regeneration activities undertaken in the previous financial perspective within the industrial areas of the New Centre and between the tracks, these areas do not meet the current premises of former industrial zones. As a result of actions taken by the new investors, some of which have been partially developed and are currently being used. This applies in particular areas with the best transport accessibility (e.g. the grounds of the former factory at Harvest Machine ul. Otolińska, the grounds of the former Plant Knitting "Cotex", Graniczna, Wyszogrodzka, land river shipyard in Radziwie).
For the purposes of this analysis should be considered that the basis of indications of brownfields FAPA are the arrangements of planning and strategic documents of Plock, i.e. Study for conditions and directions of spatial planning in Płock[8] (Study), Urban Regeneration Program for Płock[9] and Development Strategy of the City of Plock till 2022[10].

Analysis of the current situation was developed for brownfields in Plock in relation to:

1. degraded areas and areas revitalization with particular emphasis on the areas identified in Płock Revitalization Program,
2. areas in need of spatial and functional transformation, rehabilitation and reclamation indicated in the study,
3. planned development areas identified in the study and the overall Development Strategy of the City of Plock.

Such an approach to the analysis points to the industrial areas that are unused or under-used and in need of regeneration and transformation of spatial and functional at the same time are crucial for the sustainable development of the city.

To the problems of industrial areas located in the area of degraded areas and the revitalization of Plock refer most important planning documents. In Study there were identified following areas in need for transformation:

1. area between Bielska and Przemysłowa streets;
2. area of former Cotex Knitting Plant with neighboring areas;
3. housing area near Gnura street;
4. area of former sugar factory Borowiczki.

Among aforementioned areas only the one, namely the area of former sugar factory Borowiczki, meets the criteria for post-industrial site[11].

Taking into account the policy priorities set out in the Urban Regeneration Program for Płock, first in the analysis the brownfields located in specific sub-areas of regeneration activities were highlighted.

[8] Załącznik nr 2 do Uchwały Nr 565/XXXIII/2013 Rady Miasta Płocka z dnia 26 marca 2013 roku
[9] Załącznik do Uchwały Nr 442/XXV/2016 Rady Miasta Płocka z dnia 29 listopada 2016 roku
[10] Załącznik do Uchwały Nr 411/XXIX/08 Rady Miasta Płocka z dnia 25 listopada 2008 roku w sprawie: przyjęcia Strategii Zrównoważonego Rozwoju Miasta Płocka do 2022 roku
[11] Tereny poprzemysłowe zgodnie z definicja zawartą w Programie rządowym dla terenów poprzemysłowych przyjętym przez Radę Ministrów w dniu 27 kwietnia 2004 roku to zdegradowane, nie użytkowane lub nie w pełni wykorzystane tereny przeznaczone pierwotnie pod działalność gospodarczą, która została zakończona

Degraded areas in the city of Plock adopted in 2016 under art. 8 paragraph 1 of the Urban Regeneration Law with use of criteria for concentration of negative social phenomena and economic and technical, which inhibit sustainable development of the city and lead to a reduction in the quality of space and deterioration of quality of life of residents.

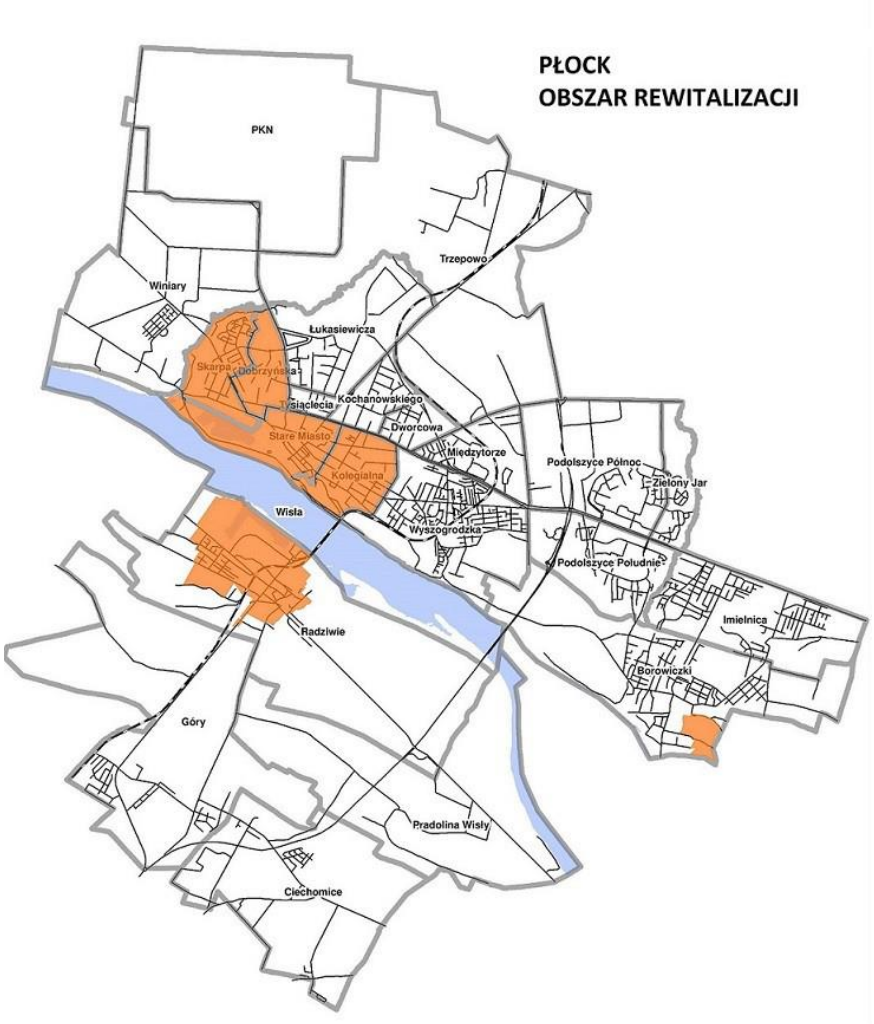
As a result of diagnoses indicated in Resolution No. 277 / XV / 2016 of the City of Plock dated 26 January 2016 on the designation of the degraded area and regeneration area in the city of Plock, following parts of the city are defined as an area degraded os. Dobrzyńska; axis. collegial; Pradolina Vistula; axis. Radziwie; axis. Slope; Old Town; axis. Millennium.

The regeneration area includes four areas:
1. Old Town, os. Kolegialna,
2. os. Dobrzyńska, os. Skarpa,
3. Radziwie,
4. The area of the former sugar factory Borowiczki.

Thus, the Study and Urban Regeneration Program for Płock indicate the area Sugar Borowiczki as a key area for sustainable development of Plock, demanding revitalization actions and spatial and functional transformation.

The authors of the analysis consider as doubtfully, however, the validity of the inclusion of the revitalization area of land of the former sugar factory Borowiczki, because the area has not been indicated in Resolution No. 277 / XV / 2016 of the City of Plock dated 26 January 2016 on the designation of degraded area and regeneration area in the city Plock as degraded.
According to the art. 10 paragraph 1 of the Urban Regeneration Law, the regeneration area covers all or part of the degraded area, characterized by a particular concentration of negative phenomena (...), where due to the importance for the development of the local municipality intends to revitalize. Thus art. 10 paragraph 1 cited above Urban Regeneration Law indicates that the regeneration area is determined within the degraded area. This condition does not meet the former industrial area of sugar Borowiczki that has not been designated as degraded under the conditions laid down in art. 10 paragraph 3 Urban Regeneration Law.
Lack of fulfillment through the former industrial sugar Borowiczki degraded condition does not restrict the possibility of regeneration projects in this area - in accordance with art. 15 paragraph 3 regeneration projects included in the municipal revitalization program may also be effected outside the revitalization, if this is due to their specificity.

Figure 8. The boundaries of urban regeneration area defined by the Urban Regeneration Program for Płock

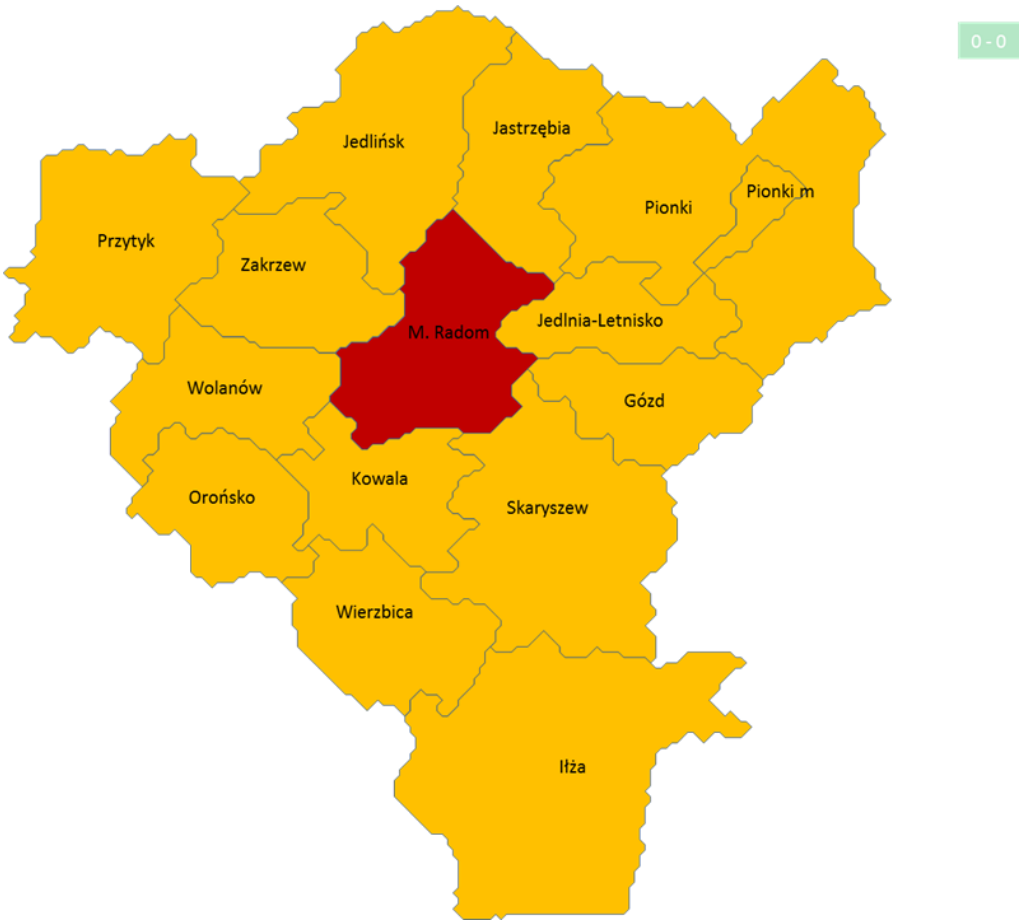


Source: Płocki Program Rewitalizacji

Radom and Pionki functional zone

The Radom Functional Area (ROF) is defined for the project "The Strategy of Development of the City of Radom Functional Area (ROF)", co-financed by the Operational Programme Technical Aid (2007–2013). The ROF has expanded the area defined during the project, which consists of Radom and the municipalities of Gózd, Iłża, Hawk, Jedlińsk, Jedlnia Letnisko, Kowala, Pionki (the rural commune and the city), Przytyk, Skaryszew, Wierzbica, Wolanów, Zakrzew and Orońsko. The project was coordinated by Radom City, which invited to participate in the project, implementation and elaboration of main documents all local government units within the ROF. Radom county and the municipalities included in the ROF as partners. The agreement on participation in the project was signed with the county of Radom and all 13 municipalities which form its composition. Municipality Orońsko, located in the county of Szydłowiec, has not signed the agreement. Organizational form, the basis of which there will be a ROF, has not been determined, several municipalities have adopted resolutions worked out. It was assumed that the ROF will be open to new partners, but the actions are not continued after the project.

Figure 9. Administrative scope of the Radom Functional Area (ROF)



Source: Strategia rozwoju miejskiego Radomskiego Obszaru Funkcjonalnego (ROF), Warszawa, s. 7.

The project "Strategy of urban development Radomski Functional Area (ROF)" defined the boundaries of functional area, set common goals for OF development in various sectors, strengthened existing cooperation JST. During the diagnostic tests there was found that Radom, the core of the City of Radom Functional Area, has particularly strong links with communities Jedlnia-Letnisko, Zakrzew and Kowala located in the immediate vicinity and ae the most affected economically. Weaker functional relationships of Radom can be identified with municipalities Skaryszew, Jedlińsk, Jastrząb and Orońsko. In the area of ROF, the weakest functional relationships with Radom shows municipality Iłża. A clear development pole in the ROF is the City of Pionki, which creates its own functional area covering the municipalities Pionki, Jedlnia-Letnisko and Gózd. Due to the strength of these functional areas and their bipolar nature of the band development in the ROF axis Radom - Jedlnia-Letnisko - Pionki.

The project was the integration of partners on a number of specific objectives:

1. strengthen the functions of city of Radom and development of functional links the central city and its surroundings by: improving the efficiency of external relations of the city; cooperation of city, county and partner municipalities;

2. delimitation of urban functional area of Radom and identification of common objectives and development of local government units within it;

3. maximizing the differentiation and activation opportunities for investment areas,

4. the development of energy-efficient spatial structures by: a gradual and effective development of infrastructure; implementation of the principle of the primacy of regeneration building against development of new areas; maximizing opportunities activation invest in areas of good accessibility of public transport; properly communicated and coordinated location of traffic generators;

5. ensuring the preservation of features and sustainable development of existing urbanization, including the optimization of land use and delivery of location of apartments in the neighborhood of jobs, urban infrastructure, public and commercial services;

6. preservation and restoration of natural resources determining sustainable spatial development, including the preservation and renewal of natural functions within the network green belt and landscape values ROF;

7. increasing labor market flexibility ROF and increase its attractiveness as a place of residence and service delivery, including proper communication areas to live, work and services, improving the availability of open spaces for recreation and leisure functions;

8. construction of the economic basis for the integration of rail and circular;

9. increasing the absorption capacity support from the EU, to identify the key issues for the system design requirements for thematic funding for 2014-2020; support in the preparation of documentation for projects within the financial perspective 2014-2020.

Project was implemented through four actions:

1. The transport part of strategy "Integrated planning of sustainable transport ROF",
2. The regeneration part of strategy "Preventing problems of development and social ROF through the regeneration of degraded areas",
3. Environmental part of strategy "Network multifunctional open areas of the natural system (green belt),"
4. The implementation of the Strategy for sustainable development of ROF.

In the above mentioned. modules developed strategic and operational documents by 2025, affecting the economic, social, environmental and spatial sphere.

References to the post-industrial sites are abundant both in the Strategy for Development of ROF and documents created in the regeneration part of strategy. The most important from the point of view of the objectives of this study are the information contained in the Strategy, which is why it is worth briefly recall them. In the diagnostic part in the analysis of investment attractiveness of the ROF ROF clearly indicated the potential due to the presence of numerous brownfield sites with good transport links and technical infrastruture:
„ROF area has a wide range of investment areas greenfield and brownfield. As a result of the economic transformation in the ROF fell many industrial plants. For this reason, a number of brownfields that require re-activation, which is important due to their revitalization. An example of a successful development areas of brownfield land is reinvested Gołębiów the former plant Łucznik. In Radom brownfields designed to revitalize are still Potkanow around the streets Tokarska and Żelazna

(7 ha), and the area bounded by the streets of Warsaw, Grójecka and Rybna and the Milky River (15.7 ha). [...] The biggest reserves of brownfields lie dormant in the area formerly occupied by the factory Pronit in Pionki (300 ha). For this reason, Pionki have a very good preparation for the implementation of industrial investments." (Strategia rozwoju miejskiego Radomskiego Obszaru Funkcjonalnego (ROF), Warszawa, s. 11-12).

The above mentioned industrial areas are an important resource ROF, underlined also in the analysis of PEST developed for the Strategy, which identified them as an important element of technological environment. Brownfield redevelopment is an opportunity for all ROF. No coincidence that their reuse has been included in strategic objective 2 (Socio-economic development ROF) for operating 2.1. (Improving the attractiveness of investment and business conditions ROF). The key to this is to be among prepare a coherent investment areas (action 2.1.1). Below is given a description of the actions from the Strategy of urban development Radomski Functional Area (ROF):

2.1.1. Preparation of coherent investment offer of brownfield sites

The basis for improving the investment attractiveness of the ROF is to prepare a coherent investment offer dedicated to both external investors and are currently conducting operations in ROF. Implementation of the measure should be based on a bottom-up activities of individual partners ROF, coordinating each other based on the action of the ROF (see action 1.1.1.) And the current cooperation partners ROF unit responsible for the development of the investment offer of municipalities (see action 1.1.2.).

Preparation of investment areas should be based on available within the ROF brownfields. Available brownfield sites are valuable resources ROF, but require regeneration through their resettlement. These types of sites, with proper preparation, may be of particular interest to investors. They require a significantly lower investment and the activities of the new profile can start much faster than in the place where the plant would arise again. In addition, brownfield sites are characterized by technical infrastructure, which also involves the saving of time and money. An example of a successful development areas of brownfield land is reinvested Gołębiów the former plant Łucznik. Attracting investors to degraded brownfield sites will be an effective tool of regeneration, the effects of which will be felt in areas adjacent to them. In Radom to revitalize brownfields are intended Potkanów around the streets Tokarska and Żelazna (7 ha), and the area bounded by the streets of Warsaw, Grójecka and Rybna and the Milky River (15.7 ha). The largest reserves of brownfields lie dormant in the area formerly occupied by the factory Pronit in Pionki (300 ha). Projects implemented with respect to brownfields should concern primarily increase their availability and filling existing gaps in infrastructure.

It should be noted that the fact invest brownfields depending on the industry and the specific nature of the investor can be both an advantage and a disadvantage (because of the mismatch of the current development needs of the investor). Offer available investment areas should be expanded to offer greenfield. The advantage of greenfield is the freedom of their alignment with respect to the investor. Terms of available greenfield must ensure their equipment in the basic infrastructure.

The offer of investment areas, both the former industrial sites and those greenfield should take into account land available within the subzone of the Tarnobrzeg Special Economic Zone Euro-Park Wisłosan and subzones Starachowice Special Economic Zone. The grounds available under the tender should be more than a spatially coherent (un-areas as far as possible, focus to one another and brownfields) and the concept of spatial and functional ROF (Appendix 2 to the Strategy). The offer should be extended to a system of incentives for investors setting up dedicated able to

benefit from tax relief and exemptions.
Preparing the offer of available investment areas should be supplemented by implementation of investor service system (activity 2.1.2.) And dedicated promotional activities established under Measure 2.3.1.

Source: Strategia rozwoju miejskiego Radomskiego Obszaru Funkcjonalnego (ROF), Warszawa, s. 49-50.

Strong emphasis on the importance of re-use of brownfield sites and making them asset ROF results from diagnostic activities undertaken in the framework is stressed in regeneration part of strategy. The "Integrated program of investment and development jobs in areas revitalized Radomski Functional Area" indicates that the area:

- Radom - "the presence of large industrial areas, including degraded areas is an important issue planning. Their functional transformation have not been the subject of comprehensive studies and guidelines, so far run haphazard, in a spontaneous and uncontrolled from the point of view of mutual relations projects located in these areas, as well as links with the external system in the structure of the functional and spatial city. Brownfields, for the most part well connected and located in areas adjacent to the city center, an important development potential subject to the implementation of the planned restructuring and revitalization of the [...] Due to the large number and area of brownfield sites located in the vicinity of the center (the area after former factory phones, land the weapons plant Archer, areas former Radoskór, railway areas in the vicinity of the railway station, etc.), after transformations they can connect in a continuous structure along the downtown historic" (integrated program of investment and development jobs in areas revitalized Radomski Functional Area, 2015 Radom, pp. 8-9);
- Pionki - "the time of prosperity ZTS" Pronit "remained, infrastructure designed for post-production of the chemical profile and armaments, which requires immediate revitalization" (ibidem, pp. 33).

