Socio-ecological Cohesion

Bioregional Strategy 'Beyond Growth' for the Szczecin Functional Area, Poland

Master Thesis | Anna Klimczak

Colofon

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Master Thesis
P5 Report

Anna Danuta Klimczak
klimczak.ann@gmail.com
4739698

Research studio

Complex Cities
"Imagining European Regions"
Department of Urbanism
Faculty of Architecture and the Built Environment
Delft University of Technology

Mentor Team

Dr. Dominic Stead (first mentor)
Chair of Spatial Planning and Strategy
Faculty of Architecture and the Built Environment
Delft University of Technology

Dr.ing. Steffen Nijhuis (second mentor)
Chair of Landscape Architecture
Faculty of Architecture and the Built Environment
Delft University of Technology

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Abstract

Climate changes, sixths mass extinction, use of natural environment and extreme landscape transformation have been bringing question of long, sustainable future. Broadly accepted 'growth paradigm' has been reaching ecological limits on the planetary level (Steffen et al., 2015). On the local level Szczecin city, with its rural region, localized in West Pomerania Voivodeship (Poland), has been already facing the ecological challenges. More than that, through 'growth paradigm' also the internal permineralization and social exclusion. Broadly accepted strategy, based on neoliberal model of economy, focusing on developing region on its economical level, what has no direct translation into quality of living of its citizens. Dependence, lack of resilience and so called developing 'undevelopment' (Sowa, 2011) addressing need of search for strategies 'beyond growth' (Ciesiółka, Motek, Kołsut, Stryjakiewicz, & Kudłak, 2017). Focusing on landscape adaptation and strengthening the regional community, the bioregionalism as a framework, has been opening alternative vision for spatial planning, as field responsible for development concepts. Following project, has been focusing on the exploration of the bioregional approach and its possibilities as the spatial planning framework. Using the 'research by design' methodology, the spatial strategy for Szczecin functional area give a possibility to answer cross-scale problematic (Carr, 2004): ecological (climate adaptation with biodiversity lost) and social (low social capital, exclusion and lack of social services).

Key words

Szczecin, Poland, socio-ecological systems, periphery, bioregionalism, degrowth, regional planning.

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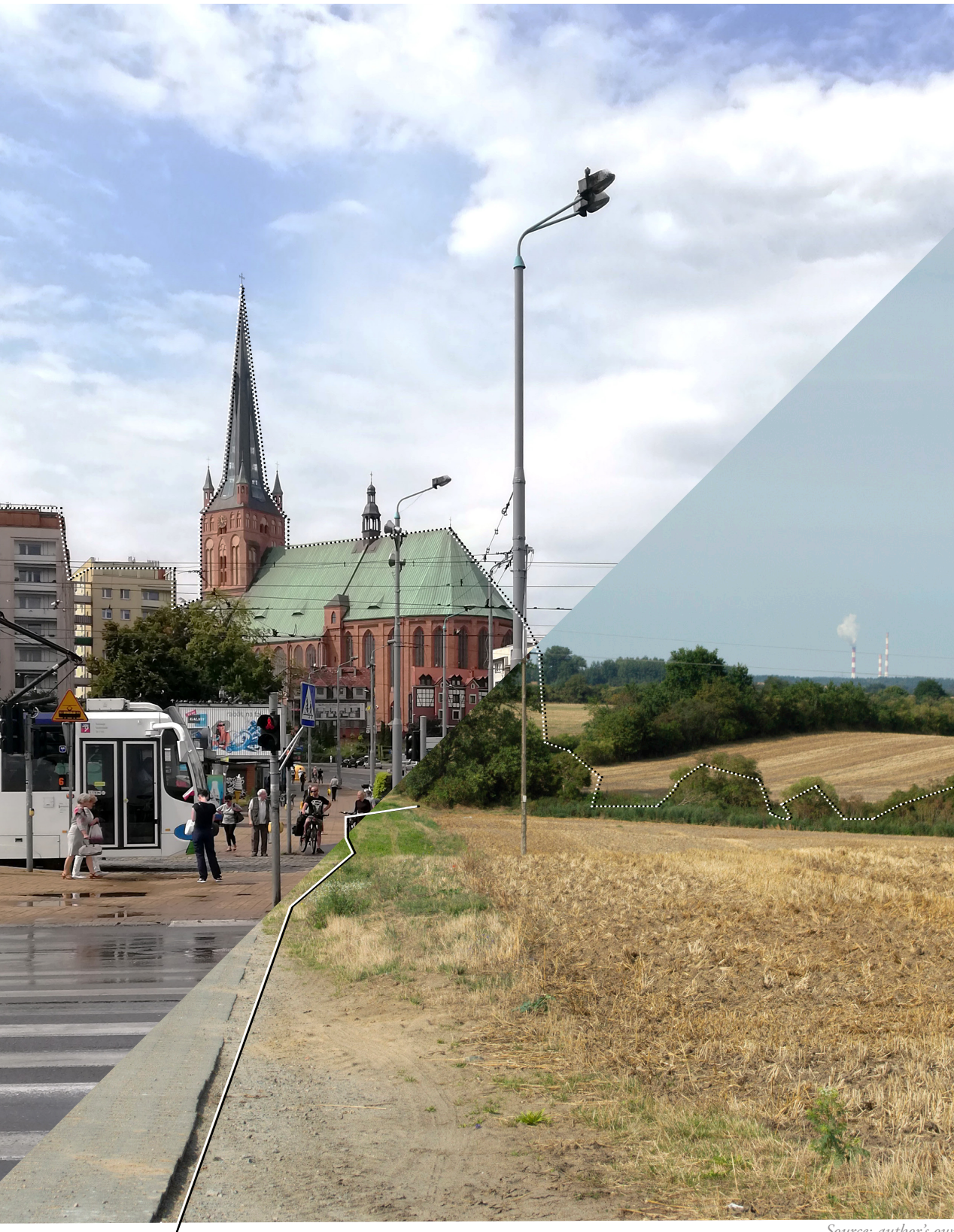
1. Introduction

"With few exceptions, economics as a discipline has been dominated by a perception of living in an unlimited world, where resource and pollution problems in one area were solved by moving resources or people to other parts. The very hint of any global limitation as suggested in the report The Limits to Growth was met with disbelief and rejection by businesses and most economists. However, this conclusion was mostly based on false premises"
Meyer & Nørgård (2010)



Source: author's own

Figure 1. Ecological Park Puszcza Bukowa (Beech Backwoods) on the Szczecin city borders, being now under development pressure (source: Hanna Ostręga)

Motivation

According to authors of *Limits to Growth* publication (Meadows, Meadows, Randers, & Behrens, 1972) the growth oriented economy is human major obstacle. Following it climate changes are just one of the possible results that we are facing now. Recently, more and more alarming, upcoming events and world reports giving a proof for worrying observation of the scholars, presenting world system complexity, where short-term, profit oriented action, do not meet long-term social or ecological processes.

Motivation for this thesis was built on general struggle with broadly accepted paradigm, described as economic growth. Following that trial, proposed different thinking for the Polish peripheral region, being under strong pressure of economic development. Academical consideration of strategies 'beyond growth' and 'post-growth scenarios' focused in approach of bioregional development, has been challenged with the local scale and local problematic of Szczecin and its functional area.