These areas were also mentioned in previous documents of the two cities on the revitalization:

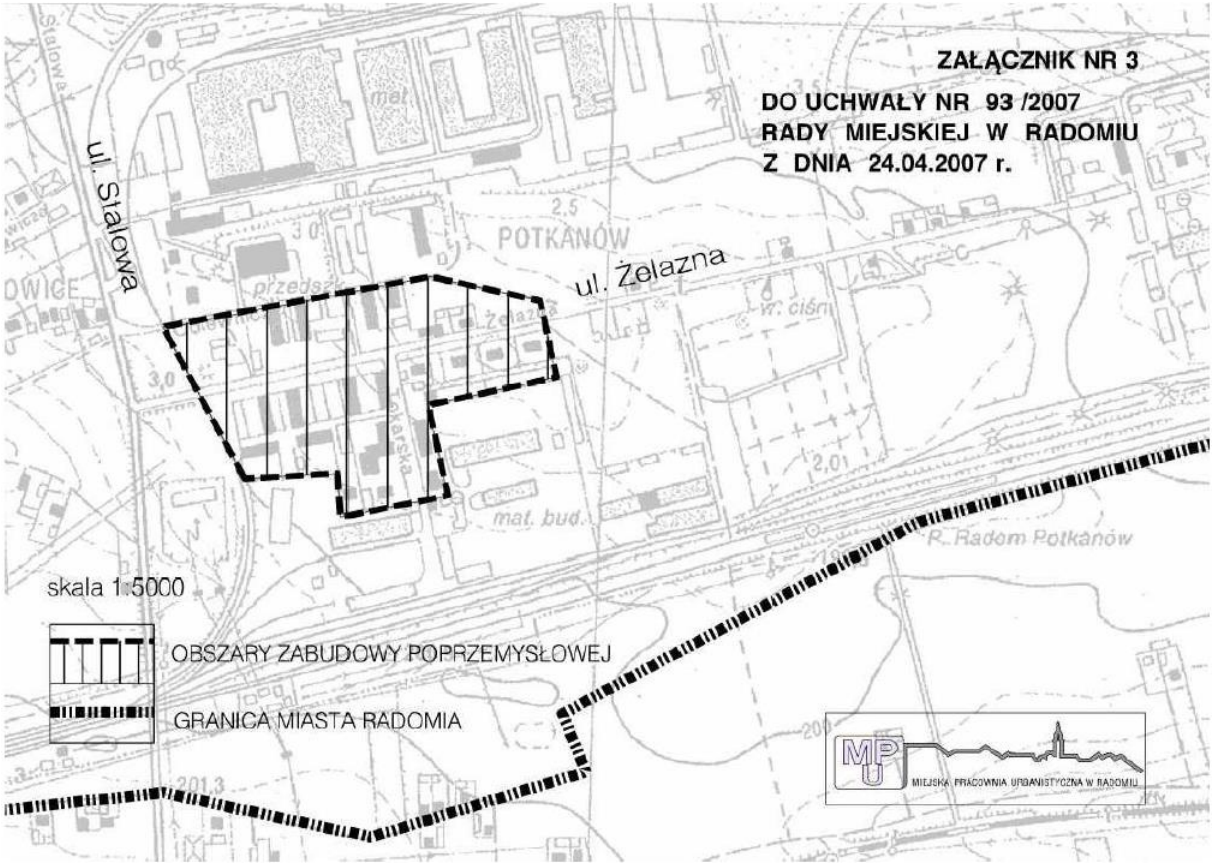
Table 2. Urban regeneration programs in Radom and Pionki till 2013

Gmina	Nazwa dokumentu
Miasto Radom	Lokalny Program Rewitalizacji miasta Radomia na lata 2007-2013
	Lokalny Program Rewitalizacji Miasta Kazimierzowskiego w Radomiu
Miasto Pionki	Lokalny Program Rewitalizacji Miasta Pionki 2005-2013
	Lokalny Program Rewitalizacji Terenów Poprzemysłowych dla Miasta Pionki (lata obowiązywania 2005-2007)

Source: own.

City of Pionki dedicated to the former industrial sites separate document, adopted in 2005. Pilot indicated several tasks, primarily in relation to land after ZTS "Pronit" and "Chemomontaż". The creation of the Department of Research in the field of Fire Safety was planned and also to enhance the attractiveness of the area by incorporating the Special Economic Zone Euro-Park Wisłosan (January 2007).
In turn, the city of Radom indicated next to the city centers to the revitalization of brownfields in Potkanów (ul. Tokarska, Żelazna) with an area of 7 hectares.

Figure 10. The boundaries of urban regeneration area defined by the Urban Regeneration Program for Radom 2007-2013



Source: Lokalny Program Rewitalizacji Miasta Radomia na lata 2007-2013.

The diagnosis appearing in "Program revitalization of the City of Radom for the years 2014-2023," stated outright that it is a city brownfields (p. 31). City Pionki do not yet have adopted a program, but it is in any analogous situation. Brownfields stop now, however, be treated as areas revitalization (in Radom they were not within their reach), while strengthening their economic and social importance, as places may arise attractive jobs.

Updated in 2011, Study in Radom in the part concerning the land use plan identifies the areas requiring restructuring, rehabilitation or restoration only briefly, referring mainly to areas requiring remediation (SUiKZP 2011, p. 99), while areas requiring transformations and / or rehabilitation are described in the section "Other problem areas, depending on the conditions and needs of development occurring in the municipality." Among the areas that require transformation of functional and spatial identified only as brownfields, areas of post-industrial plants located at ul. 1905, Żakowicka, Młodzianowska "due to the attractive location spontaneous, chaotic and haphazard transformed into centers of service-commercial, without links with residential districts" (SUiKZP 2011, p. 102). This is symptomatic of a policy of spatial Radom - the area indicated at this point requires better communicate and deliberate action in the field of merges and divisions of real estate, as a major problem hampering its sustainable investing is the fragmentation of ownership. At the same time, this area, despite the difficulties in the organization of internal communication is so attractive due to armed and favorable location that is used in a variety of shredded commercial, production and service. Its dysfunction functional and spacious, although significantly restrict the development of the city, do not constitute grounds to be covered by revitalization activities or planning, lacking even accessions to the development of local development plans in this area. Other

industrial areas were not included in the study, which may be surprising in the context of statements of former industrial character of the city, as well as the recognition of the structure of post-industrial areas both to the north of the city (the area of the power plant) at its center (near the settlement Piotrówka) and the south (Potkanów). All these industrial areas require a transformation of spatial and functional, and the submission of the social and spatial region of northern (social housing estate at ul. Marii Gajl) also points to the need for intensive revitalization activities in the area.
In the case of Pionki evaluation of the content of the Study of the City of Pionki is difficult due to the lack of availability of this document, it is only available for viewing on paper, which can be a barrier for potential investors. In December 2011 the mayor of Pionki published a notice of accession to the preparation of change Study in the section on areas of former factories ZTS "PRONIT", this change is not available.
Although diagnostic activities and declarations to be negatively assessed the lack of cooperation between Radom and Pionki cooperation in land development investment and formulating a joint investment offer, a prelude to what was to be the project "Strategy of development of the city of Radom Functional Area (ROF)."

2. DETAILED ASSESSMENT OF SELECTED DEGRADED AREAS

2.1. Historic background

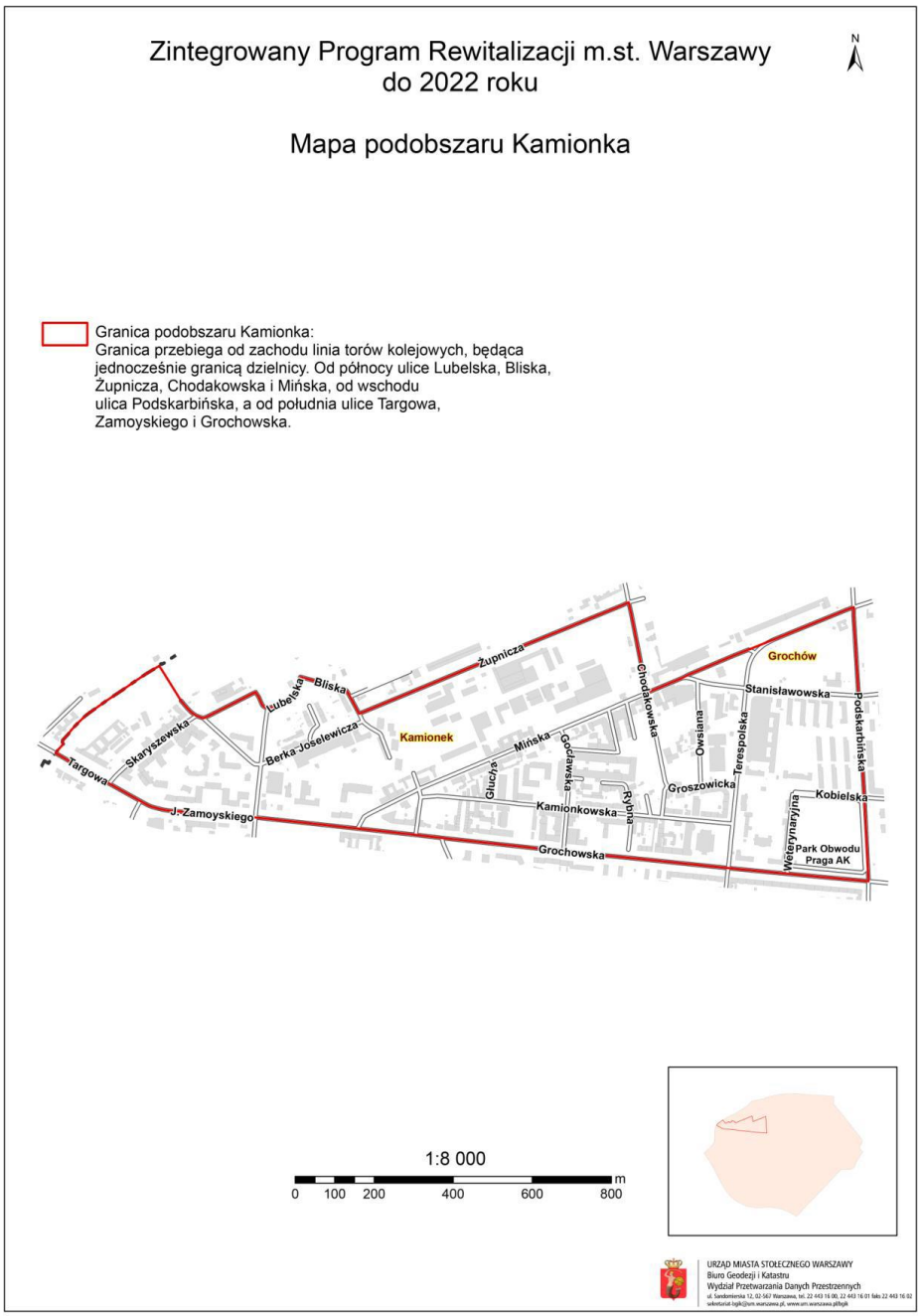
Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

Obszar poprzemysłowy	Dzielnica m.st. Warszawy	Strefa funkcjonalna na podstawie Studium	Obszar w dokumentach planistycznych i operacyjnych
Kamionek	Praga Południe	strefa śródmieścia funkcjonalnego	priorytetowy podobszar działań rewitalizacyjnych Praga Południe (podobszar Kamionek) prawobrzeżna część Warszawy

This is an area located on the right bank of the Vistula River, in the north-western part of the Praga South district, stretching north from the street. Grochowskiej, belonging to the historical part of the district. It covers areas partially brownfields and related settlement workers (SMPS Warsaw City 2022.). Urban layout and buildings have been shaped mainly in the 30s of XX century. And includes historic buildings and industrial architecture. In the immediate area there are railway areas and production facilities (west and north) and residential areas (housing Gocław, Grochow, Saska Kepa).
Nearby Kamionek is also National Stadium (PGE National). Brownfields (post-industrial) located in Kamionek are part of the priority actions of revitalization Praga Południe - Kamionek (ZPR).

Figure 11. Priority urban regeneration area in Praga Południe District – Kamionek



Source: Zintegrowany Program Rewitalizacji m.st. Warszawy do 2022 r., s.237.

Industrial character of the area began to take shape in the late nineteenth and early twentieth century.

In 1889. Kamionek settlement was included in the administrative boundaries of Warsaw. Important factors location in the area of numerous industrial plants were, among others, proximity to the junction railway station - Station Terespolskiego (Eastern Railway Station), the development of the railway network (rail Vistula from Lublin to Mława) and the low price of land and the availability of land for development. At the beginning of the second half of the nineteenth century. Important settlement industry has also become a neighbor of stoneware Grochow. In this area, located several factories candles and soap, matches, brewery, winery champagne, as well as the dye bath and laundry fabrics. In 1920. Jan Wedel area Kamionka, on the shores of Lakes Kamionkowskie locate a chocolate factory, which previously functioned in the city center.

In the interwar period Kamionek transformed into a large industrial district (14% of total employment - the third largest industrial area of employment within the limits of Warsaw). At the same time the settlements adjacent to the stoneware redesigned new housing estates, among others, Society Settlements Workers Street. Podskarbińska. In 1938. In Kamionek operated 42 factories, mainly in the metal industry (90% of total employment - MDR Prague South), among others Electrical Apparatus Factory "Szpotański" Electronic Markets "Borkowski Brothers", State Tele and Radio Engineering Plant, Factory Cars and light duty vehicles and Rubber Products Factory "Rygawar." In the district of factories it was located as the defense industry, among others, Betting ammunition "projectile" and the Welding Equipment Factory "Perun".

The post-war development of the area was associated with the development and location of several new industrial plants such as. Printing Street. Minsk or plants Manufacturing Equipment Telephony - ZWUT Street. Żupnicza, created Clothing Industry Plant "Cora", WSK and Printing Science and Technology.

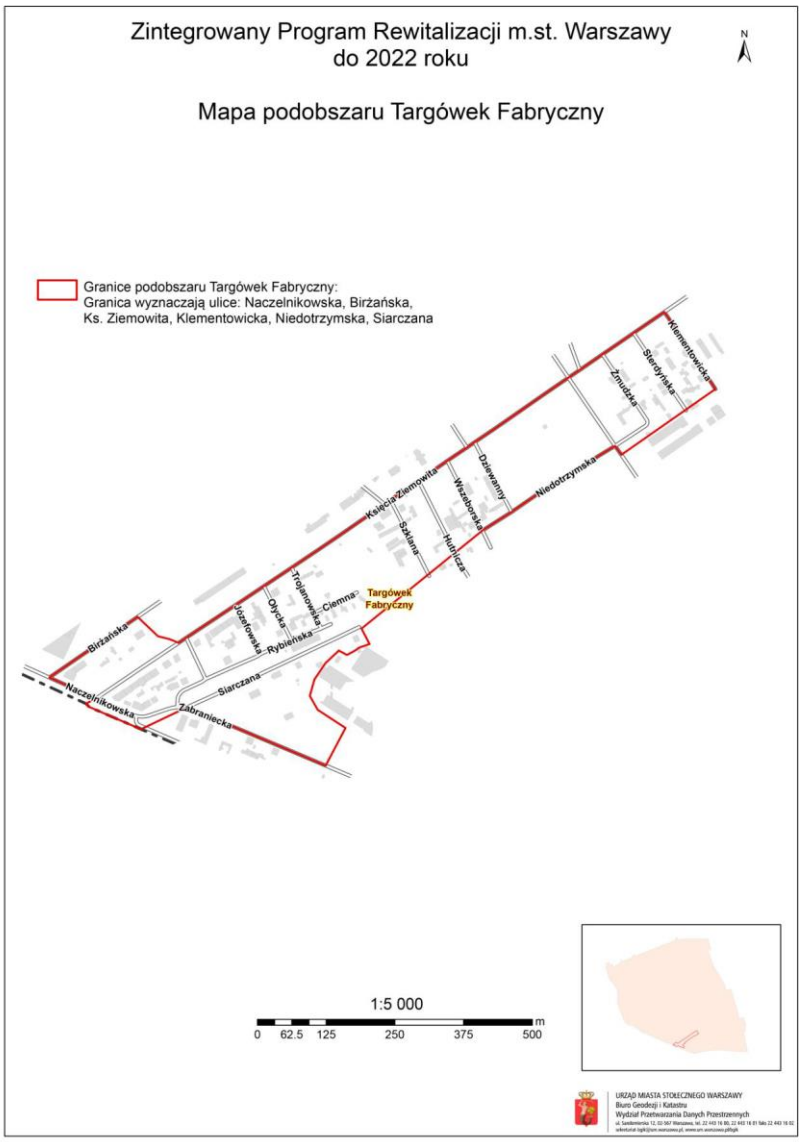
Socio-economic 90s. Resulted in the closure of many factories. Some of them have been transformed and adapted to the new socio-economic functions. The liquidation of a number of factories in the industrial Kamionek resulted in a decrease in the number of jobs. Unemployment has become the greatest social problem of Kamionek.

Targówek Fabryczny brownfield zone

Obszar poprzemysłowy	Dzielnica m.st. Warszawy	Strefa funkcjonalna na podstawie Studium	Obszar w dokumentach planistycznych i operacyjnych
Targówek Fabryczny (Przemysłowy)	Targówek	strefa miejska	priorytetowy podobszar działań rewitalizacyjnych Targówek (podobszar Targówek Fabryczny), obszar zdegradowany wskazany do przekształceń przestrzenno-funkcjonalnych prawobrzeżna część Warszawy

This is an area located in the south-eastern part of the district Targówek. Along with areas Targowek Housing creates a priority sub revitalization activities in the district of Targówek. This area crosses the street. Radzymińska and railway areas. Currently in the area that are located manufacturing facilities, research centers - development workshops, bases, warehouses, depots and enclaves housing and allotments. Part of the area are the "urban wasteland" and degraded brownfield sites. These are areas degraded due to the change in the structure of industry and the collapse of land-consuming industries. In the immediate vicinity of the area is residential development.

Figure 12. Priority urban regeneration area in Targówek District –Targówek Fabryczny



Source: Zintegrowany Program Rewitalizacji m.st. Warszawy do 2022 r., s.241.