Socio-ecological cohesion

The project tittle, not existing in academic nomenclature, express the reflection of the bioregion as a social construct. The word cohesion, meaning '*the action or fact of forming a united whole*' emphasizing the need of combined approach for ecological and social development. The idea of the bioregion: the community living in its ecosystem borders, where community is the part of the ecosystem. Transforming it into the project: introduce ecological adaptation should be supported by social infrastructure brining its visibility and vice versa social infrastructure should benefit the ecological system, even indirectly, education, building consciousness.

Problem field reflecting the planetary scale

Neo-liberal system prioritizing economic growth is broadly associated with general health. However, as result of desirable, economic development, with the perception of living in unlimited world, the system had accelerated social and ecological problems. Believing, that the resource and pollution can be easily moved (Meyer & Nørgård, 2010) with the focus on short-term income, human kind accelerated the climate changes and caused sixths mass extinction, that brings a question about sustainable future for all.

Ecological problems, are clearly visible on the planetary scale. IPBES report[1], World Inequality Report[2], Global Footprint Network[3] and also the research of Stockholm Resilience Centre[4] about planetary boundaries – those are only few examples of studies emphasizing the urgency of the human activity adaptation. Furthermore, opening urgent need for *a new paradigm that integrates the continued development of human societies and the maintenance of the Earth system* (Steffen et al., 2015).

Zooming into the local scale, the ecological problematic become less clear, differed by the geographical conditions. Szczecin and its functional area, the project working area, is presenting highly green territory, with high percentage of the forest cover (35,4% of the West Pomerania Voivodeship) and unique ecological reservoirs. First view presents positive way of territorial management, while the problems and pollution appear in the cities and surrounding it industries. It is conjectural thinking, while human activities and escalated urbanization processes cannot be any more limited to places understood as 'urban' (Brenner & Schimd, 2011). The bioregional landscape has been transformed since centuries, in a way making questionable ecological adaptations for Szczecin and its region as part of West Pomerania, Poland. The particular challenges on the area are elaborated on following page.

1 IPBES report 'Global Assessment Report on Biodiversity and Ecosystem Services', 2019
2 World Inequality Report, World Inequality Lab, 2018
3 https://www.footprintnetwork.org/
4 https://www.stockholmresilience.org/research/planetary-boundaries.html

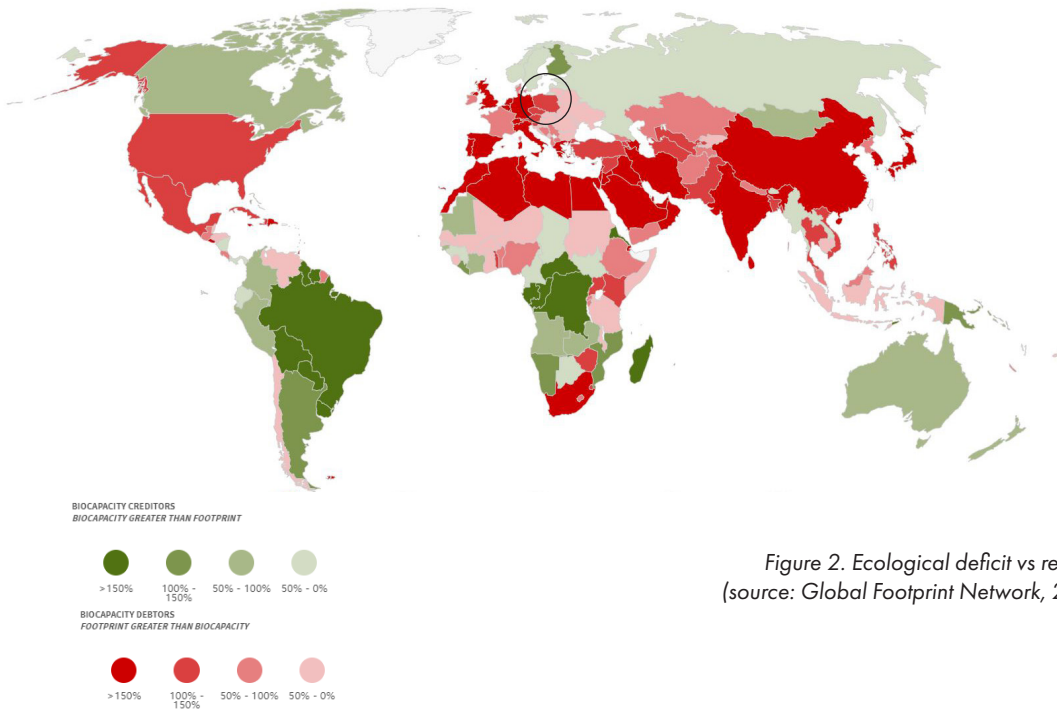


Figure 2. Ecological deficit vs reserve (source: Global Footprint Network, 2019)

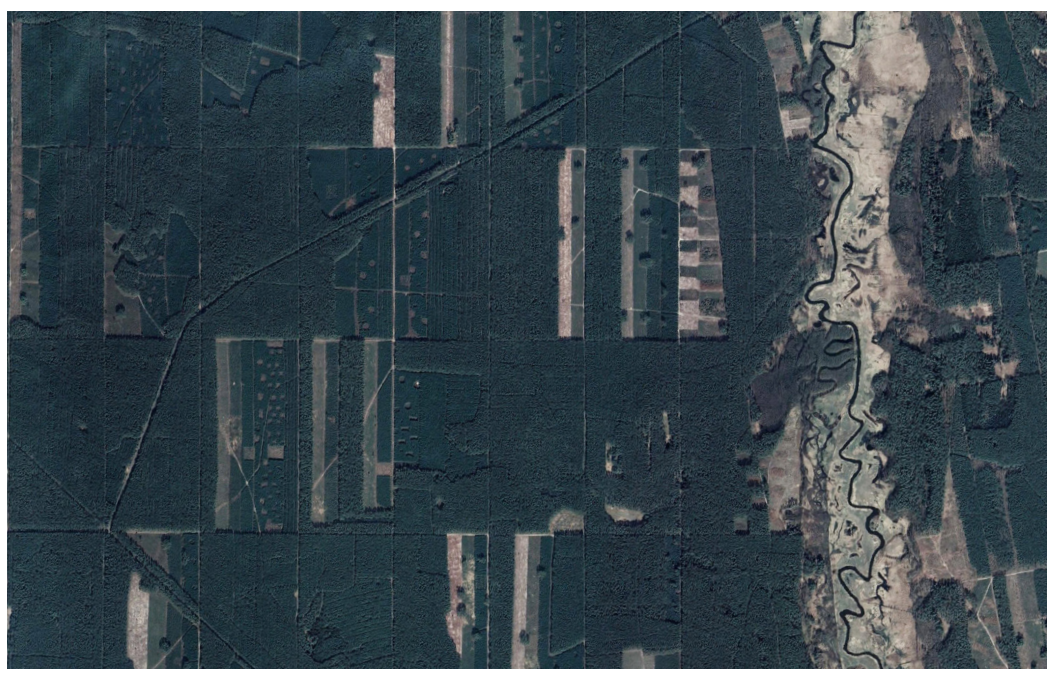


Figure 3. Monocultural industrial forests and Ina river, closed to village Strumiany (source: Google Earth)

Figure 4. Dry agricultural landscape, farmers appeal about announcement of the national drought catastrophe, July 2019 (source: author's own)

Figure 5. Sand storms, April 2019 (source: to.com.pl)

Ecological challenges of Szczecin and its bioregion

Having looked at the broad problem field, the planetary limits to growth, attention is turned to present and future ecological challenges, being the result of human activity. Environmental transformation, visible in the present shape of the territory, are continues process of human-environment relations (Fabinyi, Evans, & Foale, 2014) following the economic development model.

> *Well-being fundamentally rest on the capacity of the biosphere to sustain us, irrespective of whether or not people recognize this dependence (Folke, Biggs, & Reyers, 2016)*

The future challenges for the region are overlapping with global IPBES report in the same time questioning the ongoing management on the region.

Region, not only because of its agricultural character, but also because of big amount of biological reservoirs have a great potential, unfortunately put under the threat of climate changes and biodiversity lost. Land degradation and soil erosion, caused by advanced agriculture, together with the low rains, resulted in critical drought periods (700 million euro in agricultural losses, covering 57,41% of national crop land in 2019) and unexpected sand storms (April 2009). Rapid drainage and rigid river regulation, peat and wetlands transformation, have been escalating upcoming changes, questioning the water security. Projections of the future climate conditions assumed much lower precipitation, higher average temperatures and rapid weather phenomena, will influence the future of bio-production but also daily life of the citizens. Monocultural forests and uniform agriculture will make ecosystem less resilient for climate adaptations. However, the ecological challenges, are not the only one, that region is struggling with.

Figure 6. More and more rare small scale local flooding during spring season (source: gs24.pl)

Figure 7. Extreme low precipitation causing forest fires, August 2019 (source:radioszczecin.pl)

Problem focus - local scale and socio-economic challenges

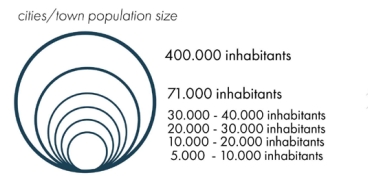
While focusing the problem field on the study area, the ecological challenges appear as less important in comparison to socio-economic conditions. The project area, Szczecin with its region, place outside global cities network, being peripheral Polish secondary city, concentrating its development on the economic growth.

Many peripheral cities and regions, *'seem to be locked in a vicious circle of economic stagnation and social marginalization which are frequently a consequence of historically determined preconditions (..) major problems of those regions have a structural nature that locks them in underdevelopment trajectories. They are often targets of public policies and strategies intended to stimulate development processes*' (Ciesiółka, Motek, Kołsut, Stryjakiewicz, & Kudłak, 2017).

The same process is visible in Szczecin area. By prioritizing private investments, national[1] and regional[2] strategy are not advancing the society. It is expressed in sectoral politics, social institution, even academical discussion, strongly believing so called *trickle-down*. This attitude perfectly follows the World Systems Model by Immanuel Wallerstein, showing how highly pointless this approach is (Moyer, 2016).

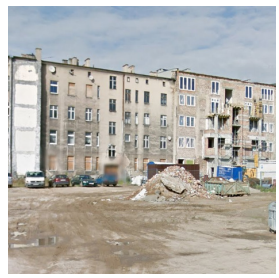
Due to that scholars are calling for strategies '*beyond growth*' for peripheral places (Ikerd, 2014; Leick & Lang, 2018), what means strategies not having the economic development as first, developing region for local focus, not global investment. Failed development models in peripheral places gives second important angle to the problem field, showing not only global ecological limits, but also local, social limits to growth. Direct connection between opening the question for each extend strategy '*beyond growth*' can relate to both cross-scale problematic aiming for the cohesion.

Figure 8. Right: Project area: Szczecin Metropolitan Area and Szczecin functional zone with 100 km of cross border connection for the analysis purpose. (source: Open Street Map)



1 Polish National Spatial Development Strategy 2030
2 Regional Operational Programme for West Pomerania Voivodeship for the years 2014-2020

Figure 9. Aerial view of Szczecin city centre - developed for cultural class purposes, main attraction to foreigner investments. (source: www.gs24.pl)











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Niepodle








Periphery

Contextualizing broad problem field, the choice of project location bringing additional challenges in historically determined conditions. Divided history, transferring region from one nation to another, have been placing it always in peripheral, agricultural position. Since 16th century city and its regions have been developing as satellite of Berlin with strong emphasis on port and harbour giving Germany access to North Sea and Baltic Sea countries. Hoverer after Second World War, West Pomerania was transferred to Poland, what together with unclear border status and massive Polish-German resettlements, bring long-lasting '*psychosis of provinciality*' (Musekamp 2010). Soviet land management together with failed transformation did not cross peripheral characteristic.

Recent, neo-liberal strategies, with major focus on the infrastructural projects, not balancing enough social disadvantages. What is more important, strategies do not take into account future challenges: social and ecological. Taking as an example Social Inclusion Zone (*Specjalna Strefa Włączenia)*, the area defining cross problematic municipalities since 2015 (high unemployment level, low Local Human Development Index, lack of services and mobility) enlarge its borders in 2019. Villages with non-functional bus stops, limited access to kindergartens or schools, lack of communal places and closed small shops and local services are common situation area setting.

Social Inclusion Zone is overlapping with areas having strictly agricultural character. Thus, regional urban settlements are highly dependent on the ecological conditions of the area. Last 15 years, with the European Union support, bring visible changes. Thanks to supportive cohesion policies, from the EU site, strong emphasis has been put on the rural, peripheral areas. However, in practice those internal peripheries and following it landscape, through fragmented sectoral policies, are not developing enough environmentally, neither equally the social structure.

Figure 10. The mood board of different urban settlements from the region from the city, through towns into villages with the characteristic colourful elevation, being highly criticized by architectural associations (source: Google Street View and author's own)

The role of spatial planning

Urbanism and spatial planning should look for alternative theoretical perspectives to not repeat failing visions (Sheppard, Leitner, & Maringanti, 2013). Present spatial strategies, translating regional vision into spatial conditions are contributing in economic development of the area. Exploring the possibilities of different approaches in spatial planning, focusing on the bioregion and its society might help in creating alternatives.

On the regional scale, lack of spatial regulation in situation, where any investment is prioritized, without its contribution to public, results in uncontrolled and harmful spatial expansion. The Polish spatial structure, express its planning failures: fragmentation, exclusive public space, inaccessible housing, car oriented infrastructures, weak public transport without accessibility, lack of access to green areas, lack of water resilience, lack of biodiversity in the urban environment. Polish spatial chaos started being already described as non-profitable in terms of national cost (19,8 billion euro of national budget each year).

Figure 11. One of two connection between two parts of the Szczecin city - motorway crossing old city town (source: gs24.pl)

Figure 12. Single-family houses in offer of the private developer (source: www.vastbouw.pl/oferta)

Figure 13. Random development in Warzymice - south Szczecin border. (source: Google Earth)

Figure 14. Abounded tenement house inside Szczecin city centre (source: www.fakty.interia.pl)

Figure 15. Regional Park in Gryfino municipality (Special Economic Zone) (source: www.paih.gov.pl)

Testing the bioregional spatial planning

Facing the planetary criticism, emphasizing ecological problems, with the local criticism, emphasizing socio-economical inequalities, the spatial planning, introducing cross-scale actions, appear as a necessary tool. Strategies beyond growth, not focusing on economic development, based on switch of priorities. During theoretical pre-research, this project explored two main approaches: 'Degrowth' and 'Bioregionalism', that have been compared in order to find theory allowing working on the problems with two scales. (2. Theoretical Framework with Sustainability Section in the chapter 3. Research Design shows combination of values. 1. Theory Paper in the chapter 9. Appendix analyses spatial transformative elements in both theories.)