Since the nineteenth century Targowek Przemysłowy was a place of settlement construction workers, factories and suburban farms, the remains of which can be identified in space. The industrial character of the estate also recall the names of streets, m.in .: Sulfates, Chemical and Metallurgy. Initially, in the Industrial Targowek they were mainly railway depots. In the PRL This part of town has been earmarked for industrial development. For this purpose, they demolished a large part of homes and displaced many residents. In the 50s the twentieth century. Began to appear numerous factories - Warsaw Betting TV, the base bus and CPN. Unfortunately, these plants and facilities have not survived political changes. Currently, these areas are among the most deprived in the whole of Warsaw. These are typical of former industrial areas, which are largely lost their original function due to long underinvested. The area also progressing degradation of housing. After the political changes the then Municipality of Warsaw - Targówek took a number of actions to change the character of the district and improvement of the investment. We managed to acquire a few large investors. Despite these actions, Targówek area remains dysfunctional. Space of Targowek Przemysłowy was characterized by two elements: the factories and railways - (rail-industrial

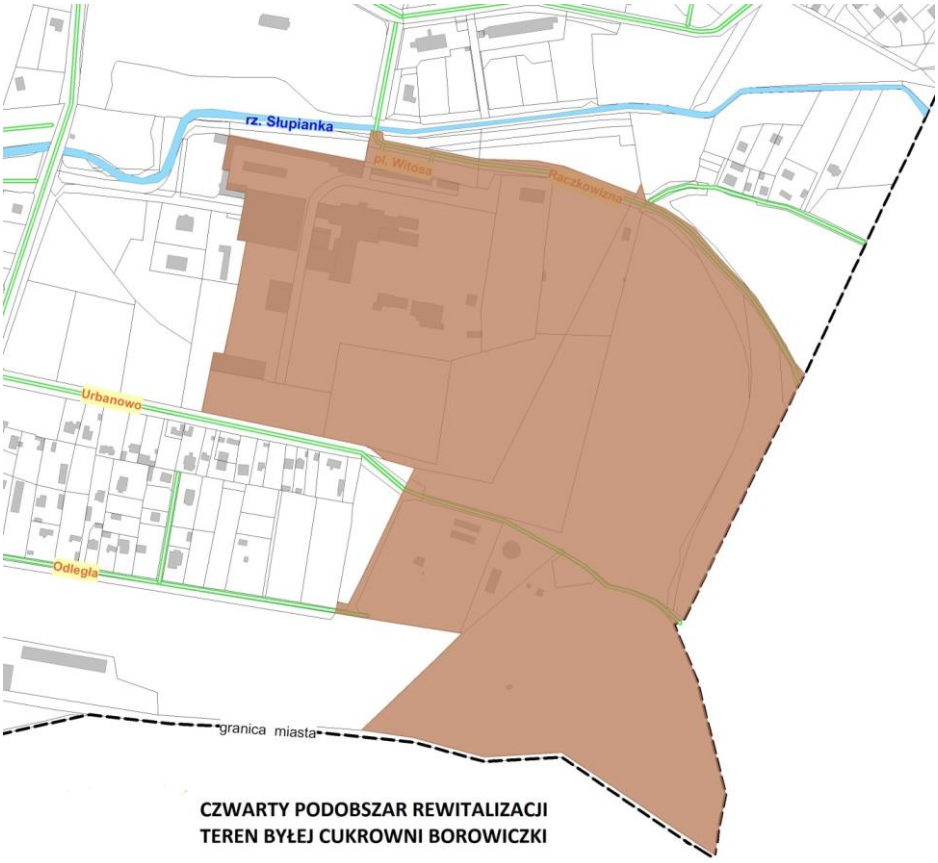
landscape). Both small and large industrial plants were operating here, which came sidings extending from the main railway lines[12].

Płock urban functional zone

The area of the former sugar factory Borowiczki is located at ul. Vincent Witos 1 and covers an area of 26.02 ha. It lies on the river Słupianka, which is a few hundred meters further flows into the Vistula.

Access to the entire property is possible from the Słupna municipal road by Liszyno, from the Plock – Harcerska Street.

Figure 13. Location of former industrial zone – sugar factory Borowiczki



Source: http://rozwojmiasta.plock.eu/wp-content/uploads/2016/02/P4.jpg

Industrial activity began in the area at the time of launch in 1900. Sugar factories by joint stock company Sugar Factory Borowiczki. The production capacity of the plant will enable the first campaign with a length of 44 days.

Photo 1. Main building of the former sugar factory before World War I

[12] http://rotf.waw.pl/

Source: M.Opal „Szlakiem płockiego przemysłu: Cukrownia na Borowiczkach" http://petronews.pl/szlakiem-plockiego-przemyslu-cukrownia-na-borowiczkach

Sugar factory for the whole period of activity was systematically developed, as reflected by longer and longer campaigns, ongoing in the 50s already 120 days. Productivity increased as a result of the modernization and automation of the plant. The whole transformation in sugar lasted until 1971.
In the early seventies we abandoned narrow-gauge railway transport - for road transport.
In the second half of the eighties the development of Sugar Borowiczki slowed because investment funds were mostly transferred to the construction of a new sugar factory in Glinojeck. The purpose of the sugar factory in Glinojeck was supposed to be taking over the production of sugar Ciechanów, Little Village and Borowiczki.
In 1990 the sugar factory Borowiczki became an independent company. In 1991, due to the increasingly important ecological aspect, it launched in the factory biological wastewater treatment industry, and in 1993 - the production of calcium fertilizers. September 1, 1995, the company once again became a public company.
In the 90s it began the restructuring of the sugar industry. In 2002 he was appointed National Sugar Company, and on 30 September 2003 Sugar Borowiczki became part of the company. KSC decided that the campaign 2004/2005 will not join plants in Sokolow Podlaski (Sugar Falcons), Szczebrzeszyn (Sugar Klemensów) Plock (Sugar Borowiczki) and Żnin. With this decision, it ended a century-long activities of the factory and started the slow degradation of buildings and land resulting from the discontinuation of their production within the business.
In 2015, the Sugar Borowiczki letter of intent was signed between the National Sugar Company SA and the Municipality of the City of Plock. The letter was aimed at closer cooperation in the revitalization of the former sugar plant and giving it a new utility function.
Installation sugar from the beginning of the twentieth century. The floor area of the existing 12-building is 14,948 m^2. Few buildings subject to modernization in the 70s.
Most of the objects requires urgent action to allow preservation of architectural and use their potential, and thus halt their further degradation.
It is necessary to find for the area's new destination and use of urban solutions adapted to the changing functions of the area.
The area of the former sugar factory in Borowiczkach - in accordance with the study - should be devoted to service functions.

In the context of the purpose of revitalization, defined for the purposes of Plock Regeneration Program, in the area of the former sugar factory should be used to implement activities contributing to counter the negative social phenomena diagnosed in other areas of the city, including those related to the generation of new jobs, increase the level of education and increase participation in public and cultural life.

Radom and Pionki functional zone

Industrial area on the territory of the former Power Plant in Radom

Power Plant Radom SA was a company with great potential. It consisted of two sources of heat:

- appropriate facility, located at ul. Energetyków 16, having one active boiler,
- The plant North - located at ul. Ziental Family having 4 water boilers and steam boilers.

Photo 2. Abadoned building of the former power plant

Source: http://www.radom24.pl/artykul/czytaj/6981.

Bankruptcy of Power Plant Radom SA was announced in 1998. The company's debt prevented it from functioning and eventually ceased to discharge its liabilities. Since the bankruptcy of the potential of this area is not used, even though it considered various possibilities for development, since the municipality of Radom became the owner of the land. This occurred on 23 June 2004 when between the Power Plant "Radom" SA in bankruptcy and the municipality of Radom, represented by the President and Vice President of Radom an agreement was signed to sell the company. Sale as a whole was in accordance with art. 113 bankruptcy law within the meaning of art. 551 of the Civil Code as a set of tangible and intangible assets included in the accounting records as of the date of sale.

With assets acquired in use is the North heating plant and building water treatment.

The plant North (4 boilers WR-25, with a total power output of 116.3 MW) has become part of the "RADPEC" SA and is part of the district heating network in Radom.

Photo 3. Power plant „North”

Source: http://radpec.com.pl/produkcja.html.

Quite surprising element of this area are located on the 4 blocks of social housing. They have been put into use in 2010 for 300 families. The cost of the investment amounted to over 22 million. In four years the buildings situated on the sidelines to which they are accommodated residents with the greatest problems were largely devastated. Still also affect applications for the conversion of apartments from tenants of these blocks, they also complain about the safety and problems with access to the city center.

Photo 4. Devastated social block in the former PowerPlant

Source: http://www.echodnia.eu/radomskie/wiadomosci/radom/gal/8052645,bloki-socjalne-w-radomiu-sa-wciaz-dewastowane-winni-sa-lokatorzy-wideo-zdjecia,13133085,id,t,zid.html.

2012 it was considered the possibility of creating in the former Power Plant Radom waste incineration plant, in addition to sorting of Radkom. It does not, however, taken action in this regard. In the event of carrying out this investment was considered while their use for other purposes of social houses located at the entrance to the power plant and provide residents of other apartments.

Industrial area in the valley of the river in the area of the Milky Cultural Park "Old Radom"

The part of Milky river valley on the section between the streets and Okulickiego marathon is a place of great historical importance to the Radom. Starting from the eighth century. Just here were created and developed another early medieval settlement, then the first city tracking. To this day, among others, settlement of so called "Piotrówka" and the Old Town urban layout with the church of St. Wenceslas. This area, especially from the second half of the nineteenth century., Was also a place of dynamic development of the industry. The proximity of the river allowed the construction of reservoirs and water-wheel drive, as well as the use of water for technological purposes, especially in tanning. Introduced new technologies and machines over the years have changed the priorities of the location of industrial investment and the rapid development of the city after World War II finally decided to change the character of the area. Starting from the 60s in the zoning of the city more and more attention is paid to the historical and environmental values of the area. In 2011, the City Council decided to establish at this point Cultural Park "Old Radom".

The City of Pionki

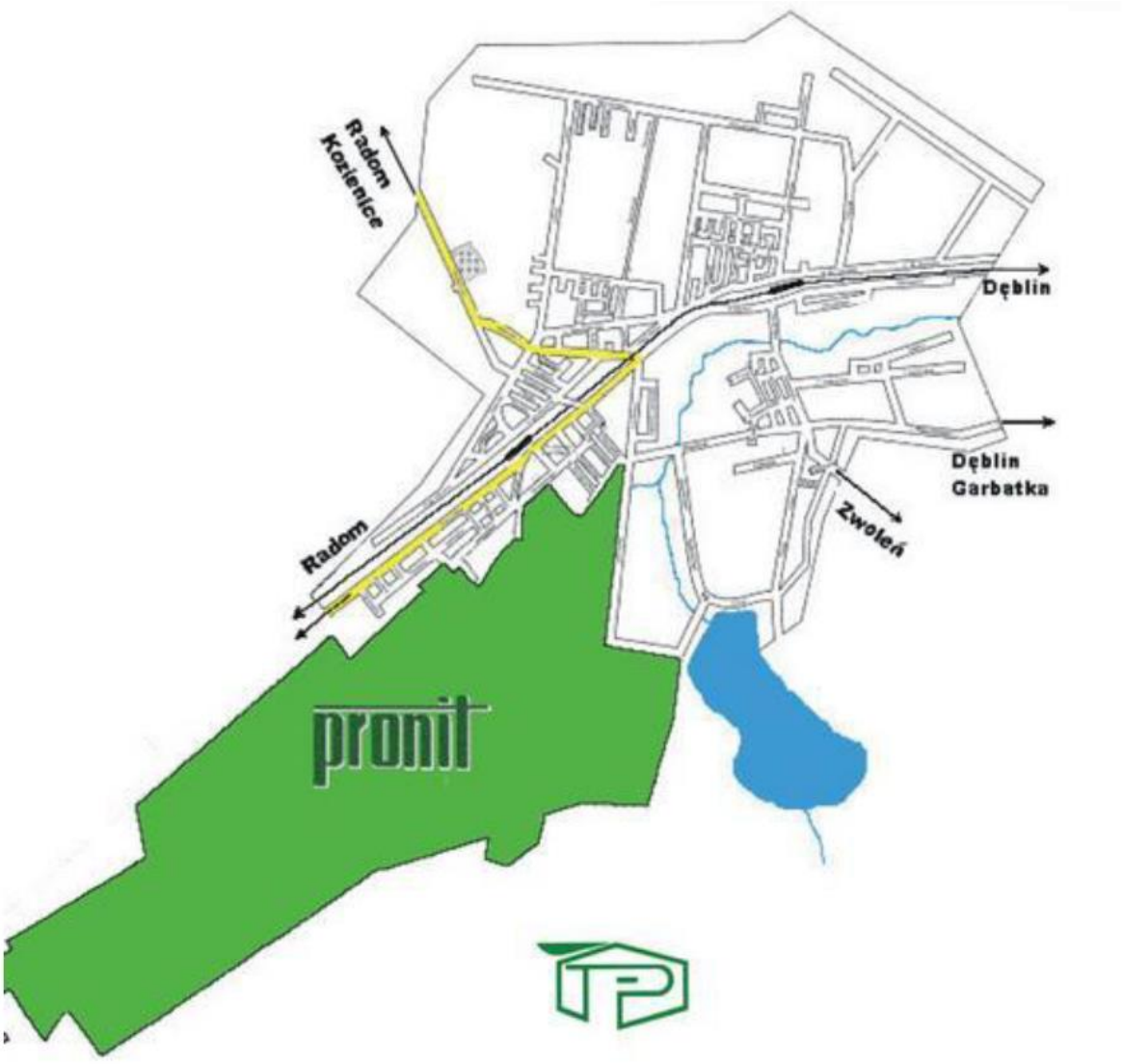
The development of Pionki started in the twenties of last century, when located in this place armaments factory for the Polish army and enabled the city to the Central Industrial District. With factories established a small housing estate workers of the State Gunpowder Factory (later Plastics

Plant "Pronit"). Due to the growing importance of this type of centers after World War II in the settlement they increased the number of inhabitants and in 1954 Pionki received city rights. The city had a typically industrial character, concentrated military industry, chemical and crucial for the functioning of the timber industry. In the nineties of the twentieth century, large industrial plants collapsed, leaving the residents of the city and the surrounding rural commune with the huge problem of unemployment. Together with ZTS "Pronit" fell down the whole branch of state-owned enterprises cooperating with it or its subsidiaries:

- Chemomontaż,
- POLCORFAM,
- pads,
- INSTALEX-BIOX.

The liquidation of the company, which gave even approx. 5,000 jobs after 1989, employment has fallen dramatically, and in 2000 the plant was declared bankrupt. Major social problems began to increase depopulation. Use the attractiveness of good to communicate investment terrains of former ZTS "Pronit" and Chemomontażu has become a prerequisite for the survival of the city. Resulting in the process of transformation of Polish Defense Industry Betting Special Production covered part of the production facilities, technologies, and part of the staff. In the former ZTS "Pronit" remaining infrastructure designed for post-production of the chemical profile and armaments, which requires immediate revitalization.

Figure 14. Location of former industrial site ZTS „Pronit" in Pionki



Source: http://www.pionki.pl.

City of Pionki owns more than 300 hectares of built-up area after ZTS "Pronit" and most of the area shows the portfolio of investment.

Figure 15. Investment area in Pionki Industrial Park

Source: http://boi-pionki.sam3.pl/strona-71-wolne_tereny_inwestycyjne.html.

Investment area is equipped with a media necessary for production, ie. medium and high voltage, water, sewerage system, near the gas. The described area are storage yards - paved, asphalt roads-house with parking. The area is fenced. Investment area is located on district roads in close proximity is also available railway siding. Investment plots are free of contaminants, ready for immediate development. In the immediate vicinity there are no settlements or inhabited areas. Entrepreneurs running or starting business in the city of Pionki offers relief and tax cuts.

Some of these areas are located in the Tarnobrzeg Special Economic Zone EURO-PARK WISŁOSAN. The area is offered for sale / lease with the possibility of any division on the plot.

Currently the offer includes 4 separate areas:

1. Production Department nitrocellulose - PA
   - The plot indicated that in no. 1464/184 built production buildings, warehouse and administrative office. Property in accordance with the local zoning plan of Pionki is located in the area of industrial development.
2. PZ - department of special production (mining explosives)
   - The plot indicated that in no. 1464/80 buildings with specialized production buildings, warehouse and administrative office. Property in accordance with the local zoning plan of Pionki is located in the area of industrial development. The property is armed and has a network of water - sewage, central heating, electricity, teletechnical. Industrial buildings and grounds are equipped with installation, and equipment for the production of special.
3. Division production of black powder.
   - The plot indicated that in no. 1464159 buildings with specialized production buildings, warehouse and administrative office.
4. Part of the plot buildings with specialized production buildings, warehouse and administrative office.

An important context are additional areas of investment available in:

Figure 16. Investment areas outside the Pionki Industrial Park

Source: Zintegrowany program inwestycji i rozwoju miejsc pracy w obszarach rewitalizowanych Radomskiego Obszaru Funkcjonalnego, s. 37.

In the immediate vicinity of the ZTS "Pronit" is abandoned building power plants, which, according to the plans of the city authorities, is to be transformed into the seat of cultural institutions.

Photo 5. Deteriorated power plant

Source: zbiory własne autora.

2.2. Environmental issues and critical aspects

2.2.1 Air quaility

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

In the area of Kamionka, along the main routes there is a high degree of air pollution (emission line). In the area they are also found exceeding the permissible level of particulate matter (PM10) - surface emission. Kamionek is located in the highly urbanized zone, in the area of high intensity of an old building, in which the phenomenon occurs. "Low emission" tied to the individual way of home heating with solid fuels.

Targówek Fabryczny post-industrial zone

Targówek area is a region with the highest level of emission surface. The main source of air pollution in the analyzed area, as in all of the transport Warsaw. The largest concentration of dust and gas pollutants from this source occurs in regions of the busiest traffic arteries (ul. Ks. Ziemowita). In the vicinity of the study area they are located in the main point sources of pollution of air heat and power plants burning coal, oil and mazuty (Zeran, Kawęczyn) and operating in the area of industrial plants with sources of technology. Targowek Fabryczny is also a poorly ventilated areas resulting concentration of pollutants in the area of the city. Area Targowek especially its western part remains within the so-called. "Warsaw heat island".

Płock urban functional zone

The emission of pollutants into the atmosphere by the food industry focuses on dust pollution and gas. Generally it can be assumed that the main source of emissions are organized coal boilers, which discharge carbon monoxide, sulfur dioxide and particulates into the atmosphere. The amount and type of emissions is conditioned by the specificity of production in various industries. Sugar factories emit mainly dust from drying pulp, lime-kilns, transport and packaging of sugar, in particular:

- carbon oxides, sulfur dioxide, nitrogen dioxide, particulate matter and hydrocarbon pollution from coal-fired boilers and coke and pulp drying,
- dust created in Lime (calcium oxide), the transport of sugar beet in silos, packing (dust sugar) and the briquetting (dust wysłodowe)
- carbon dioxide and carbon monoxide in the gas collecting duct and carbonation of the waste gases generated in the process of saturation,
- sulfur dioxide from the sulfur furnace.[13]

Due to the cessation of activities in 2004. Cukrownia by Borowiczki, air quality within the zone it depends on the post-occurring currently in the city of gaseous pollutants.

The state of air quality in the city of Plock is affected by pollution from:

- technological processes (industry)
- emission point,
- from combustion of fuels for heating purposes

13 Kasztelan A., Kierepka M. ”Oddziaływanie przemysłu spożywczego na środowisko w Polsce”, Roczniki Naukowe, Tom XVI, Zeszyt 2

- surface emissivity,
- by the road transport,
- emission line.

The main emitter of pollutants and technology to the air in the city of Plock is Polish PKN ORLEN SA and separated from the structure of the company ORLEN Asfalt, ORLEN Oil, ORLEN KolTrans, ORLEN Laboratory and Petrol Station of PKN ORLEN SA

Another important source of air pollution in the city is a emissions the home furnaces, boiler individual and collective. It occurs in areas with compact detached houses, multi-family with lots of hearths and service establishments industrial and small in size.

As a result of annual air quality assessment, made on the basis of data WIOŚ for 2014. They have been defined zone in Mazowieckie, in which action should be taken to restore an area of existing air quality standards.

The evaluation of the levels in terms of health showed that both zone Mazowsze and zone Plock is considered to be Class A (the concentration levels of pollutants do not exceed acceptable levels, targets, goals, long-term) because of the content of sulfur dioxide, nitrogen dioxide , benzene, carbon monoxide, lead, arsenic, cadmium, nickel target.

Due to cross the permissible levels PM10, PM2.5 dust and benzo (a) pyrene and the region of Mazovia zone Plock classified as class C. The concentration levels of PM10 in the region and Plock were very high.

For the classification of zones also used spatial distributions of concentrations of PM2.5. In all zones has been exceeded the target (25 ug / m3), and therefore received the class C2, as well as the permissible level plus the margin of tolerance (26 ug / m3), and therefore received a grade C.

The concentration levels of benzo (a) pyrene identified in PM10 in Mazowieckie were high. The highest concentrations were in areas where low emissions of individual heating buildings is dominant. As a result of the classification of a class C received all zones.

The course of the annual series of measurements can be read clear seasonal variation of dust concentration (higher during the cold, lower in summer). So we can assume that the reason for exceedance in the heating season is the low emissions from the municipal sector that affects the marked deterioration in air conditions of cities, including in Plock.