Following project, presented in next chapters, focusing on the exploration of the bioregional approach and its possibilities as the spatial planning framework 'beyond the growth'. To exceed the negative development, the strategy is focusing on bioregional problematic at first. Using the 'research by design' methodology, the spatial strategy for Szczecin functional area, give a base for exploration, a testing element, giving the possibility to answer cross-scale problematic (Carr, 2004): ecological (climate adaptation with biodiversity lost) and social (low social capital, exclusion and lack of social services).

Bioregional framework, guiding the regional analysis, allowed to understand the constructed structures of the landscape (Chapter 3. Landscape and the territory and Chapter) as well as its bigger threats and challenges. Possible solutions - adaptive spatial transformations have been described in three out of four design principles of the regional strategy (Chapter 5. Strategy).

Considering the bioregion as a *cultural construct* (Meredith, 2005), as the consequence of primary conditions of the area (landform and water conditions), has been challenging. *"Closely associate a particular indigenous community with a geographical referent such as a watershed, (…) 'A community [is] an experience rather than a place"* (Meredith, 2005).

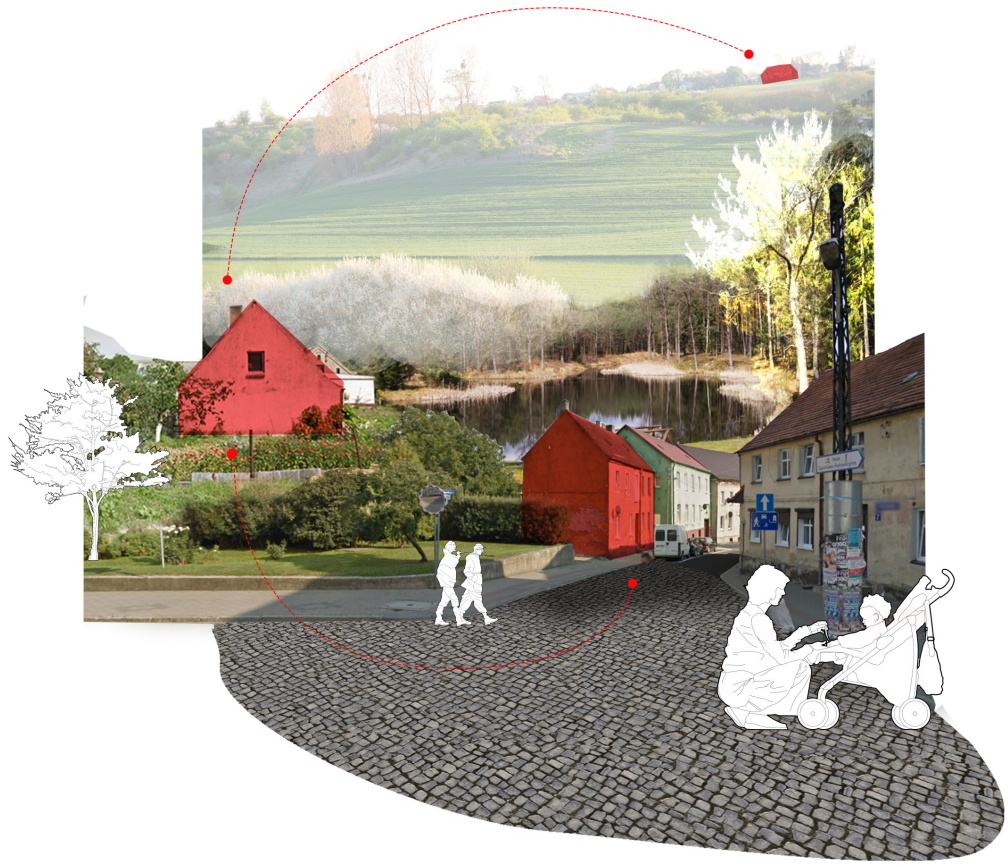


Figure 16. Impression of the region

The community of the West Pomerania region has been resettled through historical conditions, cutting the logical order of traditional landscape management. Present conditions of urban settlement (Chapter 4: Morphological Studies) localized needs in present social infrastructure that has been answered in the strategy – the 1st design principle, as connecting element for other three.

Four main design principles, introducing landscape adaptation, supported through network of social infrastructure, are aiming for cohesion between society and its environment. Succeeding spatial interventions (Chapter 6: Spatial Interventions) has been used for the reflections on Polish spatial planning regulation. Recommendations, together with the reflections (Chapter 7:Implementation, Chapter 8: Reflections, stakeholder interviews in Chapter 9. Appendix) explore theoretical possibilities of the implementations for the presented model of bioregional strategy, as well as practical opinion of the stakeholders.

2. Research design

"With negative impacts on the well-being of at least 3.2 billion people, the degradation of the Earth's land surface through human activities is pushing the planet towards a sixth mass species extinction. Avoiding, reducing and reversing this problem, and restoring degraded land, is an urgent priority to protect the biodiversity and ecosystem services vital to all life on Earth and to ensure human well-being."
Scholes & Montanarella (2018)

End of the road (Szczecin Dąbie district) Source: Google Street View

Problem statement

Szczecin with its functional area, Polish peripheral region, is facing global ecological challenges: the climate changes and ecosystem disturbance through biodiversity lost. Due to its rural character, it will significantly influence the bio-production, but also the daily life of the citizens. Broadly accepted strategy, based on the growth paradigm, has been focusing on developing the region on its economical level, through big infrastructural projects and investment under foreigner capital. That has no direct translation into quality of living of its citizen, neither quality of the environment. Additionally, the local challenge of low social capital and access to social services bringing question of successful ecological adaptations. Stigmatization, dependence and so called developing 'undevelopment' (Sowa, 2011) addressing need of search for alternative strategies 'beyond growth' (Ciesiółka, Motek, Kołsut, Stryjakiewicz, & Kudłak, 2017) focusing directly on the society and the environmental adaptations.