Radom and Pionki urban functional zone

Brownfield in Radom

The basic tool for the assessment of air quality measurements of concentrations of harmful substances. In Radom measurements are carried out for the entire city and on this basis WIOŚ publishes an annual assessment of air quality (classification A, B, C). In 2015. The city area was selected to the Class C due to exceeding the PM10. In addition benzo (a) pyrene contained in PM10 exceeds the target level. PM10 emission is greatest during the heating season and comes mainly from municipal and domestic sources, primarily from the areas of single-family housing.

The City of Pionki

In 2015 the city area was selected to the Class C due to exceeding the PM10. In addition benzo (a) pyrene contained in PM10 exceeds the target level. Relevant information concerning the air quality in Pionki in the context of post-industrial heritage of the city can be found in the "Strategy of development of the city of Pionki for the years 2016-2022." The document states that:

„Emissions to air in Pionki is relatively small. The main sources of emissions are energy installations burning fuel and passageways of pollution from fuel combustion vehicles. Technological installations located in the city play a secondary role, because the plants with production profile - especially harmful to the environment - there is very little. Sulphur dioxide is emitted primarily by local boiler houses, burning contaminated with sulfur dioxide. Nitrogen oxides derived from the burning of coal, coke, gas and gasoline vehicles. Dusts - are emitted into the atmosphere together with the exhaust gases from combustion of solid fuels. Fluor resulting from the burning of coal and lead, coming from road transport is also air pollution. The average concentration of pollutants emitted into the air during the winter is several times higher than in summer. In Pionkach permit the introduction of air gases or dusts has 8 enterprises" (Strategia rozwoju gminy miasto Pionki na lata 2016-2022, 2016, Pionki, s. 31).

With this background is visible environmental hazard arising from the operation of the municipal heating ZTS "Pronit", the main provider of heat (water vapor) in the city. This is the facility which shall continue to apply outdated boilers and installations. Depreciation of these installations makes the most of the particulate matter, sulfur and carbon monoxide is emitted by just heating plant. In order to minimize emissions of these pollutants, and consequently also of environmental charges have already taken measures to upgrade the heating network, so that you can use in the process culm high-calorie and low sulfur content. It is planned to further modernization of urban heating "Pronit" towards a change of fuel from coal to green or the installation of flue gas desulphurization and dust removal and heating networks, particularly high performance, through the exchange of cables in channels on the pre-insulated pipes with monitoring.

2.2.2 Quality of surface and ground water

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

The analyzed area is located in close proximity to the Vistula River and directly on Lake Kamionkowskie. The waters of the Vistula River in Warsaw throughout the episode were classified into pozaklasowych. Data from a study of rivers and canals made in recent years indicate that despite unsatisfactory and poor quality of water in the Vistula River, it shows a slight decrease in the rate of degradation. The main source of surface water pollution are urban and industrial effluents, discharged from the area of the city of Warsaw primarily drainage system. Warsaw is the largest agglomeration of collecting water and wastewater discharge to the river. Sewer in Warsaw is divided into two independent systems - left-bank and right-bank. The left-bank pays no municipal sewage treatment, mainly by the collector Burakowski and Bielański. The right-bank almost completely discharged municipal sewage and industrial mechanical-biological treatment plant "Czajka"

The location area in the vicinity of the Vistula is also associated with Ryżki flooding and flooding. On the right bank within the reservoir water a thousand years (with a probability of p = 0.1%) the entire district Prague South. Areas is protected Wał Miedzeszyński (the Poniatowski Bridge), further diametric shaft, along the coast of Szczecin and the Hel, with a total length of 3.6 kilometers (bridge Gdansk).

In the area Kamionka is Lake Kamionkowskie (Previous month) and the Channel Exhibition. Lake Kamionkowskie is preserved fragment severed the old riverbed of the Vistula River with a length of approx. 800 m and an area of approx. 8 hectares (formerly extended shoal located between the Vistula and stoneware Park Skaryszewski). It is located at the slope of the terrace of the Prague nadbudowanego embankments. The tank is connect with Lake Gocławskim across the Channel Exhibition. North, the high edge of a slope terrace Prague (3-5 m), the other edges of the low. At the eastern shore is marshy vegetation szuwarowo-reed.

Until the early twentieth century, Lake Kamionkowskie have a direct connection with the Vistula. Currently, modified western section is the Port of Prague separated from the tank. However, it is connected to the central pool, an indoor channel port - the so-called. collector stadiums, running under al. Zieleniecka areas and the National Stadium. The waters of Lake Kamionkowskie are of poor quality which cause a large amount of pollutants discharged channel Exhibition. On the lake they are connected to the Duck Ponds. These reservoirs and Lake Park are part of the composition Skarszewskiego.

Targówek Fabryczny post-industrial zone

In the immediate vicinity of the area is a channel Bródnowski. The area is devoid of surface water. A large part of the area occupied swamps and wetlands. The process of drying started before the war.

Płock urban functional area

Food industry is part of the industry which is characterized by a high degree of water consumption and consequently the production of large amounts of waste water. It is estimated that the greatest amount of water is used for washing the raw materials that may in some plants to 50% of total water consumption.

A serious problem is the waste originating from the food industry. They arise at different stages of technological processes, eg. When washing and processing of raw materials. In sugar production process produces the following types of wastewater:

- waste in the form of plant residues, dirt and sand, oils and fats, chemicals, additives, products and detergents,
- cooling water,

- usually are exceeded the legal limit value of the index COD, BOD, total nitrogen, total suspended solids, dissolved solids.[14]

For the purposes of the sugar industry in the sugar Borowiczki was launched cleaner mechanical-biological type Bioblok 2x WS 400. After cleaning the waste water is discharged into a drainage ditch, then the river Vistula. Sewage sludge is transported to a treatment plant
in Maszewo, due to the lack of equipment sludge.
Due to the cessation of activities in 2004. Cukrownia by Borowiczki, the quality of surface and groundwater Plock is currently shaped by the municipal sewage industrial and discharged into the water from the city.
As the results of research WIOŚ water quality in the Mazowieckie Province is the result of pressure from the water intake, discharge into the waters of municipal and industrial wastewater and pollutants from the tributary called. spatial sources.
The pressure associated with the discharge of waste water into surface water has a direct impact on the reduction of the natural section of the Vistula River valley in the region of Plock.
Surface water quality evaluation performed by WIOŚ included the monitoring of almost all the rivers of the area. The ecological status of rivers has been defined as:

- good - for research points located on the river Motława River; Osetnica of supply from Bud Kaleńskich to the mouth; Skrwa from Sierpienica to the mouth;
- weak - channel Troszyński; Skrwa left from the inflow of jez.Lucieńskiego to the mouth;
- moderate - Słupianka, Brzeźnica, Rosica; Skrwa Left (other measuring points); Osetnica from the sources to surcharges apply. Bud Kaleńskich, with surcharges apply. Bud Kaleńskich, Wierzbica, Płonka.

For most of the crossing points concerned the physicochemical parameters. The status of water bodies after determining meet additional requirements has been identified as bad.
In 2013. Polish Geological Institute in Warsaw, commissioned by the Chief Inspectorate for Environmental Protection, made a study of groundwater in one point located in the OFAP, also located in the area of the impact of river basins identified as vulnerable to pollution by nitrates from agricultural sources, ie. Skrwa Left - JCWPd 47. Poor chemical status was found in 3 shots (15.79%):
- In the fourth grade classroom 2 Points: No. 2167 Wymyśle Polish and No. 2168 - Wincentów, pow. Plock,
- In the fifth grade classroom at one point: No. 1856 - Plock.
About IV and V class quality of shallow groundwater JCWPd 47 decided nitrate concentration.
In the above mentioned. points for several years are observed periodically high concentrations of nitrates, and at the point of No. 1856 - Plock high their content, above the good status of 50 mg NO3 / l, it states since 2009.

Radom and Pionki urban functional zone

Brownfields in Radom

The purity of surface waters in Radom is assessed on the basis of the monitoring carried out by WIOŚ. Based on studies from the years 2010-2015 the water in the river of the Milky been classified as class IV purity. On the existing state of purity of surface waters adversely affect uncontrolled discharge of sewage, rainwater washes odżelaziaczy. In these waters is a considerable amount of nutrients and organic matter. The city authorities plan to conduct restoration and meandryzacji

[14] Kasztelan A., Kierepka M. ”Oddziaływanie przemysłu spożywczego na środowisko w Polsce”, Roczniki Naukowe, Tom XVI, Zeszyt 2

approx. 0.5 km of the river Milky on the section between the streets Okulickiego a marathon, as well as sealing and adaptation of the sewage through the use of sediment-biofiltracyjnego. Within the section the quality of the groundwater aquifer layer main use is good, classified as Class II or Ib. City water is supplied from deep-water intakes, water has a high content of iron and manganese and a very good quality.

City of Pionki

Through the city flows the river, Zagożdżonka about fourth grade purity. Water management company operates water supply network with a length of over 109 km, whose origins date back to the thirties of the twentieth century. City's water supply is now conducted on the basis of two shots, "Januszno", which is currently operated five wells and "Forest", which consists of three deep wells. In Januszno is located one clean water tank with capacity. 150 m3. With the water supply system at the end of 2014. Used by 97.76% of the total number of inhabitants, but it should be emphasized that the year-on-year, the number of people using the water mains drops, which results from the progressive depopulation of the city. This results in decreasing the consumption of water in the city. The existing water supply system in the city of Pionki fully covers the needs of residents and services for drinking water and the needs of economic and living conditions. The existing water supply systems also protect the necessary amount of water for fire protection purposes.
Drainage has a length of over 88 km.
In Pionki is not possible to build a landfill due to the existence of the Main Groundwater Reservoir GZPW 405. Waste from the Pionki goes Regional Waste Department in Radom.

2.2.3 Soil quality

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

In the area Kamionek occur soils very strongly transformed. However, there is detailed information on soil quality in the areas of post.
Referring to somehow soils in the whole Warsaw agglomeration were exhibiting poor soil quality, which due to high intensity of development and investment that are subject to continuous transformation. Among the main directions of these changes include, among others, reclamation work on brownfields or other artificially formed and objects for development of green or the other functions related to recreation, accumulations in soils admixtures of anthropogenic origin (debris, glass, municipal waste, concrete, wood, etc.). In some industrial areas of soil were also chemical transformations of permanent or transitory, it is possible to determine on the basis of laboratory tests. Factors that may cause chemical transformations include: anthropogenic pollution, chemical substances from transport (including flue gas, fuel oil), heavy metals and other contaminants from industry, transport, services and chemicals used for road maintenance in winter.

Targówek Fabryczny post-industrial zone

The area is characterized by inclement building, marks the location of the young embankment construction. The soils strongly degraded chemical found in the area Kawęczyn (Targowek).

Płock urban functional zone

oil in the functional area in accordance with the scheme of genetic Polish soil are soil is made of aluminum, squeaks, gravel and river inflows. The soils are light podzolic, brown and fawn. In the valleys of the larger rivers there are alluvial soils, the type - alluvial soil. These areas are very diverse in terms of quality, classified II - IV quality class. Farmland high-class valuation (I - III), resulting from soil mineral origin are protected. There are areas of municipalities: Drobin, Starozreby, Bielsk, Radzanowo, Słupno. Valuable soils, protected, are also found in the western part of the municipality Wloclawek, forming a large and dense complexes. These are largely black earth and brown. In contrast, the area municipalities Łąck, Slubice and Gabin are soil organic IV - VI quality class.

There is no detailed information on the current. Soil quality in the area of the former sugar factory Borowiczki. It can be assumed that the 100-year-old sugar industry activities permanently influenced negatively on the quality of the soil in the area. The source of the negative impact on the quality of the soil was the production of waste generated during the manufacturing process sugar:

- sludge and solid waste (beet waste, packaging),
- liquid waste (used oils),
- slag, sand, stones and debris beet.

In 1982, the Plock area were inundated by the floods. Flood took tens of thousands of hectares in the areas of sugar, which evacuated 14 thousand tons of sugar. As a result of flooding floodwater increased risk of a broad negative impact on the quality of the surrounding soil, caused by the production activities of sugar.

In summary, there is no possibility of assessing the current quality of the soil area constituting the brownfield site of the former sugar factory Borowiczki because of the lack of available sources of information. The recognition of this area as there has been demoted as a result of the evaluation of the technical aspects and the spatial and functional, rather than the environment - both in the study of conditions and directions of spatial development of the city of Plock and Urban Regeneration Program.

Radom and Pionki urban functional zone

Industrial area in the valley of the river in the area of the Milky Cultural Park "Old Radom"

In terms of lithological area of the river valley galaxy it is composed of songs that can be classified into groups as mechanical sands poorly clay and loamy sands strong, with interbeds of silt, often dusty. A characteristic feature of the construction of lithological valley is a large amount of organic substances with poor load-bearing properties. At the relevant section of the valley are chemical pollution and the resulting organic conducted industrial activities, especially related to the expedition skins. As a result, created a park culture in recent years, a series of additional expertise and research in this area, including: the analysis of trace elements in sediment samples taken from the valley of the Milky study geological and geomorphological, geochemical studies along with the analysis of Holocene transition trough analysis of sedimentological (grain size) of sediment samples. These studies confirmed the presence of substances in the soil are particularly harmful to health, eg. Chromium compounds, as well as the retention of organic and inorganic waste.

Industrial area on the territory of the former Power Plant in Radom

At the site of the former PowerPlant soils are of poor quality. An important factor is not the case, however, the quality, but the impurity. According to the "Study of Conditions and Directions of Spatial Development" on the east side of the land is situated landfill dust defunct power plant designed, most likely after the adaptation, on a municipal landfill. This is the embankment area of approx. 7 ha, which were collected (hydraulically transported in water emulsion), dusts precipitated from the flue gas power plants currently in liquidation and the area is waiting for a new way to use. The protection zone around the landfill is 1000 m (SUiKZP 2011, s. 127).

The city of Pionki

The soils used for agricultural soils are very poor (34 ha of soil class IV and 14.5 ha of soil class IV b). The remaining (approximately 216 ha) to soil classes V and VI. Gleb classes I to III is not at all. In the valley of the river Zagożdżonka can find soil that should be classified as degraded soils. Their quality and very bad water conditions do not allow any of their use. Even the regulation of water does not allow for a long period of time, for their agricultural use. Due to the poor quality of the soil agriculture plays a minor role in the economy of the city. There is no medium and large farms, the average area of a farm is almost twice lower than the average size of farms in the region (5.61 ha) and is only 2.9 ha.

2.2.4 Natural heritage and its potential impact

Urban funktional zone of the Capital City of Warsaw

Kamionek post-industrial zone

The most important resources of the area and its vicinity include the Vistula river valley and Park Skaryszewski. Kamionek area is associated with the natural area of the Natura 2000 Central Valley river. Important links of these links are the Park Skaryszewski, green areas around the PGE National and green areas located in the Port of Prague. This is a very important elements of the natural systems of the city and significant relationship because of the potential power of the biological urban areas of the Vistula River Valley. In the area there are also spot forms of protection of nature, including natural monuments. Lake Region Kamionkowskie and some woodlands has been recognized as forms of green supra-regional, which represent significant natural and landscape values.
The state of the natural environment in the analyzed area is the result of too intense urbanization and industrialization of Vistula River, the pace was not adapted to the changes of the environment.[15]

Targówek Fabryczny post-industrial zone

The area Targowek Frabryczny for a long time was seen as devoid of greenery. The basic form of it in this area are squares and gardens allotments. The area borders the wooded areas of the old Jewish cemetery and the Catholic cemetery Brodnowski.

Płock urban functional zone

The area of the former province of Plock is very poor in forests and occupies one of the last places in the country in terms of forest cover (less than 5%).
The most valuable natural resource and environmental within FAPA is located in Plock.
City of Plock from the west, south and east is surrounded by a system of ecological corridors related primarily to the vast valley of the river. From the east and south of the city surrounded by a corridor delineated within the network ECONET: 20M - nodal area of the Kampinos Forest. From the west while: 07K - an area node Gostynin Lake. These are natural strings, which are ecological connections between areas of high potential biotic. For local routes include linking the broad valley of the Vistula river valleys of small streams, which include Rosica, Brzeźnica and Słupianka.

Natural resources create natural barriers, that affect mainly spatial development of the city.

In the city it is nearly 160 buildings listed in the register of monuments. These include, inter alia, urban band - architectural and cultural layers of the city of Plock, covering an area whose boundaries start from the west to the outskirts of Dobrzyn, by st. Nowowiejskiego and Sienkiewicz to the gates of Warsaw and the Vistula River from the south.

In the city of Plock are 183 archaeological sites, as determined by the Archaeological Photos Polish.

[15] Zintegrowany Program Rewitalizacji m.st. Warszawy do 2022.

Within the sugar Borowiczki there are no legal instruments for the protection of nature. But in the immediate vicinity of the site is the ecological corridor of the Vistula River Valley, which has valuable natural and landscape values.

In addition, the protection and conservation are subject to the main building and the manor - park complex sugar with the requirement to preserve their cultural values - natural.

Radom and Pionki urban functional zone

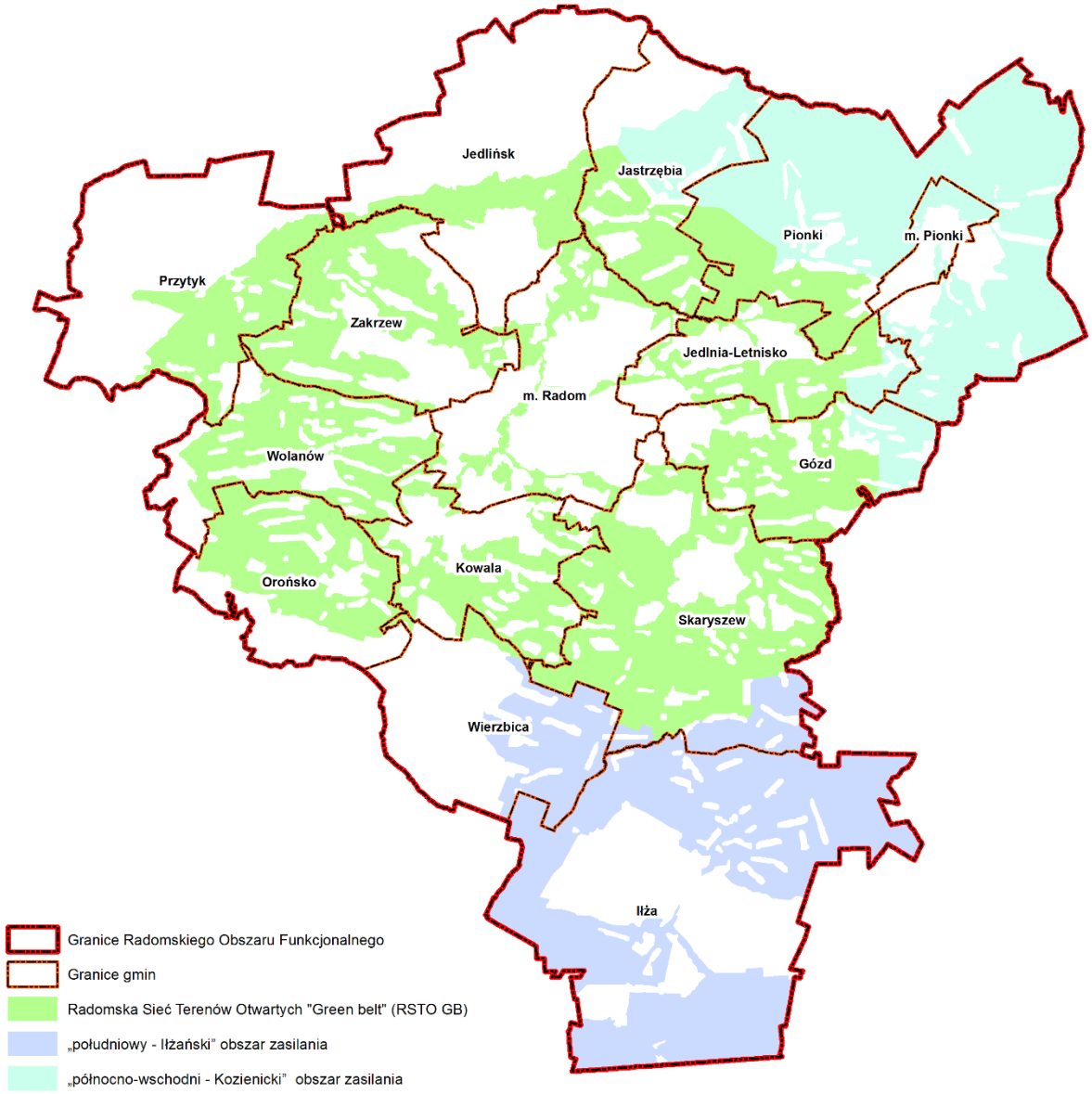
Brownfields in Radom

The state of the natural heritage of Radom primarily affects the strength and permeability of natural links with external nature. River Valley Milky determines the most important ecological corridor of the city, which through a network of connections connects to the valuable natural areas outside of town (Forest Kozienicka), including core areas of international importance. With these valuable areas of power is supplied to the biological conditioning preserve the natural heritage of the valley Galaxy. It is also significant influence of internal factors: environmental and anthropogenic. Environment, the level of groundwater, air quality, urban climate stabilization, the amount of green areas, soil quality. Anthropogenic, the pressure on the development of green areas, devastation of forests and greenery, incoherent spatial policy in relation to green areas, considerable fragmentation and diversity of ownership of green areas. Preservation of the natural heritage of this portion of the valley Milky is essential for the improvement of living conditions, can also form the basis for breaking the impasse in the economic development and basing it on the natural and cultural, recreation and tourism and related services.

City of Pionki

Pionki, despite the industrial heritage, they provide thanks to its location on the edge of the former Kozienice Forest area very attractive landscape. Forests cover 833 ha, that is 45.3% of the total area of the city, including the area of the Kozienice Landscape Park Pionki in the northern part of the city with an area of 607.07 hectares. Forests managed by the State Forests (Forest District Kozienice). In this area it is part of the forest reserve Pionki, which covers an area of 81.6 ha. In addition, the former ZTS "Pronit" is located approx. 243.37 ha of forests of the Treasury, of which approximately 161.1 hectares belongs to the Municipality City Pionki, and the other in the majority of the Special Production Plant. o.o. These are important stabilizers ecological balance. In the course of analysis aimed at the delimitation of Radom Network Areas Open "Green Belt" (module environmental strategy "Network multifunctional open areas of the natural system (green belt)") specified coverage areas of the green belt and identifies areas of supply, not included in the RSTO GB, having, however, to support the process of determining the performance of the function for which RSTO GB designated primarily natural functions and tourist. The area north-east ("Kozienice") covers most of the land Kozienice Forest. Its area is 22,140.38 hectares.

Figure 17. Radomian Network of Open Areas "Green Belt"



Source: Zintegrowany program zarządzania zasobami przyrodniczymi i wodnymi Radomskiego Obszaru Funkcjonalnego na lata 2015-2020 z perspektywą do roku 2030, 2015, Radom, s. 11.

In the city there are numerous forms of nature protection.

2.2.5 Land consumption in urban areas

Urban functional zone of Capital City of Warsaw

Kamionek post-industrial zone

These are areas heavily exploited due to conducted industrial activities and functions for the industry. They are often characterized by extensive use and depreciated infrastructure. Due to the high intensity of development and strongly transformed soils in the Kamionek there are natural plant communities. The revitalization activities and the transformation of spatial and functional undertaken over the past few years, some industrial areas has been adapted to the new functions (residential, commercial, cultural and residential), part of the nave was built buildings mainly of a residential and service.

Targówek Fabryczny post-industrial zone

The area is characterized by low quality and intensity of land use. Land use structure points to the dominance in the area of land and built-up urban areas (71% overall surface area) have a significant share of the agricultural land (20, 5%) and forest land, covered with trees and shrubs (8%).

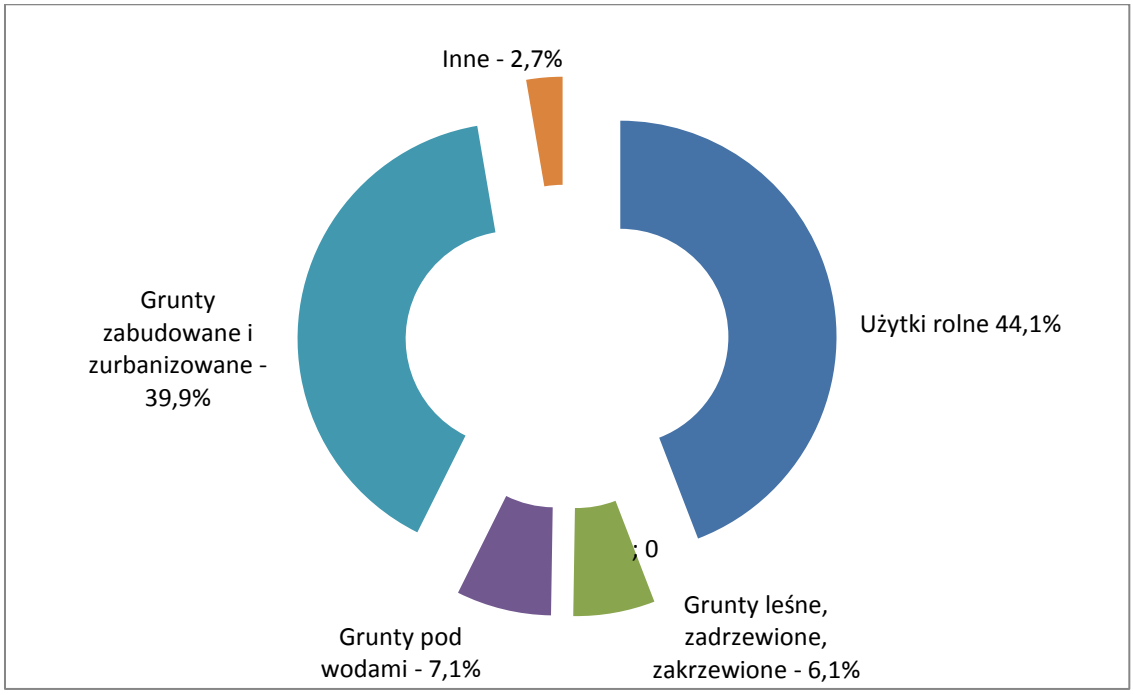
The structure of the land and built-up urban areas, the majority were residential areas (37%), communication (26.8%), other built-up areas (25.9%), industrial areas (8%), undeveloped urban areas (5.3%) and the smallest share points to recreational areas (2, 8%).

Płock urban functional zone

individuals. Land municipalities represent 17.9% of the total area of the city. Communal resource of real estate covers an area of 1,057 ha.

The structure of land use in Plock in 2013 is shown in the following graphic.

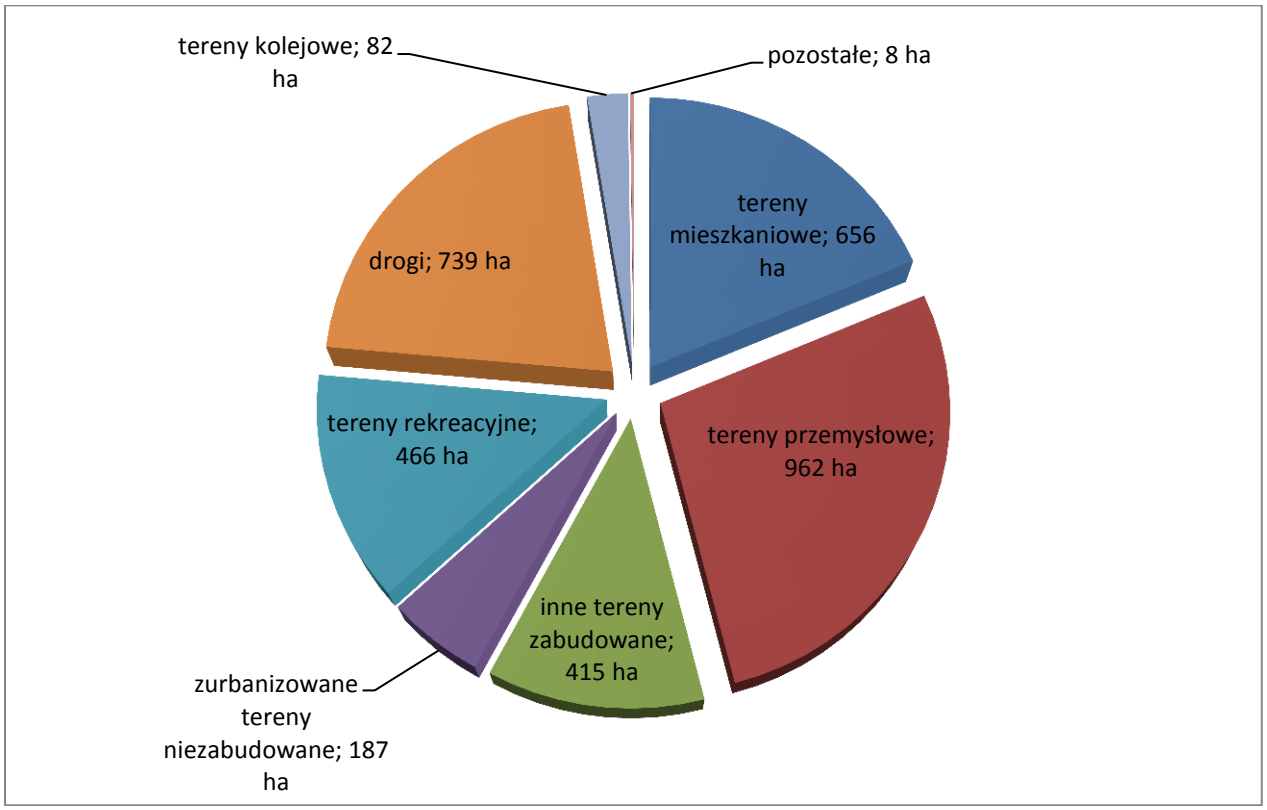
Figure 18. Structure of land use in Płock



Source: opracowanie własne na podstawie Miejskiego Zeszytu Statystycznego, Urząd Miasta Płocka 2014 r.

The largest percentage in the structure of the land occupied in Plock arable land - 44% (3887 ha). Built and urbanized areas account for nearly 40% of the city area (3515 ha). Land excluded from the possibility of building - under the waters and forests, woodlands and shrub together constitute 13.2% of Plock (1165 ha).

Figure 19. Land use structure in Płock by use



Source: opracowanie własne na podstawie Miejskiego Zeszytu Statystycznego, Urząd Miasta Płocka 2014 r.

The largest percentage of the land and built-up urban areas occupy in Plock industrial areas - 27.4% of their area. Territories occupied the needs of communication infrastructure (roads, railways) comprise 23.3% of the developed land. The percentage of residential areas in the structure of urbanized land amounts to 18.7%. Development potential is concentrated in the urban built-up areas, which together represent 5.3% of developed land.

Housing Borowiczki takes the scale of the city area of 604 ha. Former sugar factory Borowiczki covers an area of 26.02 ha. In this area they are sited buildings on the economic destiny of the total usable area of 14,948 m2.

There is no detailed information on the structure of land use within the area of the former post-sugar Borowiczki.

Radom and Pionki urban functional zone

Brownfields in Radom

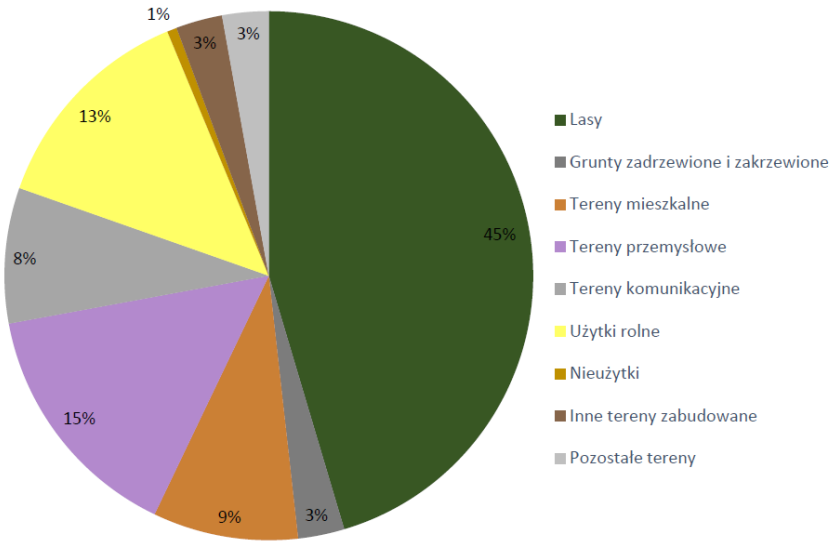
Radom area is characterized by a high proportion of green areas, which is valuable because of the former industrial character of the city. It concerns both the green city (parks, lawns, green street, housing estate green areas, cemeteries and communal forests), and the land used for agricultural purposes (5 215 ha - 46.68%) and forests (747 inhibits 6.69%) which together represent more than half of the city. A total of green areas occupied in Radom 6,530.3 ha, which represents 58.5% of its surface.

Data on the area invested in the pilot, the former PowerPlan come only from the Study of Conditions and Directions of Spatial Development Municipality of Radom, therefore, they are out of date when it comes to housing (derived from 2011.). As far as the industry is not currently listed on the site to invest in this direction when it comes to services allocated for this purpose 64.6 ha. As the area of biologically active indicated 212 ha.

City of Pionki

Analysis of the structure of land in the Municipality of City Pionki shows that the dominant position occupied by forests and industrial areas. The largest area is covered by forests (833 ha - 45.22% of the city), and the industrial area 273 ha, or nearly 15% of the city. The large area is occupied by agricultural land, 245 hectares, or 13%. Residential areas, in turn, represent only 9% of the city, an area close to the areas Communications (154 ha, or 8.37%).
The structure of land use in Pionki in 2014 is presented in the chart below:

Figure 20. Structure of land use in Pionki in 2014



Source: Strategia Rozwoju Gminy Miasto Pionki na lata 2016-2022, 2016, Pionki s. 3.

2.3 Socio-economic status

2.3.1 Population (potential impact)

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

Situations of socio-economic area should be considered in the context of the whole district (Prague East) due to the fact that brownfields are no permanent residents, these areas are uninhabited but functionally quite strongly linked to the former workers' housing estates and department.
Kamionek area due to the increasing negative social phenomena was indicated in the Integrated Programme for Revitalisation of the Capital City Warsaw 2022. As a priority area for revitalization actions (ZPR).
Demographic potential Praga South district is significant. Given the number of population it is one of the largest Divided Warsaw with a population of 178, 3 thousand. (2014). In this area in 2016 reported the lowest population growth while one of the highest population of all districts in the Capital City Warsaw (7970 people / km2 - GUS 2016). In recent years (2009 - 2013) the number of permanent residents of the district falls (compared to 2009 by 6.8%). The largest group of neighborhood residents are people of working age. Following a decline in the number of people of working age (by 12% compared to 2009). While the number of people of retirement age increases - in 2009 there were 38 487 (21.08%), in 2012 - 22.86%, and in 2013 - 22.99%. Visible is therefore the aging of the population of the district. At the same time the increase in the number of people in pre-working age (children and adolescents).
Kamionek (2013) had a population of 14 139 people, which accounted for 7.93% of the population of the whole district Prague East. The population density in the analyzed sub-area amounted to 161 persons / ha, and almost five times higher than the population density for Warsaw. The largest group of residents subarea were people age 20 to 65 years old (67.39% of the population of sub-area). People over the age of 65 accounted for 13.73% of the total. Kamionek inhabits the Roma community (50 people), and 26 people of Vietnam.

Targówek Fabryczny post-industrial zone

In recent years, in the district of Targówek it was observed a slight increase in the number of inhabitants. In 2009. Targowek counted 123, 2 thousand. residents in 2010. - 123, 5 thous., in 2012 - 123, 5 thousand. people, and in 2013 and 2014 r. r. lived here 123, 7 thousand. people. The largest group of people were inhabitants of working age (73, 5 thousand. People). In 2009 Targowek living 77, 6 thousand. people of working age, in 2010 - 76, 8 thousand. people in 2011 - 75 thousand. and in 2012. - 74, 2 thousand. people. At the same time increases the size of the group of people at retirement age: in 2009, was inhabited by 26.9 thousand., In 2010 - 27, 9 thousand. people in 2011 - 28, 5 thousand. people in 2012 - 29, 4 thousand. people, and in 2013 - 30, 1 thousand. people. Negative demographic phenomena observed in the entire district translate to the situation in the crisis area selected for revitalization by 2022 as part of the SMPS.
Sub-Targówek factory because of its nature, is an area with a small population. In this area it was inhabited by a total of 911 people from the 135 people in the retirement age, 187 people in pre and 589 persons of working age. Population density in Sub-Area was 35 persons / ha and is higher than

the rate for Warsaw (33 persons / ha). In 2012, the. People of working age was 608 and in 2013. 589, while the number of people in the productive age remained at a similar level (in 2012. - 319 people, and in 2013. - 322 persons).

Płock urban functional zone

According to published by the Central Statistical Office data, the status of the population by place of residence was in Plock at the end of June 2016. 121 468 people. During the first 6 months of 2016 years it was born 577 Płock inhabitants, and 663 died, which resulted in a negative natural growth, which amounted to -86.

Seen in recent years in Poland migration from cities to suburban areas has also been touched Plock. Since 2000, steadily declining population. Over 15 years was reduced by almost

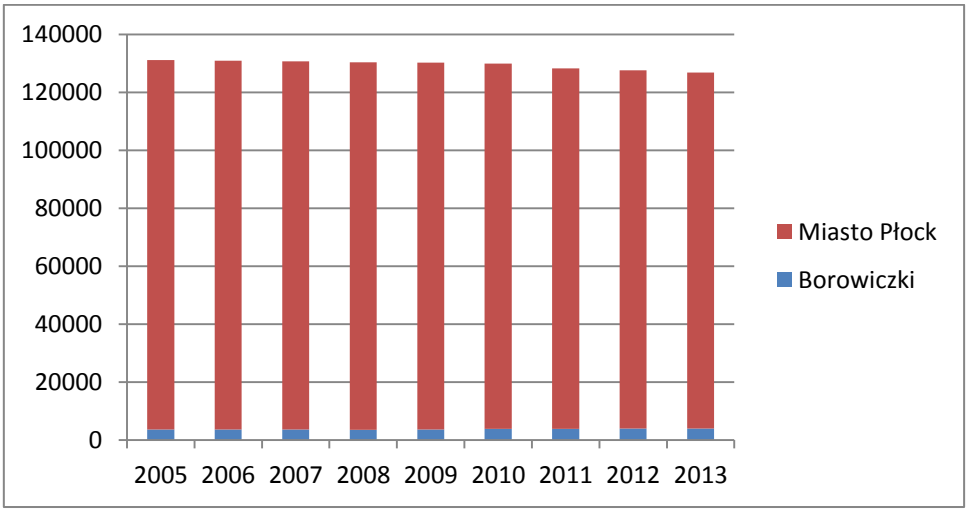
7 thousand. people. With the neighboring counties of Plock only rural district of Plock showed in this period population growth - with a negative natural growth. Population grew here at the same time by more than 6 thousand.

The result of these demographic processes is to reduce the number of children and adolescents (0-17 years). Their share in the total population of Plock in 2015 amounted to 17.1% (in 2000 - 22.6%). The structure of the population, taking into account economic age groups over the years shows a declining percentage of the population in pre-working age (15 years is a decrease of 5.5 points. Percent).

and systematically increasing the retirement age (an increase in the same period by 9.7 pts. per cent.).

While the population of Plock steadily decreasing over the years 2005-2013 (a decrease of 4% in 2013. Compared to 2005.), Whereas in the same period, the population of settlements Borowiczki characterized by an upward trend - an increase of 8% in 2013 . compared to 2005. - to a level of 3953.