Figure 17. Problem matrix as the summary of the complex problems in the areas on different scales (source: author)

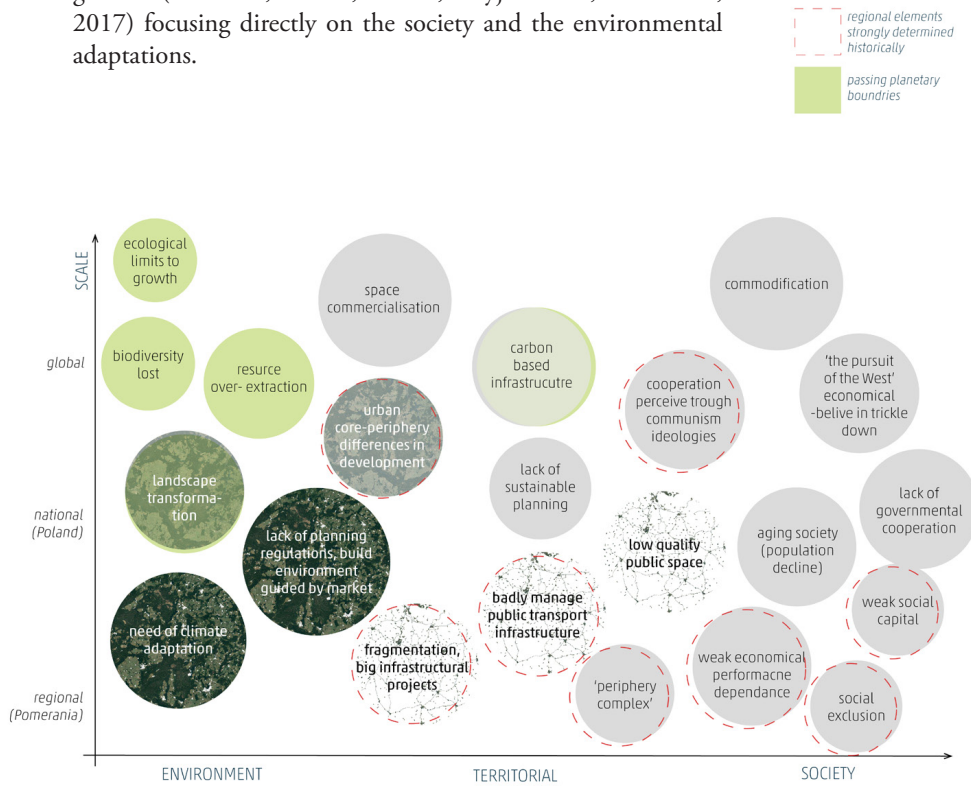


Figure 18. Łozienica - Special Economical Zone of Goleniów (as part of Szczecin Metropolitan Area development) (source: Google Earth)

Hypothesis

Bioregionalism as theoretical framework can provide the alternative approach, as the replacement for the strategy focusing on economic growth. By combining cross-scale problematics (Carr, 2004): global - ecological (climate adaptation with biodiversity lost) and local - social (low social capital, exclusion and lack of social services) can propose spatial planning strategy developing society together with its environment.

Bioregional approach, having strong focus on introducing social network in the region, strengthening social capitol and involvement through proper social infrastructure, can provide solid link for landscape transformations that has to appear in order to adapt the region. More than that, the approach can provide reflection and recommendation for planning tools like polices or governmental cooperation models.

Direct goals

- Climate adaptation
- Increasing biodiversity
- Building socio-ecological resilience
- Controlled land consumption
- Limiting social exclusion

Indirect goals

- Strengthening socio-economical network
- Localising leaders and supporting development of strong bottom-up movements
- Educating in the ecological matters

Research aims

The main aim of the research is to explore the bioregional theoretical framework for alternative spatial planning strategy 'beyond growth'. Research objective is to challenge the theory on practical level by building strategy on the peripheral context. That, would give a base for introducing the recommendations for more successful spatial planning and through stakeholders lens reflection on theoretical framework.

Theoretical

- Create bioregional strategy 'beyond growth', building social infrastructure and strengthening biodiversity in peripheral city region, answering the challenge of climate adaptations
- Revise discussed theory in possible practical level

Local

- Elaborate local spatial elements in terms of climate adaptations
- Propose 'eye opening' projects and arguments for growth oriented approach in planning
- Proposed agenda for future actions, pointing elements for improvement in the exisitng planning system
- Define conditions and cooperation elements for more successful spatial planning regulations in Poland
- Announce the critical challenges to stakeholders on the area.

Research questions

The main research question reflecting defined problem statement and project hypothesis, as follows:

Until what extend bioregional spatial planning, by answering the local social problems and ecological challenges, can give the alternative framework for strategy beyond growth for the peripheral region, Szczecin functional area, Poland?

Sub-RQ1: What are the main spatial characteristic of the bioregion and society on the local and regional level? How does it correspond with the ecological structure of the region?

Sub-RQ2: What are the major problems and challenges on social and ecological level on different scales?

Questioning the local context

Sub-RQ3: What kind of spatial interventions would answer defined problems and challenges, allowing for future adaptation? How should them be introduced in the strategic way?

Questioning the type of spatial elements

Sub-RQ4: What are local actors and stakeholders needed to be involved? In which way and how they can benefit?

Sub-RQ5: What kind of improvement in Polish spatial planning could be made for more successful governmental cooperation and social involvement? Until what extent those improvements are possible to introduce?

Questioning the implementations

Intended outcome

The research is expected to propose regional strategy with examples of the design intervention and the reflection or recommendations for local planning tools. Together with stakeholders interview it will provide reflection on the bioregional theory as alternative framework for the strategy beyond growth.

Research approach

Exploratory research and the methodology design

Due to broad and theoretical research motivation and the problem field, pre-research have been left as explorational allowing for further focus on Bioregional approach. Because of that chosen methodology for the data collection and reasoning evaluated, beside the need of confronting the research with the stakeholders. Design of the research methodology has been following innovative process, on-going feedback loops, following steps of: research clarifications, developing intended studies and specifying them after design interventions.

Case study

Answering the aim of the research and testing defining theories on practical level, the spatial strategy has been created for the local context (Szczecin functional area), dealing with problems of peripheralization through the global lens. Through introducing the analysis on different layers of the case study: territorial, morphological and governmental, the case study allowing for reflection on the theoretical part of the problem statement.

Figure 19. Design based research as ongoing process of innovation – presentation of feedback-loop process in the thesis development (source: Fraefel, 2014, edited by author)

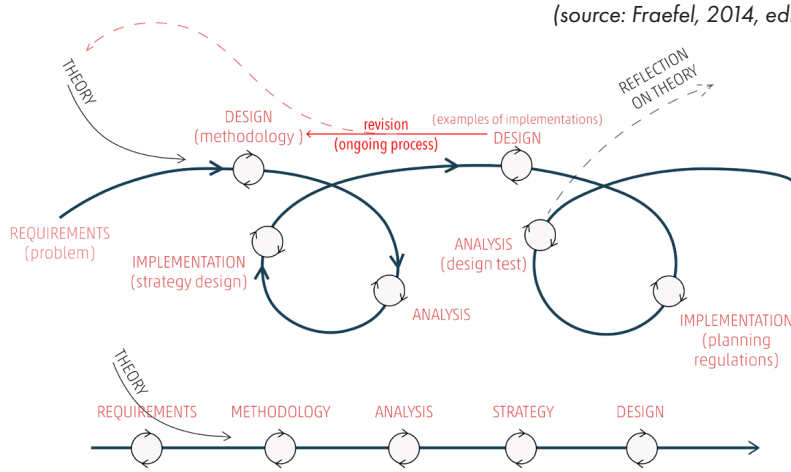


Figure 20. Typical, linear way of building thesis narrative

Information collection

While beginning of the project is focusing on qualitative research, however further development is following complementation of statistical data with geographical information. That complementary approach has been used as result of exploratory beginning.

Reasoning

The way in which theories and data are analyse, through the stage of building the strategy in this project, is strongly abductive. In the same time, pre-research phase, should be considered as mostly deductive, aiming for finding theory frames (choice of location, design principles), based on broad observation of existing phenomena and critique of its origins.

Theoretical framework

The theoretical base not only generating the research question but also helping to find the answer for it, has been based on general three pillars of theories. For the ontological understanding, philosophical background for all of those theories help to asked for the primary elements (Morton, 2016).