Figure 21. Changes in population of Płock and Borowiczki Estate 2005-2013



Source: opracowanie własne

Table 3. Changes in population of Płock and Borowiczki Estate 2005-2013

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Borowiczki	3 660	3 680	3 684	3 580	3 645	3 879	3 918	3 924	3 953
Miasto	127 461	127 224	126 968	126 709	126 540	126 061	124 317	123 627	122 815

Płock									

Source: opracowanie własne na podstawie Płockiego Programu Rewitalizacji

At the consultation stage assumptions Plock Urban Regeneration Program was diagnosed with a serious problem the lack of acceptance of the concept of revitalization of the former sugar factory Borowiczki by the local community.

The difficulties were identified by stakeholders in the revitalization of the consultation meeting, which was held on October 6, 2015 in the premises of the Primary School No. 20 at ul. Korczak 10. The process of revitalization of this area should be continued with the further involvement of stakeholders revitalization and acceptance of their directions of change in this area.

Radom and Pionki urban functional zone

Industrial area in the valley of the river in the area of the Milky Cultural Park "Old Radom"

No data on. Inhabitants of the area. In Radom population decreases, thereby decreasing the number of births and migration to large urban centers (Warsaw) and the neighboring municipalities.

Industrial area on the territory of the former Power Plant in Radom

Historical data on the number of residents in the pilot, ie. The former CHP derived from the Study of Conditions and Directions of Spatial Development Municipality of Radom, therefore, are out of date (derived from 2011.). In June 2009. I lived there 147 people, population density among the lowest in the city - 44 people / km2. In 2010,. After putting into use blocks social dwelt in them 300 families. Current data is from the "Programme for the revitalization of the City of Radom for the years 2014-2023." In this area live 881 people, of whom 556 people are of working age, and 90 in the retirement age (p. 46). Most residents trying to "escape" from this area. According to data from the Municipal Board of flats on a total of 304 apartments that settlement included in the list submitted 20 applications for the conversion of the premises. It is a high share compared to the entire city, where 4 896 units consisting of municipal social housing and housing for MZL a total of 220 applications for conversion. The reason for the submission of applications for conversion distance from the city center, insecurity, growing family and the desire for a larger apartment.

City of Pionki

At the end of 2014 in Pionki lived 19 168 people. Over the last 5 years the number of residents fell by 3.64% and every year there is a decrease. Visible is also a decrease in population density of 1,084.62 persons per 1 km2 in 2010. 1 045.14 people per 1 km2 in 2014. The population structure dominated by women (51.91%). Demographic problems of Pionki are typical of cities that have lost their previous socio-economic functions - negative rate of natural increase (up to -3 in 2011.) And a negative migration balance. Analysis of migration trends shows that the majority (57.4%) of people chose other cities in the area (Warsaw, Radom), the remaining part of the population was walking on a village in Radom Functional Area, mostly to rural municipality Pionki.

2.3.2 Employment situation

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

In the area of Prague South for years seen the problems associated with the labor market - unemployment.

In the South of Prague in 2014 we recorded the highest unemployment, ie. 11.8% of the total in Warsaw. In recent years, unemployment is falling and in turn was 5764 (2014 r.), 4803 (2015 r.) And 4349 people (2016). Most of the unemployed in the district of Prague-East is in the age group 25-34 years and this phenomenon is increasing. The largest group of the unemployed were people with higher education. Given the duration of unemployment, the year-on-year increases in the number of unemployed for over 24 months.

With regard to the Kamionek phenomenon of long-term unemployment in 2012. It has affected 222 people, ie. 10% of the long-term unemployed in the district and it is more than 45% of unemployed persons in the crisis area in the district of Prague-East. In Kamionek observed increase in the number of unemployed (in 2010. Were 215 unemployed people in 2011. - 275 in 2012. - 381, and in 2013. - 580 people).

Targówek Fabryczny industrial site

The unemployment rate in the district of Targówek is increasing (in 2010. There were registered 2,985 people in 2011. - 3171 people in 2012. - 3752 persons in 2013. - 4267 persons), in 2014 the number of unemployed fell to 3794 people. The largest group of the unemployed were people in the 25-34 year olds (1100). In recent years, a steady increase in the number of people in this age group (in 2010. Were 854 people, and 2011. - 875 people, and in 2012. - 993 persons). The largest group of the unemployed were people with post-secondary and secondary vocational education (in 2010. - 849 people in 2011. - 896 people in 2012. - 1022 persons, and in 2013. - 1114 people). As far as the duration of unemployment, it is the largest group of the unemployed in 2103 r. Were people between 6-12 months (991 people). Long-term unemployment rate in the district of Targówek in 2013. Amounted to 12.39 (in 2012 - 7.83 in 2011. - 6.50, and in 2010. - 7.65).

Subarea Targowek Factory inhabited by 65 people unemployed, of which 24 are long-term unemployed. Compared to 2010 the number of unemployed persons in the area has increased almost five times (in 2010 long-term unemployed were 5 people).

Płock urban functional zone

The registered unemployment rate reached in Plock at the end of the first half of 2016 years of 9.2% and was lower than a year earlier by 1.8 points. percent. In the Municipal Labour Office remained 5 707 registered unemployed persons (1 129 less than the year before).

Number Płock inhabitants working in the main job at the end of 2015. 44 050 people. The registered unemployment rate gradually decreased, and in annual terms fell by 1.7 points. percent. reached in December 2015 years of 10.3%. The vast majority, 87.0% of the unemployed registered at the end of the year, people were previously employed, of which the most

in the sections: wholesale and retail trade and repair of motor vehicles and motorcycles (16.0%); manufacturing (11.9%) and construction (7.9%) and other services (7.9%).

At the end of December 2015 the Municipal Labour Office had 249 vacancies, ie. 11.7% more than in the corresponding period of the previous year, and the number of unemployed per one offer decreased from 85 in 2014 to 26. Most of the offers concerned sections: administration services and support service activities (69.1%) and professional, scientific and technical activities (24.1%).

At the end of 2013 in Borowiczki lived 259 unemployed, compared with the number of people unemployed in the scale of the city (8338 pers.) is accounted for 3.1%.

Radom and Pionki urban functional zone

Industrial area on the territory of the former Power Plant in Radom

By developing a "Program of revitalization of the City of Radom for the years 2014-2023," in which the area of the former CHP is classified as degraded there is detailed information about the social problems occurring here, which are the main long-term unemployment and the resulting poverty:

- Total number of unemployed is 110 people (out of 881 inhabitants).
- long-term unemployed to 78 people.
- 49 people among the unemployed has completed only primary school.
- 124 people enjoy the benefits of social assistance permanently, and the total number of families who have been granted any aid to 320 families (p. 46).

It is worth quoting the diagnosis of the area shown in the Program:

" The sum of the allowances paid social assistance per family is 4736.01 zł and is significantly higher than the average for the city. The intensity of social problems in this area illustrate the indicators concerning. The number of blue cards per 100 inhabitants, which is 1.59 units, far exceeding the value for city participation rate of 18 r. F. benefiting from supplementary feeding in the total population, amounting to 27.7%, and shaping at a high level of 66.97 units indicator of the number of crimes per 1 thousand. population. A significant problem in this area is unemployment. The share of long-term unemployed among people of working age is 14.03%, is also significant proportion of the unemployed with basic education in the total number of the unemployed - it amounts to 44.55%. Significant is the number of public housing and social services per 100 residents - amounts to 41,88 units (it should be noted that all municipal premises and welfare are equipped with central heating). Problems in the technical sphere in this area illustrates the participation rate of granted benefits

targeted for the purchase of fuel in the total population - 3.63%. The number of indicators confirming the crisis in this area is 11." (Program rewitalizacji Gminy Miasta Radomia na lata 2014-2023, Radom, s. 50-51).

The City of Pionki

The employment in Pionki in the period 2009 - 2013 showed an upward trend until 2012. In 2013 Number of employed persons decreased by 8.1% compared to the previous year.

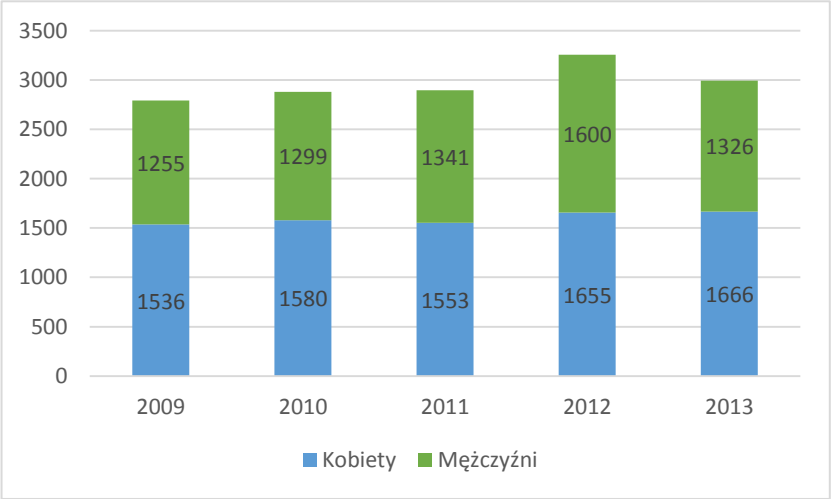
Table 4. Employment in Pionki 2009-2013

	2009	2010	2011	2012	2013
Ogółem	2791	2879	2894	3255	2992
Kobiety	1536	1580	1553	1655	1666
Mężczyźni	1255	1299	1341	1600	1326

Source: Zintegrowany program zarządzania zasobami przyrodniczymi i wodnymi Radomskiego Obszaru Funkcjonalnego na lata 2015-2020 z perspektywą do roku 2030, 2015, Radom, s. 38.

In each year of the period the number of employed women exceeded the number of male employees. According to the data of the Central Statistical Office in 2013 in Pionki the number of working women accounted for 55.68% of total employment.

Figure 22. Structure of employed by sex 2009 – 2013



Source: Zintegrowany program zarządzania zasobami przyrodniczymi i wodnymi Radomskiego Obszaru Funkcjonalnego na lata 2015-2020 z perspektywą do roku 2030, 2015, Radom, s. 39.

In 2014 in Pionki 1702 people were registered unemployed. In the analyzed period, the number of unemployed fluctuated. In 2005, it was the highest and amounted to 2,699 unemployed in the next year fell by 14.26%, reaching 2,362 people and a surplus number of unemployed men over the number of women. In the following years, the number of unemployed was characterized by a downward trend until 2008. In 2006-2008, the decline was 35.3%.

2.3.3 Economic development

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

In the Praga Południe in 2014 there were registered 35,256 businesses. The prevailing private sector. In the structure of enterprises was dominated by entities operating in the sector - trade; repair of motor vehicles (8590), professional, scientific and technical activities (5646), construction (2,604), industry (2431), information and communication (2381), manufacturing (2,313), transportation and warehousing (2193), and service market Real estate (2112) and others.

Targówek Fabryczny post-industrial zone

In this area, they accumulate social problems, economic and infrastructure. This is an area dysfunctional, with a low activity of residents and entrepreneurs. Very visible here are underinvested. Targówek statistics showed one of the lowest rates of entrepreneurship measured by the number of entities per 1000 population. This indicator in 2014. Amounted to 156 entities per 1000 population. Total Targówek in 2014. 19317 registered entities.

In the structure of enterprises was dominated by entities operating in the sector - trade; repair of motor vehicles (5279), professional, scientific and technical activities (2,334), transportation and warehousing (2012), construction (1883), industry (1,654), manufacturing (1,520) and information and communication (1044).

Płock urban functional area

Plock area and its surroundings understood as the city of Plock and the community surrounding it. They are identified as problem areas in the Regional Spatial Development Plan Mazowiecki. It consists of both issues with a lower level of economic development, as problems with low access to goods and services.

At the end of June 2016 Plock were registered 12 373 businesses, 37 less than the year before. According to GUS, the vast majority, ie 8 757 entities were natural persons conducting economic activity - mainly in trade and repair of motor vehicles and motorcycles (2 306), professional, scientific and technical (1 098), construction (991), transportation and warehousing (895) and manufacturing (698).

For the dominant sectors of the economy are trade, construction and manufacturing.

Within Section C - manufacturing, in Plock industry companies operate. As part of the section F - construction of the largest companies operating in Plock include: Mostostal Plock SA, Energa-Operator Operation and Investment Plock Sp. o.o., design assistance Real Estate Sp. o.o. limited partnership, IZOKOR Plock SA, OPEUS Sp. o.o. limited partnership by shares. Given the number of employed dominated by small businesses, which employ the 9 people. Such entities of the national economy in 2013 accounted for almost 94% of all registered entities.

The largest employers, employing over 1,000 people, include: Polish Oil Concern Orlen SA, CNH Poland Sp. o.o., Levi Strauss Poland Sp. o.o. and Regional Hospital.

In 2004 he was created Plock Industrial and Technological Park (PPP-T). It is a joint venture of Polish PKN ORLEN SA and local authorities Plock. Area Investment PPP-T covers an area of over 200 hectares, on which there are functional administrative facilities with complete social facilities necessary to start and conduct business.

The development of the economic sector reinforces a number of business environment institutions operating in the city such as: Business Centre Club - Lodge of Plock, Plock Regional Chamber of Commerce, Academic Business Incubators Association Academia Economica.

The economic potential in Plock Plock also supports the Council. Innovation and Business Research and Development, established regulation No. 3358/2013 of the President of the City of Plock 19 July 2013. The Council is an advisory body of the President of Plock in matters of promotion of innovation and research and development projects of significant importance for the city of Plock.

Council was established as part of knowledge management in the activities of the Mayor and the City Hall of Plock and is a form of cooperation with the scientific community and a platform for contacts between the environment and businesses, and universities. The Council consists of representatives of: the scientific and economic development; Local cluster initiatives; business environment institutions and the Office of the City of Plock.

When the mayor of Plock also operates Plock Economic Council - consultative and advisory body - set Order No. 409/2011 of the President of the City of Plock of 09 May 2011. The role of the Council is not only a key opinion on the investment, but also the development plans, long-term investment plans, assistance programs for entrepreneurs, the tax rates.

Operating in an environment zone post-Borowiczki business environment institutions have a significant impact on the planning of economic development Plock, creating a climate for future investments.

At the end of 2013 in Borowiczki Estate were registered 302 businesses, in comparison with the number of entities in the scale of the city (12 537) accounted for 2.4%.

Radom and Pionki urban functional zone

Industrial area in the valley of the river in the area of the Milky Cultural Park "Old Radom"

The economic activities of running small and micro enterprises, mainly in trade, services, small manufacturing and trade. Part of a small manufacturing plants continue to generate various types of nuisance for the environment: noise, air pollution, a large-scale transport. Function usually adapted and rebuilt small buildings with low standard, the remains of a former industrial building. In SUiKZP as well as in projects of local plans is expected to transform the space in the housing and services related to recreation and commerce and the use of green areas to create attractive public spaces.

Industrial area on the territory of the former Power Plant in Radom

The area is characterized by a relatively low level of entrepreneurship - the number of registered business entities 100 people there are 6.7 units, at the same time have a relatively high number of deregistered entities of the national economy in relation to the area around the city - 1.14.

The city of Pionki

The economic sphere of Pionki is diverse. Pionki are the industrial city, where the dominant role he served as the chemical industry. The collapse of ZTS "Pronit" seriously disturb the functioning of the economic system in Pionki. The city gradually changed the orientation of the typical industrial service, which currently is the most related entities. The dominant position is occupied by commercial activities, among them most of the shops - approx. 150. The city has a high potential in both economic and human, and Pionki become an attractive place to invest.

Analysis of the number of operators in Pionki in the period 2009-2014, however, shows a declining trend throughout the analyzed period. The highest number of registered business entities was recorded in 2010. And it was 1757. But in the last year 1670. It can be seen only clear advantage of business entities in the private sector in 2014. Private sector participation was 96.04%. The largest group in the private sector are individuals engaged in business activities. In the analyzed period, the number showed a downward trend, most units were registered in the year 2010 (1693 units hold.), While in 2014 their number dropped by 5.3% and reached the lowest level. While growing group of non-governmental organizations active economically (associations of 14.9%, and foundations 14.3%). Most newly registered entities was recorded in Pionkach in 2010. The number of newly registered entities of the national economy is characterized by high volatility, the overall growth in 2014. Compared to the base year was 10.08%.

Among traders dominate micro-enterprises, employing fewer than 10 employees with an annual turnover or annual balance sheet total not more than EUR 2 million. In 2014, their share in the number of registered players in Pionki was 95.57%. Small enterprises with number of employees less than 50 employees, had a share of 3.29%. Other entities are medium-sized enterprises (with fewer

than 250 employees with an annual turnover not exceeding 50 million euro) and large (employing more than 250 employees). Shares in the various groups over the years analyzed, remain at a similar level. Over the years analyzed (2005-2014), among residents Pionki increased level of entrepreneurship, which confirms the analysis of the number of businesses per 1000 inhabitants of working age, there is a noticeable difference in the values of this indicator in relation to the whole country and Mazowieckie, his value is lower by 25.9% and 65.4%. Against the background of the county of Radom level of entrepreneurship Pionki is definitely better, the number of entities per 1000 inhabitants of working age are in the city increased by 26.3% from the average for the county.

2.3.4 Actions

Urban functional zone of the Capital City of Warsaw

In ZPR both Kamionek and Targówek Fabryczny have been identified as a place of key urban regeneration projects' sites. The planned activities are designed to develop and increase the attractiveness of both crisis areas (Kamionek, Targowek Fabryczny) for residents and investors, by cleaning and preparing the space for different functions (business, residential and recreational), and to reduce the negative impact on the environment. The program intends to focus activities around local centers. In SMPS identified four main objectives:

I. Socio-economic recovery, improving the quality of public space and improve the environment in accordance with the requirements of low-carbon economy.

II. Development of tourism, culture and sports on the basis of local identity and cultural heritage resources.

III. Preventing and combating social exclusion.

IV. Increasing the activity of citizens and their participation in various areas of the city.

Kamionek post-industrial zone

In recent years, analyzed area realized many activities of various kinds, including regeneration projects: Lubelska 30/32, Soho Factory (Minsk 25), the District Centre for the Promotion of Culture (Podskarbińska 2) or modernization of buildings.

The key projects in this area planned as part of ZPR are:

- Cleaning up and increasing the attractiveness of public space between the streets: Kwartał Skaryszewska – Skaryszewska – Lubelska – Zamoyskiego – Targowa oraz Kwartał Kamionkowska – Bilska – Mińska-Chodakowska – Groszowicka - Terespolska – Grochowska,
- fitting heating systems and the elimination of individual sources of heat in buildings,
- improving the standard of the buildings - Repair and modernization of housing enhancing the standard of the buildings and premises (27 buildings - 482 units),
- Exploiting the potential of public space, which – through an appropriate transport policy can strengthen the development processes in the area – changes in the transport system, construction of the second metro line,
- Renovation of existing facilities to be used for cultural and social functions, eg. European Centre for Orchestra Simfonia Varsovia,
- Placing functions of socio-cultural street fair,

- Creating a multi-sites places for local activity – the continuation and development of the Social Centre Paca 40,
- Place for city sports,
- Liquidation of small-scale architectural bariers.

Targówek Fabryczny post-industrial zone

Urban regeneration projects related to stimulating sustainable development Targowek Fabryczny, struggling with socio-economic problems, started earlier. In recent years, we completed repairs and modernization of several buildings, furnished new green areas and reclaimed park, have been planted with trees, shrubs, landscaping renovations were carried out ora road infrastructure. In the area Targowek also implemented several social projects.

ZPR in Targowek Fabryczny also assumes the implementation of key projects related to the urban regeneration:

- Cleaning up and increasing the attractiveness of public space between the streets: Siarczana – Siarczana – Naczelnikowska – Ziemowita – Dziewanny oraz w kwartale obejmującym podobszar Targówek Mieszkaniowy Radzymińska-Bieżuńska – Rajgordzka – Radzymińska.
- fitting heating systems and the elimination of individual sources of heat in buildings,
- improving the standard of the buildings - Repair and modernization of housing enhancing the standard of the buildings and premises (19 buildings – 200 units)
- flats for rent - the construction and modernization of buildings with flats for rent (Skaryszewska , Dziewanny),
- place for local activities at Siarczana 6,
- Exploiting the potential of public space, which – through an appropriate transport policy can strengthen the development processes in the area – changes in the transport system,
- Place for city sports,
- Liquidation of small-scale architectural bariers.

In accordance with the provisions of the planning documents Targówek Fabryczny due to their conditions and endogenous potential (industrial plants, warehouses, developed transportation infrastructure - roads, railways) in the future, could serve as a logistics centre for the whole city.

Płock urban functional zone

Plock Urban Regeneration Program defines brownfield land for the former sugar factory Borowiczki overarching goal of revitalizing in the form of "Protection of historical buildings and the use of the potential of space to develop new social and economic functions."

Revitalization program assumes that any action taken in the former sugar factory Borowiczki should serve the prevention of negative social phenomena in the form of:

- reducing the incidence of unemployment (the use of social clauses), and poverty,
- increasing the level of education through the organization of professional training, educational activities for children and adults, associated with an increase in the level of social capital and shaping the basics of civil society,
- implementation of measures that will contribute to an increase in the level of participation of inhabitants of other subdivisions revitalization in public and cultural life.

The program assumes that the process of revitalization of the area will be done in stages:

- Phase I covers the process of protection of historical buildings and their adaptation to new functions in accordance with the provisions of the local spatial development plan,
- Phase II includes activities associated with the development of the remaining space in order to fully exploit the potential of this place. These activities must be preceded by planning and conceptual works.

At the level of specific objectives there are specific courses of action developed for the post-industrial zone Borowiczki and dedicated regeneration projects.

Table 5. Goals, actions and regeneration undertakings in the post-industrial site Borowiczki

Cele szczegółowe	Kierunki działań	Nazwa przedsięwzięcia rewitalizacyjnego
C.4.1.Przywrócenie użyteczności społeczno-gospodarczej podobszaru	4.1.1. Konserwacja, renowacja i adaptacja na cele kulturalne, społeczne, gospodarcze historycznych obiektów	„Adaptacja budynków byłej Cukrowni Borowiczki w celu nadania im nowej funkcji użytkowej”
	4.1.2. Uporządkowanie przestrzeni i jej udostępnienie odbiorcom z różnych grup społecznych	
	4.1.3. Tworzenie warunków lokalowych i infrastrukturalnych dla rozwoju przedsiębiorczości	
	4.1.4. Tworzenie warunków do niwelowania wykluczenia społecznego oraz aktywizacji zawodowej	
C.4.2. Aktywizacja i integracja osób z grup biernych i zmarginalizowanych	4.2.1. Zwiększanie umiejętności i kwalifikacji zawodowych osób wykluczonych z rynku pracy	„Słodka odnowa”
	4.2.2. Włączanie osób wykluczonych w nurt życia społecznego	
	4.2.3. Pobudzenie aktywności obywatelskiej	

Source: opracowanie własne na podstawie Płockiego Programu Rewitalizacji

The list of basic urban regeneration projects in Płock Urban Regeneration Program includes two projects are dedicated to post-industrial site Borowiczki:

1. Adaptation of the buildings of the former sugar factory Borowiczki in order to give them a new utility function

The project includes the renovation of existing historic buildings sugar in order to adapt to the function of storage archive conservation studio - reconstructive documentation server. It is planned to create a modern facility dealing with comprehensive documentation generated by all branches of the National Sugar Company SA (KSC SA) and its subsidiaries and, ultimately, also the transfer to

Plock management functions through the documentation KSC SA (Outsourcing). In addition, planned at this point to run commercial activities related to organizing, storing and transfer of archives documentation external organizational units, which combined with the construction of archive documentation and server room will allow for the effective use of building for commercial purposes. It is expected to create new jobs. The project envisages the use of "social clauses". Implementation of the project will be accompanied by social projects directed to people who are excluded or at risk of social exclusion. The project will generate positive socio-economic effects associated with increased employment and business development.
Indicators related to the project:
The number of renovated buildings, facilities - 5 pcs.
A developed area, ordered space - 31,067 m2
The number of sites prepared for business - 5 pcs.
The number of businesses receiving support - 20 pcs.

2. "Sweet renewal"

As part of the project is expected to take steps to revive socio-economic brownfield land, in particular through the implementation of actions directed to the inhabitants of the area revitalization, including m.in .:

- organization of vocational training and work placements for the unemployed,
- the organization of events / events contributing to the activation and integration of residents of revitalized areas and to their social inclusion;
- organization complementary to the school educational workshops for children and youth related eg. sugar production, archiving files;
- organization action animation for the community.

Indicators related to the project:
The number of people receiving support - 2,400 people.
Number of organized projects - 40 pcs.
Activities that are planned in Płock Urban Regeneration Programme are dedicated to post-industrial site Borowiczki and have a socio-economic, required by art. 10 paragraph. 3 of the Urban Regeneration Law. The use of tools to revitalize the process of recovery of degraded limits the possibility of a comprehensive impact on all spheres of their degradation, particularly in the environmental sphere.

Radom and Pionki urban functional zone

Industrial area in the valley of the river in the area of the Milky Cultural Park "Old Radom"

The city authorities have taken action to improve the availability of green areas (construction of boulevards recreation along the valley), organize and expose the body of the natural (re-naturalization of the river), improving the quality of public spaces (renovation of the square by the church of St. Wenceslas), modernization of technical infrastructure (modernization and reconstruction of sanitary sewage and stormwater, area lighting), and improved security (city monitoring).

Industrial area on the territory of the former Power Plant in Radom

The "Urban regeneration program for Radom 2014-2023" does not provide any action in this area. The area is recognized as part of the investment offer of municipality of Radom, listed in the "Study of finding an investor for brownfields Municipality of Radom":

AREA AND

Lot: 9/106, 9/178, 9/180, 9/188

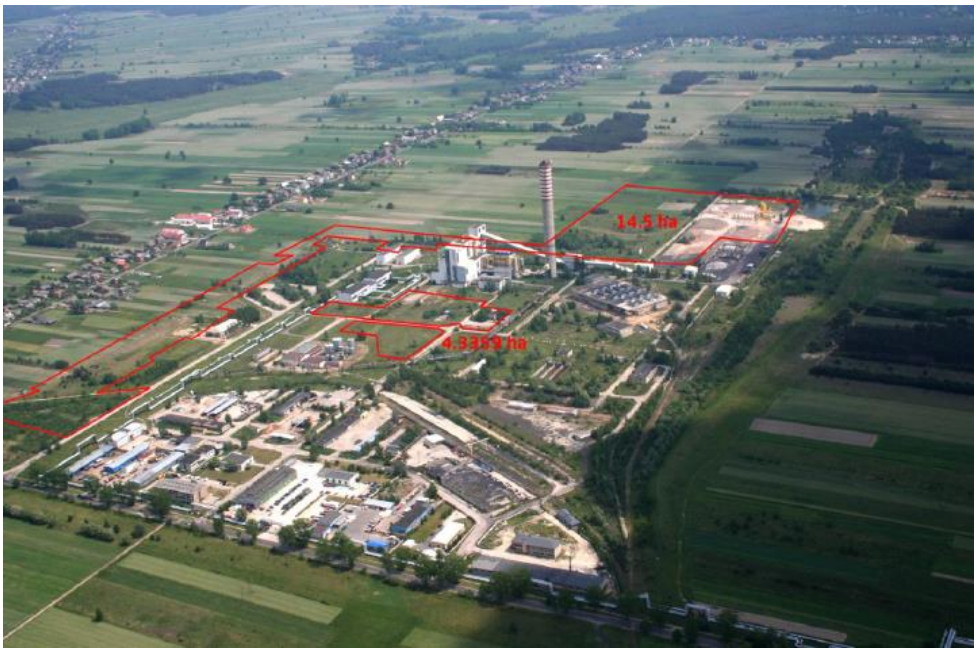
Subdivision: New Wola Gołębiowska

Streets: Energetyków and Maria Gajl

Area: 10.0627 ha

Characteristics: The grounds of the former plant. They are characterized by good availability of railway.

Photo 6. Investment site in the former Power Plant in Radom



Source: Studium pozyskania inwestora dla terenów poprzemysłowych Gminy Miasta Radomia.

City of Pionki

The Urban Regeneration Program for Pionki after 2013 is been currently in development, action against the brownfield area will therefore are presented in a historical perspective. Currently there are only planned activities associated with the development of the investment zones in the former ZTS "Pronit" and the creation of cultural institutions in the huge building of the former power plant located in the vicinity of the old plants.

The Local Urban Regeneration Program for brownfields areas in Pionki planned the following investments:

- The revitalization of industrial and post-industrial and facilities (areas after ZTS "Pronit", "Chemontaż") to create the Training Center of the State Fire Service,
- The revitalization of industrial areas "Chemontaż 'to the creation of the Department of Research in the field of Fire Safety by the Institute for Building Technology,
- The inclusion of part of the land after ZTS "Pronit" Special Economic Zone EURO-PARK WISŁOSTAN,
- Establishment of a part of areas ZTS "Pronit" Industrial Park.

Most of the plans were implemented. Additionally, in the immediate area were subjected to revaluation historic building casinos - a repair of the facade of the building, strengthening the floor, replaced roofing, repaired and rebuilt partition walls, replaced windows and doors while maintaining architectural elements (the shape of the windows, decorative elements) restored architectural façade (cornices, portal), equipped building, were utilized adjacent plot. Currently, the facility operates the center of local activity, leading projects activating local community.

2.4 Infrastructure, logistics and legal context

2.4.1 Sewage treatment plants

Miejska strefa funkcjonalna Warszawy

Kamionek post-industrial zone

In the district of Praga South is not located any sewage treatment plant. Urban sewage and company are located in the neighboring districts Targowek and Wawer.

Targówek Fabryczny post-industrial zone

At the border area, at ul. Gwarków functions Department of Municipal Solid Waste Treatment. In the area Targowek is located factory wastewater treatment plant Air Products (Ul. Bukowiecka 71), for which the receivers are channel Bródno / km 8.56 /, Żerań Channel / km 5.5 / J. Zegrzynskie / km.30,2.

Płock urban functional zone

Waste water from the city of Plock is treated in four wastewater treatment plants:
1. Sewage mechanical-biological "Maszewo" full reworking of the sediment and use of biogas. The average amount of wastewater influent reaches less than 20 000 m3 / day with an average treatment capacity of 26 000 m3 / day. Wastewater comes in approx. 90% of residents and 10% from industry and other workplaces. Transported to the treatment plant are also small amounts of sewage waste removal vehicles. After cleaning liquids are discharged into the river Vistula.
2. Wastewater mechanical - biological "Radziwie" full reworking of sediment and nutrient removal. Sewage flows into sewage sanitary sewer vacuum-gravity in the amount of approx. 200 m3 / day with a treatment capacity średnio500 m3 / day. After cleaning the sewage discharged into the river Vistula.
3. Biological wastewater treatment plant "Mountain" type Bioblok mut-300. Sewage flows to the sewage canal gravity in the amount of approx. 100 m3 / day with an average treatment capacity of

280 m3 / day. After cleaning the waste water is discharged into a drainage ditch and then into the river Vistula.
4. Mechanical-biological treatment plant "Borowiczki" type Bioblok 2x WS 400. After cleaning the waste water is discharged into a drainage ditch, then the river Vistula. Sewage sludge is transported to a treatment plant in Maszewo, due to the lack of equipment sludge. The treatment capacity is 338 m3 / day, and average flow of wastewater to the treatment plant - 113 m3 / day.
Among the above, industrial site is covered by the the mechanical-biological treatment plant "Borowiczki."

In the area of Plock are also works treatment of domestic sewage and industrial providing services to the needs of their own:

- mechanical - biological - chemical wastewater treatment plant Production Plant PKN Orlen SA
- mechanical - biological sewage treatment plant in Dr. Oetker Poland Sp. o.o. in Plock Ciechomice;
- mechanical - biological sewage treatment plant in the municipality Plock Mountains;
- mechanical sewage treatment plant on the premises of Mega - Tech Sp. o.o. in Plock Trzepowie;
- mechanical - biological sewage treatment plant in the PBP Petrobudowa;
- leased by the company Installation Works ELWOD Sp. with o.o. .;
- household sewage treatment plant for the animal shelter in Plock.

Radom and Pionki urban functional zone

Brownfields in Radom

Waste water from the city area is discharged into municipal sewage treatment plant located in the northern part of the non-urbanized city. The wastewater is treated mechanically and biologically, in the treatment point is located for water catchment for wastewater from few urban and suburban areas without sewege. It is also escorted part of industrial waste, which are subjected to a process of chemical purification. It also works to install tannery wastewater treatment and recovery of chromium contained in them.

City of Pionki

In the city of Pionki there is a mechanical-biological sewage treatment plant, sewage adopting economic and cultural life of the city area, as well as industrial waste from existing industrial establishments. Sewage treatment plant was established in 1974. Under construction Plant of Artificial Leather. In 2005, the treatment plant has acquired the Municipality of Pionki, but the object

is not sufficiently modern, lead mechanical-biological purification using activated sludge. The complex treatment plant is located on the eastern edge of the city near the town of Januszno. The treated sewage is discharged into the river Zagożdżonka.

2.4.2 Power plants

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

On the analyzed area is not located any power plant. The right-bank part of Warsaw has two power plants, ie. heating plant in Żerań and Kawęczyn.

Targówek Fabryczny post-industrial zone

On the analyzed area is not located any power plant. The right-bank part of Warsaw has two power plants, ie. heating plant in Żerań and Kawęczyn.

Płock urban functional zone

Within FAPA the factory and power plant exists in the complex petrochemical and refinery PKN Orlen in Plock. Power Plant produces heat and electricity cogeneration. It is the largest such industrial unit in Poland, and also one of the largest in Europe, which in addition to the power plant main plant of the company, also provides heat for the city. Its total electric power is 345 MW, and the total heat capacity is 2,149 MWt.

PKN ORLEN started to build a CCGT in the Production Plant in Plock. Production of electricity and heat with a new unit with a capacity of nearly 600 MW, will start in late 2017-2018r. The budget is scheduled for 1.65 billion zł. Power Plant, which will be built top-class gas turbine, will supply steam and electricity for the Plant in Plock, while excess electricity will go to the National Energy System. The new facility will be one of the technological process generate heat in combination with electricity. The volume of electricity produced in Plock size of 3 TWh will be directed to external sales on the domestic market. The generated steam is however entirely consumed by the production assets of the ORLEN Group and local consumers. The hotel also has the power to support the northern Poland.

Radom and Pionki urban functional zone

Brownfields in Radom

In Radom there is no power plant. The city is supplied by two power nodes (distribution station "Kozienice" and "cones"), which are part of the national power system. In the city communal heating system powered by two heating: "Heating Plant South" located on the south end of town and "Heat Plant North", located in the northern part of the city. Heating system covers at approx. 40% of the demand for thermal energy for heating and domestic hot water. The heating medium is water, distributed in the duct system and insulated pipes.

City of Pionki

Electricity is supplied to the city Pionki through a nationwide network of 15 kV overhead lines extending from GPZ-City Pawns 110/15 kV located in the administrative boundaries of the city street. The Augustan. Old residential and Central Cologne are powered by GPZ 110/6 kV located in the former ZTS "Pronit." Pawns GPZ-City is equipped with two transformers of 16 MVA. GPZ Pionki - City supplies the 6 line of medium voltage 15 kV. Three of them are conducted as cable and three as overhead. Reserve power substation Pionki City are considerable. It is estimated that the degree of utilization of installed capacity does not exceed 25%.

2.4.3 Transport (roads, railway, airports and harbors)

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

The area is crossed by a network of provincial roads - No. 631, No. 637, No. 719, No. 801 and the national road No. 2. In the immediate vicinity of the area of the railway line and train station (Warszawa Schodnia), as well as train stations SKM and WKD (Warsaw Stadium). On the analyzed area are large, busy artery of communication among ul. Grochowska, Al. Washington. The communication area of the left-bank Warsaw, in the center of the capital provide road bridges, including the bridge Jozef Poniatowski Bridge Łazienkowski, Most Holy Cross bridges and two railway bridges.
In the district of Italy is located in Poland, the largest international airport - Warsaw Chopin Airport. It is located at a distance of about 8 km southwest of the city center in the heart of Italy.
The area also has access to a waterway that is the Vistula River. The adjoining area of the Vistula River project is part of an international waterway E-40 in Gdansk, the Tczew, Warsaw and Brest to the Dnieper and the port of Odessa on the Black Sea and navigable route of minimal current economic functions (freight transport). In the immediate vicinity of the area is a closed port Prague with the port area.

Targówek Fabryczny post-industrial zone

In the immediate vicinity of the area runs the provincial road No. 634, which is also main traffic area, dividing it into two different functional parts. This road connects to the national road No. 8, which marks the border between Targówek and Białołęka. The main axis of the sub-area is the street of the Prince Ziemowita. Area Targowek Fabryczny is crossed bt the railway network. The current system of road and rail causes the isolation.
The nearest airport is located in Włochy District, where it is located is Poland's largest international airport - Warsaw Chopin Airport. It is located at a distance of about 8 km southwest of the city center in the heart of Włochy District.

Płock urban functional zone

At a distance of about 60 km from the border town of Plock run European routes: the E75 connects Greece with Norway and E77 connecting Hungary with Russia. At a distance of about 90 km through the European route E30 connecting Ireland with Russia. By the city of Plock run two national roads:

- No. 60 relationship Łęczyca - Kutno - Plock - Drobin - Glinojeck - Ciechanów - Makow Mazowiecki - Rozan - Ostrow Wielkopolski,
- No. 62 relationship Strzelno - Wloclawek - Plock - Wyszogród - Zakroczym - Nowy Dwor Mazowiecki -Serock - Wierzbica - Skuszew - Lochow - Sokolow Podlaski - Siemiatycze.

In Plock, its origins have four provincial roads: No. 559 to Lipno, No. 562 to the village of Upper Szpetal No. 567 to the village of Gora, No. 575 to the village of Kamion.

By Plock runs partially electrified, single-track railway line No. 33 relationship Kutno - Plock - Sierpc-Brodnica. Within the city line is served by train stations: Radziwie Plock and Main.
Department PKN Orlen is operated by siding onto the Trzepowie. Railway lines come
also to the river shipyard and factories harvesting machines.
Plock is the river port (there is a river shipyard and marina) and lies at an international waterway E-40 running from Gdansk, through Tczew, Warsaw and Brest to the Dnieper and the port of Odessa on the Black Sea. In the section of Plock - Wloclawek is the longest in Poland stretch of waterway Class V - meets the requirements of international roads water.

In Plock between the streets Bielska, Jędrzejewo and Trade Fair is an airport belonging to the Polish Aero Club. It is a private airport on the turf surface, having the international ICAO -EPPL. The airport has virtually no significance for the city's transport system. Nearby airports serving passengers is located in Modlin (a distance of approx. 70 km from Plock), Lodz (approx. 123 km) and Warsaw (approx. 132 km).

Radom and Pionki urban functional zone

Brownfields in Radom

Radom is a major transportation hub in the region and has a well-developed network of external connections based on the two main roads: to the NS road of international significance E-77 (Gdańsk-Kraków) and the railway line of national importance 8 (Warsaw-Krakow) and EC towards the national road No. 12 (Lublin- Piotrkow Trybunalski) and the railway line of national importance No 26 (Dęblin-Radom), together with its regional extension 22 in the direction of Tomaszów Mazowiecki. These key relationships Communication is complemented by national road No. 9 (Radom- Rzeszów), provincial road No. 737 (Radom- Pionki- Kozienice), provincial road No. 740 (Radom- Monster), provincial road No. 744 (Radom- Starachowice). Complementing the external transport links is a recently launched civil-military airport Radom Sadków. Street circuit in the city is characterized by low efficiency, incomplete system of the main routes of peripheral and diametrical, as well as the low standard roads.