First theoretical pillar is describing ecological limits and technical influences according to planetary system. Ecological challenges explained on the planetary scale (Rockström, 2009), helping to grasp global scale of problems and challenges in relation to complex system of the ecological system we live in. Systematic understanding is helping to validate regional ecological issues to the planetary scale.

Second theoretical pillar is helping to understood the context on the local scale related to the global economic system. Based on that the understanding of socio-economic relations in the area could be developed: due to global systems (Wallenstein, 2014) and local, historically determined socio-spatial conditions of Polish periphery (Sowa, 2011).

Third theoretical pillar is related to the group of theories, described under political ecology field. Third pillar is helping to give values and models for developed strategy. With the values of Radical Environmentalism, group of theories helping to connect the strategic answer for the ecological and social needs, like degrowth (D'Alisa, Demaria, & Kallis, 2015) and bioregionalism (Carr, 2005). Thanks to ecological practises and understanding of its relation to politics and local society. Under this pillar, the theories of degrowth and bioregionalism, are complemented with basic socio-ecological model (Berkes & Folke, 1998).

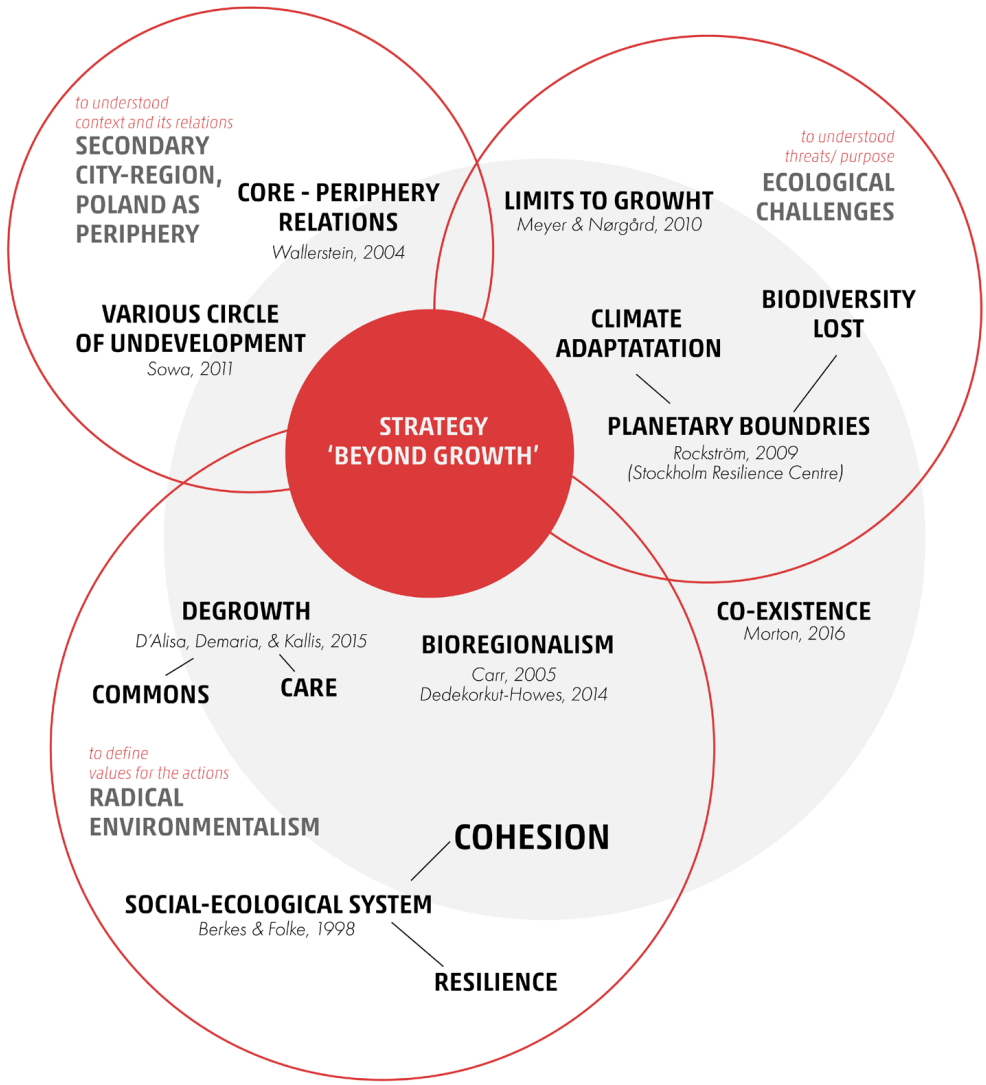


Figure 21. Triangulation of use concepts reflecting choice of methods and design approaches

Sustainability as the background

Comparing field for the theoretical consideration have been sustainability notion as set values. To face strategy, that does not focus on economic development, revision of priorities - values is required. Different approaches, or understanding of sustainably can be found in different theories. Weak sustainability scheme, where economy can exist separately from the society and nature not 'working' for them what allowing for extraction, has been benefiting neither society, neither the environment (Figure 22). The strong sustainability schemes, has been placing the economy inside societal boundaries, while society inside the ecosystem boundaries, allowing to visualize the proper exchange of flows with need of balancing them (Figure 24, 25).

Proposed switch of priorities, placing communities in the ecosystem they live in, for the aim of environmental and societal adaptation, can be found in two theories. Altering the cause of the problem field, not its effects, two theories deserve for special attention in the terms of further spatial planning: bioregionalism and the degrowth movement.

Degrowth movement, connecting different schools of thoughts, has been introducing new, social relations and building a vertical structure for transition into steady state economy (D'Alisa, Demaria, & Kallis, 2015). Lack of socio-spatial reflection is clearly visible in those theories and cannot be ignored in integral societal transformation (Vogel & Xue, 2014) Bioregionalism, focusing on horizontal efforts in civil society, building place-based communities and networks that respect ecological limits (Carr, 2005) Spatiality of bioregionalism is built on ecological and biological studies, explaining original ecosystems of the area, trough complexity of biogeographical and anthropological conditions. What is specific to distinguish,

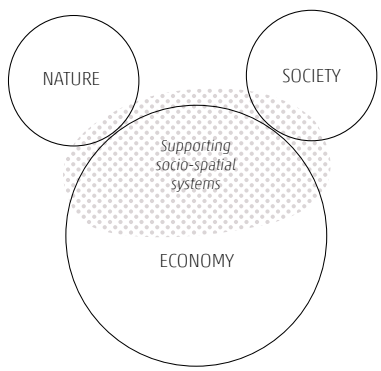


Figure 22. Micky-mouse scheme of the neoliberal economy

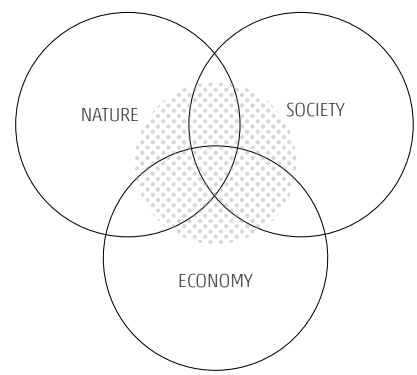


Figure 23. Sustainable development diagram

is the general attitude: bioregionalism tend to give more right and space for the natural environment, while degrowth less right and space for human expansion.

Approach proposed by Bioregionalism and Degrowth emphases need of holistic actions, what is understandable due to complexity of elements placed in 'growth paradigm'. The examples of Bioregional strategies (Bioregional Oxfordshire in the Great Britain; The Murray- Darling Basin Plan in Australia (Dedekorkut-Howes, 2014) or Degrowth Communities (Kohtuusliike in Finland (Lehtinen, 2018) are characterized by strong, bottom-up, social movements. It has emphasized importance of strong social capital, and community that respect the rights of the individual (Carr, 2005).

Reflections on chosen Polish context, where the level of social capital is described as low, not only solutions but also transitional actions, should have been taken into account, in order to give space for local initiatives. Second important thing emphases in bioregional planning, is a strong cooperation required for including natural ecosystems, that are not defined by governmental or political borders.

Appearance of the sustainability approach is relatively new on the Polish context. Thanks to European Union policies, the need of sustainable development have started to appear among strategic documents, unfortunately often without reflection. Beside upcoming ecological global challenges, approach to strong sustainability in politics is clearly placed far behind. Ecological actions, that do not benefit the economy in short period of time, are not taken into consideration (Figure 23). The best example of it can be found in National Development Strategy for the year 2030, criticizing forced European Union regulation of energetic and climate security, as not profitable for national business.

To build the society-ecology link, the multiscale approach is required, in order to meet different environmental and social needs. Studies about secondary city-regions bring also emphasis of important connection between city and region, strengthening them while being placed outside economical core (Dijkstra, Garcilazo, & McCann, 2013). Artificial division for what is natural and what is human made have been obliterated long time ago, in way constructed landscapes are dominant characteristic of the region (Kress, 2016).

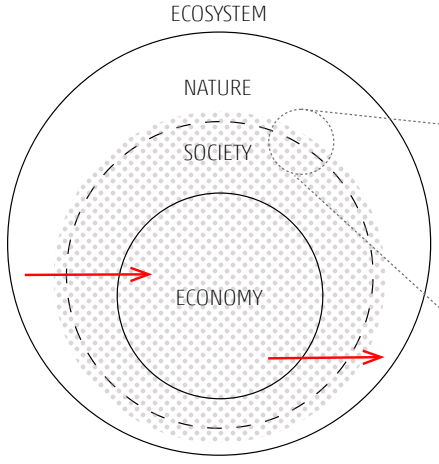


Figure 24. Steady State Economy concept with the energy/material exchange with environment

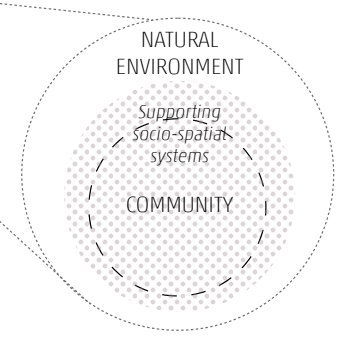


Figure 25. Bioregional understanding of the ecosystem (Communities in their ecosystem borders)

Conceptual framework

Conceptualization of explored theoretical framework focused on decision switching priorities of actions for the strategy. Having the reference in the defined knowledge triangulation, the conceptual framework have been divided for two. The first referring for the cohesion between *social* and *natural* for the future coexistent. Ecosystem is on theoretical understanding combination of social and environmental factors. It is also reflection on the ongoing disconnection between the two.

Second conceptual framework is based on bioregional understanding of the relations between society and its environment. Placing society inside its ecosystem borders make development of both depended on each other. In order to contextualize the theory in locally sensitive matter, the assumption has been made, that the society and ecosystem are coexisting together mainly in spatial dimension. The chosen layers (socio-spatial and bio-physical) are translation of the conceptual framework into geographical terminology.

Structural understanding of both of the layers, is allowing building needed cohesion on the common spatial layer. Relation between allow mapping the possible correlated actions. Translation into spatial concepts allow relating collected data, as well as whole conceptual and theoretical framework, to Polish spatial planning regulation with define typologies.

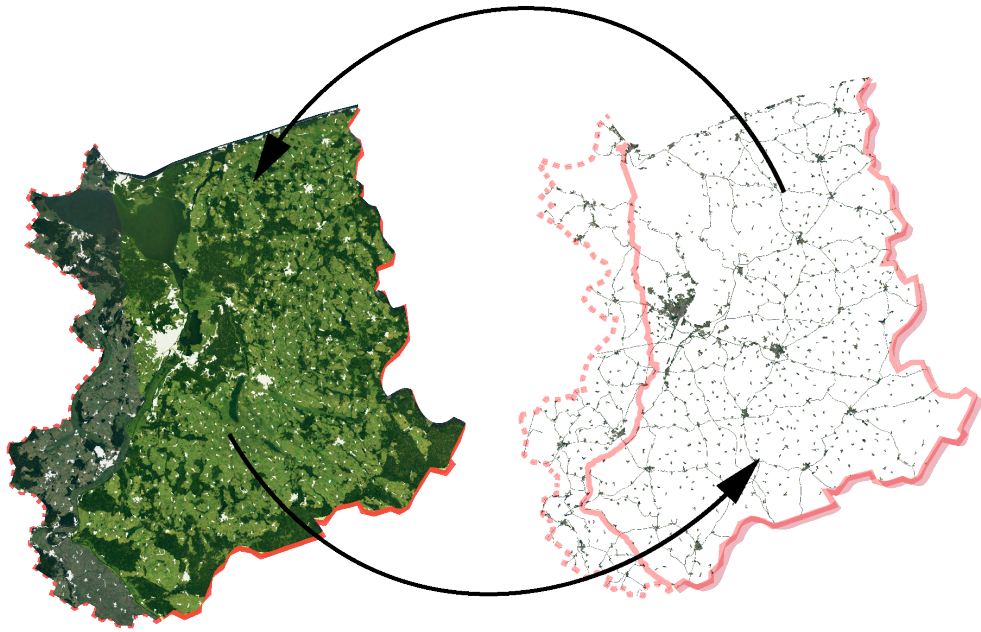


Figure 26. Abstract conceptual framework: brining cohesion between ecological and social structure

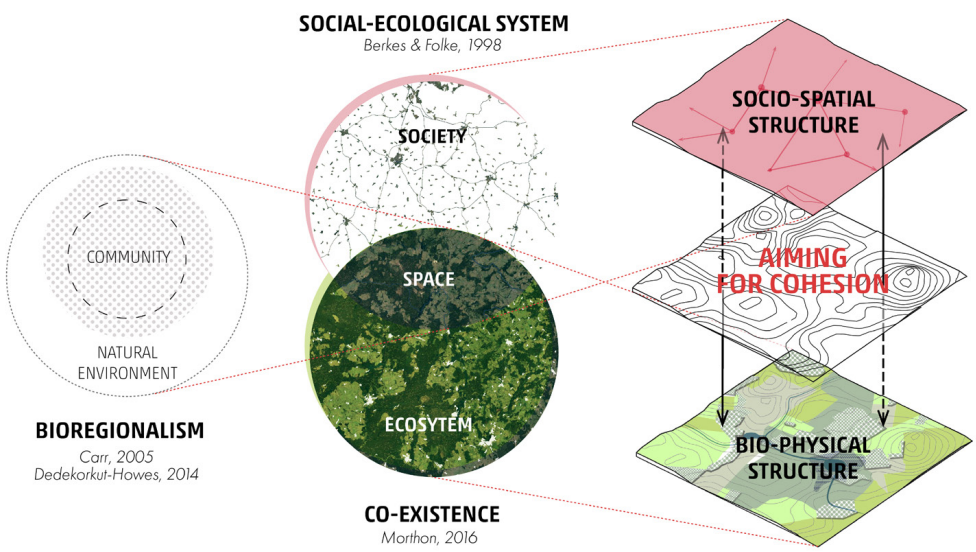


Figure 27. Conceptual framework scheme with used theories and development into analysis part