City of Pionki

City of Pionki is located directly on the provincial road No 737 Radom - Pionki - Kozienice. Although it is not located directly on the main roads of national road No. 737 provides a good connection with them, connecting with roads 7 and 12. Existing roads provide good connections in the region and the rest of the country. The town has a railway connection, passenger and freight, with large railway centers in Radom and Deblin. Pionki by the railway line normal-26, which are located at two passenger stations (Pionki and Pionki Western) railway siding, which can be valuable for the development of brownfield area.

2.4.4 Legal and planning context

Urban functional zone of the Capital City of Warsaw

Kamionek and Targówek Fabryczny were covered by the boundaries of the Integrated Programme for Urban Regeneration in Warsaw 2022 (Annex to Resolution No. XXXIII / 809/2016 Warsaw City Council of 08.25.2016 r. This means that the revitalization 2022 will be conducted in designated priority areas and priority on designated sub-areas of crisis.

ZPR in the above-mentioned areas presupposes the application by the city of profiled tools:

1. regulatory (local law) - the need for early adoption of local plans for specific areas: Kamionek - Region ul. Podskarbińska, Region Wiatraczna cz.II., Targówek factory - the area bounded by streets Radzymińska, gen. T. Rozwadowski, Prince Ziemowita, Naczelnikowską, district st. Princess Anne.

Among the regulatory tools that will be applied to targeted areas also include social clauses, maintenance grants, rules for the use of space, the management and coordination of cultural activities and local support system

2. ownership (management of the property, creating attitudes) - open calls (local initiative and participatory budgeting) including playgrounds, recreational facilities, a small architecture and small forms of green transportation solutions, policies coffee shops, for example. Holiday rent, sublet, expanding the program of urban cultural institutions, Capital Sports Centre Active WARSAW, fund subsidies, increased coverage (heating, water and sewage) and activation of the unemployed

3. investment (interventions) - to organize the space, regional centers, tools for activating (Program Activation and Integration), scholarships for animators, actions in support of LSW, retrofitting heating, standard buildings, premises for rent (housing), expansion and modernization of existing : cultural institutions, infrastructure, recreation and sports, and the elimination of architectural barriers.

Kamionek post-industrial zone

The analyzed area is characterized by large land cover local spatial development plans (master plan) - area of the East Railway Station (resolutions of the Warsaw City Council No. XCIII / 2737/2010 dated 21.10.2010), the area of ul. Grochowska on the section from the street. Lublin to the street. Kaleńskiej and Modrzewiowa (Resolution of the Council of the Warsaw-Centre No. 143 / VIII / 99 of 04.29.1999), and the area Ronda Wiatraczna part II (Resolution of the City of Warsaw No. XXIII /

566/2016 dated 01.28.2016 r .), Ronda area Wiatraczna - part I (Resolution of the City of Warsaw, no XCIV / 2413/2014 dated 11.06.2014).
Applicable master plan for the region of Eastern Station introduces m.in .: ban on locating objects and equipment, which may cause exceeding permissible standards of environmental quality, including prohibits locating: petrol stations, car repair shops, vehicle service station, car wash, funeral homes (outside of on which they are located) and the other for virtually every use of the land referred to in the plan, and prohibits the supply of existing buildings in the heat of the individual solid fuel boilers. In the area shows buildings, urban planning and team building protected conservation.
Plan for the area of ul. Grochowska on the section from the street. Lublin to the street. Kaleńskiej and Modrzewiowa including determine the course of the boundary line of the upper terrace as the boundary of the protected area, the area covered by the plan prohibits locating investments particularly harmful to the environment and the investment that may worsen the condition of the environment, excluded locating industrial facilities, warehouses, storage facilities as well as facilities and equipment cumbersome, whose nuisance beyond the boundaries of the location and provisional forms of land use and land use. The plan indicates the historic groups under legal protection and conservation within the limits established in the plan. Moreover ternach MU, U, UC and other plan recommends systematic efforts to release land occupied by the nuisance plants, temporary bases, depots and warehouses as well as completely worn out technically residential buildings, outbuildings and farm buildings and use them for residential and - service a high standard of use. In accordance with the provisions of the plan of issuing administrative decisions for the new location should be preceded by the project of transformation and rehabilitation of buildings throughout the quarter within the surrounding streets, or at least the study program and space to the established rules of staging.
For a large part of the area master plan they are at various stages of proceeding (plans to develop). The SMPS also indicated the need for early adoption of local plans: Division Street. Podskarbińska and District Wiatraczna cz.II.

Ultimately, local plans should identify development areas and areas to be protected because of their unique character. It is important to the development potential of the priority area resulting from the already adopted local plans (SMPS s.135)
The area is situated in the impact zone of the flood risk associated with the Vistula River.

Targówek Fabryczny industrial zone

On the analyzed area have adopted the following plans - mpzp Targowek Industrial (Resolution No. XX / 227/00 Council of the Warsaw Targówek of 27 April 2000.) And a master plan Targowek Factory in the area of streets: the River, Prince Ziemowita and Klukowski (Resolution of the Council m. st. Warszawy, No. XXXIII / 794/2012 dated 08/03/2012). According to the current state of planning and guidelines on the designated area began to re-develop a master plan in the area - ul. Radzymińska, Rozwadowski, Prince Ziemowita and Targowek Factory in the area of ul. Princess Anne.
In SMPS points to the need for early adoption of local plans for specific areas Targówek factory - the area bounded by streets Radzymińska, gen. T. Rozwadowski, Prince Ziemowita, Naczelnikowską, district st. Princess Anne. It is also necessary to clarify the provisions of the local plans. According to the record of MPR "In the first place it concerns Targowek Factory as part of the planning procedure, the area of the former Plant Fatty Kruszwica, and to take the planning procedure for remaining outside this part of the procedure Targowek Factory, in particular in the area adjacent to the other side of the railroad tracks." As is clear from the findings it is necessary to amend, for significantly

reducing the permissible nuisance localized in the area of establishments engaged in the business of gathering and processing of waste.
Important for the revitalization of the subarea have records of the local zoning plan Targowek Fabryczny in the area of streets: the River, Ziemowita and Klukowski on the improvement and development of quality and aesthetics of the building and land development, in particular by repair or replacement of degraded building a new, targeted removal or replacement substandard building economic and garage with a new built-in functions of the buildings of primary and supplementary (housing and services), elimination of elements dysharmonizujących such as advertising media, temporary buildings (except for the approved plan).

Płock urban functional area

Within the limits of Plock it was designated degraded areas and the revitalization of the area in relation to
the adoption of Resolution No. 277 / XV / 2016 City Council Plock of 26 January 2016 on the designation of the area and degraded area revitalization in the city of Plock (Official Journal of the Region of Mazowieckie item. 1741). The resolution indicates the degraded areas within which it is planned to carry out revitalization activities defined in the municipal revitalization program.
In particular, the area of revitalization Plock set the limits:
• housing estates:
of Old Town, collegial - the first sub revitalization
about Dobrzyńska, Slope - the second sub revitalization
about Radziwie - the third sub revitalization
• brownfield - the site of the former sugar factory Borowiczki - fourth sub revitalization.
In this area provides the opportunity to use planning tools dedicated to the revitalization process specified in the Act of 09 October 2015. Of revitalization.
In the adopted resolution No. 442 / XXV / 2016 of the City of Plock dated 29 November 2016 years municipal revitalization program provides for the establishment of the area revitalization Plock Special Zone Revitalization.
Theories of urban planning of the city of Plock determines the spatial policy conducted in the city of Plock. One of the main directions of development of the spatial structure of the city includes the "transformation of degraded areas or dysfunctional through the revitalization of existing structures and reurbanisation production areas - service".
At the moment, there is no need to make changes in the study using a special procedure introduced art. 20 paragraph. 1 of the Act of 09 October 2015. Of revitalization. The analysis and study of the records of Plock Revitalisation Programme indicated that among these documents there are no contradictions, which means that it is possible to implement projects dedicated area of post-Borowiczki as proposed by the revitalization program.
For post-industrial area of the former sugar factory Borowiczki valid local zoning plan settlements Imielnica and Borowiczki with Ośnica in Plock adopted Resolution No. 673 / XXXI / 00 City Council Plock on 19 September 2000.
For the area occupied by the buildings of the former sugar factory was established as the basic purpose - preservation of existing features industry - component Sugar Borowiczki, with the reduction of nuisance plant for the environment to the area established for the primary function of the plan or

the administrative decision.
The local plan also provides for the possibility of expansion, reconstruction and modernization of enclosed structures and equipment, including industrial wastewater treatment plant, and sustainable land management.
On the subject area established prohibitions:
1. locating residential, commercial and other, colliding with the industry - component functions of the plant,
2. locating objects and equipment which may cause an increase in nuisance plant for the environment.
With regard to the historic main building Sugar established the obligation to obtain a suitable arrangement or decision of the State Service for Protection of Monuments in the case of establishment, renovation and construction, and other relationships that might result in changes in the facility or in its environment.
Resolution No. 860 / L / 2014 of the City of Plock dated 26 August 2014 years the above-mentioned local plan was considered obsolete and indicated changes.
Resolution No. 163 / IX / 2015 of the City of Plock dated 30 June 2015. proceeded to change the existing estate plan Borowiczki. You need to change the local plan settlements resulted, among others, Borowiczki from the obligation to adapt the provisions of the plan to flood risk maps and flood risk maps for these areas. Art. 88, paragraph f. 4 Section 5 of the Act of 18 July 2001 Water Law states that you must change the existing documents within
30 months from the date of transfer of the local government authorities of flood hazard maps and flood risk maps.
These maps have been submitted to the President of Plock April 15, 2015 year. From that date, within 30 months, it is necessary to amend the existing zoning plan settlements Imielnica and Borowiczki with Ośnica in Plock, adopted
Resolution No. 673 / XXXI / 00 Plock City Council of 19 September 2000 within the limits areas of flood hazard and flood risk.

Radom and Pionki urban functional area

Industrial area in the valley of the river in the area of the Milky Cultural Park "Old Radom"

Local strategic documents: "The reduction of low emissions in Radom for the years 2010-2017"; "The order of the economy surface waters in the catchment area of the Milky River, within the limits of the City of Radom, together with the concept of the technical activities necessary for the proper flood protection and drainage basin storm water";

Planning documents: SUiKZP Commune Radom, master plan "Piotrówka" master plan "Old Town" - in the course of development, the City Council Resolution No. 170/2011 dated 28.08.2011 on the establishment of the Cultural Park "Old Radom"; Inventory and valorisation of natural river valley Milky section from ul. Marathon to the street. Mieszko I, and between the streets and Starokrakowską Wierzbicka. "

Industrial area on the territory of the former Power Plant in Radom

For the area of the former PowerPlant were not provisions contained in the strategic documents. The only settlement occur in the part concerning the directions of development in SUiKZP Commune

Radom. There is also information about joining the local plan on 23 April 2007. (108/2007), but in the Municipal Urban Planning are not conducted work on a plan for this area.

The study suggests the following recommendations for the plan:

- enable investment activities, service and industrial areas and power plants on the plots adjacent areas by increasing the function of service and production,
- realization of the objectives of the public in the field of construction of basic transport system (road a collective move to the western side of the line PKP)
- revitalization of degraded brownfield and change of use of agricultural land for the purposes of building and service industry,
- implementation of applicable laws on the protection of the environment,
- intensification of investing selected areas (according to the findings SUiKZP)
- improving the investment attractiveness of the city and create jobs by increasing the supply of land for production and service functions.

These recommendations are beneficial from the point of view of re-landscaping.

City of Pionki

In the case of Pionki the evaluation of the content of The Study of the City of Pionki is difficult due to the lack of availability of this document, it is only available for inspection at the paper, which can be a barrier for potential investors. For brownfield land was enacted zoning plan that maintains existing functionality and allows carrying out investment activities outside the Natura 2000.

2.4.5 Ownership

Urban functional zone of the Capital City of Warsaw

Kamionek post-industrial zone

The ownership structure of the area is varied. The largest share in the ownership structure of land which are in the possession of the City of Warsaw and the land of the Treasury.

Targówek Fabryczny post-industrial zone

In the area Targowek Fabryczny is diversified ownership with a predominance of land Capital City Warsaw and the Treasury. Land / plot along Zabraniecka are in the process of change of the ownership.

Płock urban functional zone

The owner of the land and buildings of the former sugar factory Borowiczki is the National Sugar Company SA
National Sugar Company SA It was established in August 2002. as a result of the consolidation of the three sugar companies of the Treasury. It was established on the basis of Mazowiecko-Kujawskiej Sugar Company SA
in Torun. It is the largest in Poland and the eighth largest sugar producer in Europe.

Company's share capital amounts to PLN 990,677,758, of which 79.69% of the shares is owned by the State Treasury, 20.31% owned by current and former employees and beet growers and their heirs. Branches of the National Sugar Company SA They include:

- "Sugar Dobrzelin" based in Dobrzelin,
- "Sugar Kluczewo" based Stargard,
- "Sugar Factory Krasnystaw" located in Siennicy Nadolna,
- "Kruszwica Sugar Factory" based in Kruszwica
- "Malbork Sugar Factory" located in Malbork,
- "Sugar Plant Nakło" based in Naklo n. Notecia,
- "Sugar Werbkowice" based in Werbkowice.

The complex organizational structure and ownership of the National Sugar Company justifies the purpose of the operation in the zone of post-industrial Borowiczki in Plock for creation under the historic buildings sugar common service center documentation KSC SA

Radom and Pionki urban functional zone

Industrial area in the valley of the river in the area of the Milky Cultural Park "Old Radom"

Communal resource properties constitutes only 12% of the city, most of which is invested projects to the public and in perpetual usufruct. There are few investment areas, especially large ones, that are related to municipal property. Makes it difficult to conduct a rational policy of land management and attract new investors. At this area dominated by much fragmented private property, to a large extent invested. Municipal land represent less than 12% and consist mainly of public thoroughfares and squares and green areas not intended for investment.

Industrial area on the territory of the former Power Plant in Radom

The owner of the site is the municipality of the city of Radom.

City of Pionki

City of Pionki owns more than 300 hectares of built-up area after ZTS "Pronit" and most of the area shows the portfolio of investment.

3. Conclusions

3.1 Identification of main challenges

1. In the Masovian Voivodship information on its post-industrial areas and environmental conditions is scattered, incomplete and fragmentary. It's also difficult to get reliable data on the degree of the given area degradation. There is lack of comprehensive information about environmental hazards of the degraded areas due to industry and utility categories for the future economic potentials.

2. Scattered information on post-industrial areas has a negative impact on their development management. Currently, there is lack of centralised knowledge sources about the post-industrial areas on the regional level as well as the mass inventory and area valorisation system. Post-industrial area inventory information is given for instance by The Institute for Ecology of Industrial Areas (IETU), The Central Statistical Office (GUS), local governments (area intended use foreseen by local zoning plans, among others), The General Directorate for Environmental Protection (GDOŚ) – as far as environmental damages and accidents are concerned. However data on post-industrial areas got from the above mentioned institutions are incomparable and incompatible as for the number and total surface of the areas.

3. The lack of a consolidated social and economic development of post-industrial areas planning system. At present some elements regarding the development of post-industrial areas are included in many strategic documents prepared to support the management of the whole municipality such as The City Development Strategy, The Environmental Protection Programme, The Study of Conditions and Directions of the Commune Spatial Development, The Regeneration Program. The Study of Conditions and Directions of the Commune Spatial Development identifies degraded areas for their spatial, functional, technical and environmental aspects by showing areas in need of transformation, land rehabilitation or decontamination. Though according to the article 9, section 1, of the Regeneration Act the degraded area is determined for the regeneration program taking into consideration the concentration of negative social phenomena mainly such as unemployment, poverty, crimes, low education or social capital level as well as the insufficient participation in public and cultural life, co-existing with at least one of the negative economic or environmental, or spacial and functional, or technical phenomena. So, it may be concluded that each of the above mentioned strategic documents treats differently degraded post-industrial area data and dedicates them different development directions and tools.

4. According to the Regeneration Act of October, 6, 2015 while running regeneration processes it is possible to integrate regeneration policies into spatial planning but only regarding inhabited areas. One of the major problems of post-industrial areas is the fact that it is impossible to connect economic planning with the spatial one. Only in the regeneration programming phase there is a possibility of preparing regeneration projects for post-industrial areas located within the regeneration areas in long-standing perspective – in case of private ownership situated there. Yet, regeneration project rules limit long-standing economic planning, preparing financial plans, project pipeline in regeneration program. In

the city and economic development strategies priorities are mainly dedicated to the local government regarded as the leader of the development processes.

5. Obstacles to include post-industrial areas into the regeneration areas. According to the article 10, section 3 of the Regeneration Act of October, 9, 2015: uninhabited post-industrial areas […] characterised by negative phenomena (economic, environmental, spacial and functional, technical) may be included in the regeneration area only when actions possible to proceed there help to overcome negative social phenomena. In practice, these regulations limit the possibility of financing interventions in the area (i.e. by structural EU funds for regeneration processes in the 2014–2020 perspective) – mainly to social projects. It means that actions on the post-industrial areas undertaken within regenerations processes would concentrate on the functional change – to convert these areas for social purposes, such as strengthening their functional connections with inhabited neighbourhood.

6. In case of private ownership there are no legal basis for post-industrial rehabilitation guided by public institutions.

7. There is lack of good practices as far as processes of degraded post-industrial areas management are concerned.

8. At present there is no regional strategic document enabling the consolidation of knowledge about planned operations to be taken in the post-industrial areas by all parties. There is lack of information about total private capital to be engaged in operations related to post-industrial land rehabilitation. There is lack of knowledge about the scale of planned projects. The lack of knowledge limits the possibility of managing financing sources dedicated for example to environmental or area improvement or by the subvention donors.

9. Projects plans within regeneration programs do not solve comprehensively all post-industrial zone problems but activate some of their parts.

3.2 Indications for a more balanced approach to environmental management of urban industrial areas

1. There is a need of post-industrial area regional data system based on a homogeneous valorisation methodology of these areas. A preliminary valorisation would enable to indicate priority areas in terms of their use for future economic purposes.

2. Collection of most important information on post-industrial areas and classification of these areas should be undertaken. Taking into consideration the need of development policy effectiveness – and the fact that post-industrial areas are not exclusively local government responsibility – it should be considered to prioritise areas according to the degree of danger for the ecosystem and health in order to accelerate rehabilitation processes. Information should be gathered for priority areas in order to conduct a detailed valorisation and preparation of transformation scenarios.

3. The IT tool should be created in order to manage the post-industrial areas development taking into consideration environmental protection purposes, area transformation potentials, including social and demographic changes. The IT tool should make planning processes more effective on the regional level and offer regional prognosis and development models.

4. There a need of preparing a homogeneous strategy for post-industrial areas for the region as well as introducing a regional system of area degradation and rehabilitation monitoring. The strategy would enable consolidated planning of the social and economic development of post-industrial zones as wells the integration of economic and planning policies dedicated to these areas.

5. There is a need of knowledge sharing about post-industrial areas through meetings, conferences, information and promotion campaigns about the regeneration of degraded areas and their renewed use for economic, social, environmental and cultural purposes – in order to identify potential stakeholders of the process and start mutual co-operation.

6. Post-industrial area management system introduced in Silesia (Śląsk) can be a good practice example. The Silesian Regional Assembly (Sejmik Województwa Śląskiego) adopted the Regional Assembly Post-industrial and Degraded Areas Transformation Act, no III/31/11/2008, on December, 17, 2008, dedicated to the regional database of post-industrial areas. The aim of the program is to create tools enabling the preliminary and full valorisation of areas and their classification as well as application of these tools for areas included in the regional base.

INDEX OF FIGURES

INDEX OF TABLES

INDEX OF PHOTOS

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