Methods

For the development of the thesis project, finding the answers for defined research questions demands use of the different methods. Methods used in the projects are listed below:

Theory review (literature studies, historical studies)

The aim of this basic method, is to settle theories and properly validated the gathered data. It gives major foundation for defining the research approach and theoretical framework. Also, it has been the major element of learning process allowing for proper revision of taken actions. The method is understood as review of different forms of media like books, reports, articles or video-interviews. First and second sub-research question would focus on literature and theories describing characteristic of local context, its history and external connection and dependence. Fourth and fifth sub-question theory review demand search for theories describing way of spatial design implementation.

Documents analysis

The aim of this method is to collect and compare priorities of actions from the external sources. Comparing external documents (European Union projects providing complex reports like ESPON, Nature 2000, URRUC, or non-European like UN-Habitat) with internal documents (Polish agencies, statistical reports for West-Pomerania voivodeship, metropolitan, regional and national development plans) but also cross border ones (three Interreg projects within chosen area of studies) would help to validate data and describe properly characteristics of the region, answering first and second sub-research question. Analysis of Polish policies and document would allow for holistic understanding of spatial planning rules in Poland, building foundation for proposed changes.

Mapping and morphological studies

The aim of this method is to understood spatial relations between build environment, constructed and non-constructed landscapes, and the society living within. Visualization of collected data would bring general answer for the first research sub-question. Second research sub-question demand the morphological studies, analysing structure of urban settlements, that would visualize connection and way of local maintenance of the space within bioregion.

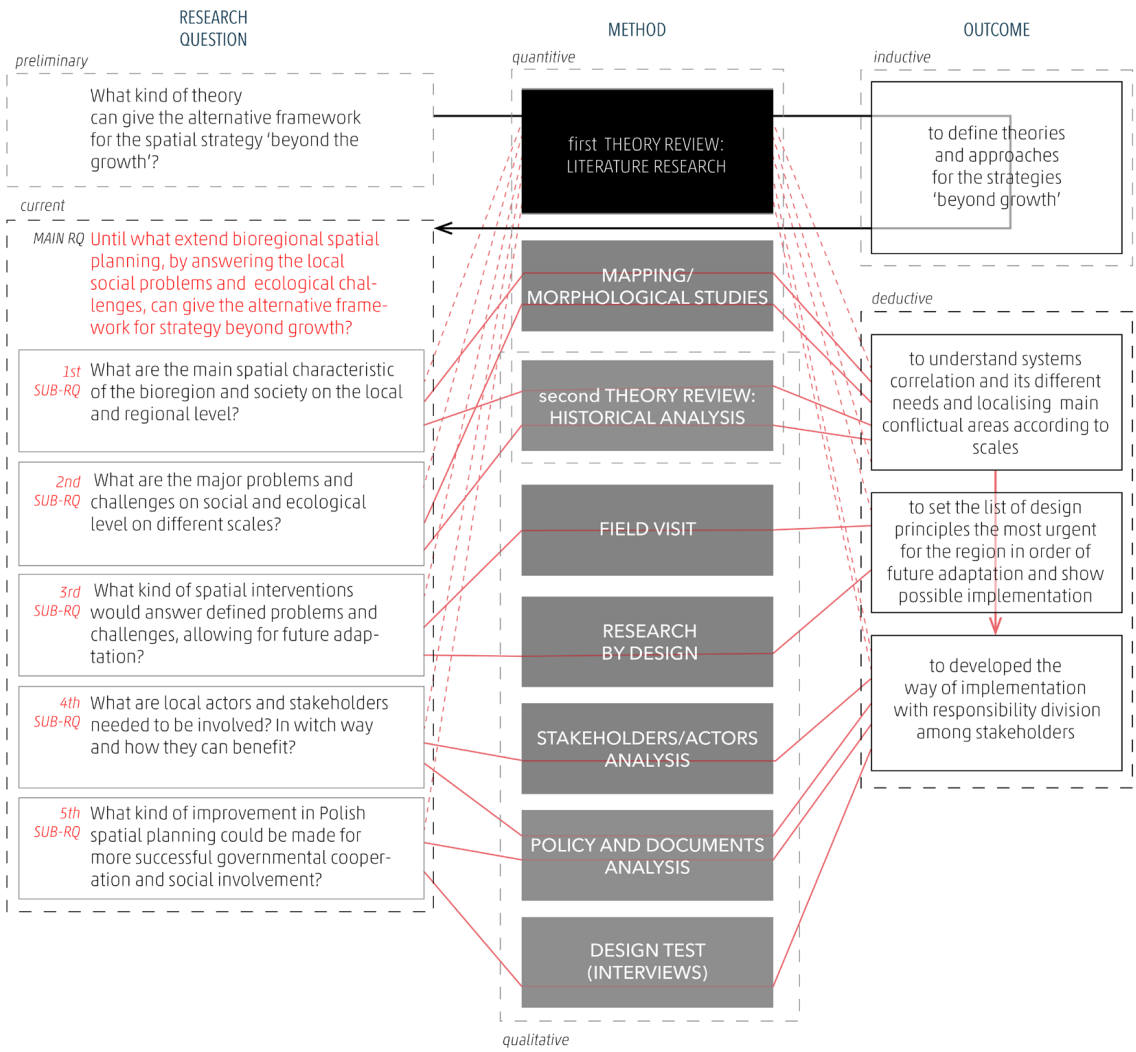


Figure 28. Methodological chart explaining use of the methods for each research question

Research by design

This method is aiming for development of regional strategy and later for the design interventions, showing possible application. It follows exploration approach, transforming collected data and facing theory with real context. It is used as an answer for main research question, but also again, internally for third sub-research question.

Stakeholders and actors analysis

The aim of this method is to firstly introduce foundation for design test, secondly visualize broader possibilities of implementation on similar conditions. As a method planned for third, finally for fourth and fifth question assume taking into accounts different scales and levels of involvement. The method build reflections for cooperation gaps and communication recommendations. Localize power distribution through different stakeholders would build the base for implementation recommendations.

Field visit

The aim of this method coming from demand of second after document analysis comparison for holistic answer for first and second sub-question. Comparing theories with observations would strengthen connection with context and its needs. Field visit has been introduced twice, on different stages of the project. Site visit after P2, after theory and documents review, brings overview of spatial, eye-oriented dimension of the region. Observation and photo graphical documentation will be balanced with pre-interviews. The aim of first site visit is to find inspiration in way of socio-ecological dynamics in different parts of the region, different landscapes. The second field visit is necessary for design test methods – stakeholders interviews.

Design test (stakeholders interviews)

The aim of this method is to check research relevance and practicality. Also reflect on the theoretical research question. Basically, method assume, presenting previously designed project intervention to involved stakeholders during second site visit after P3. Method is based on understanding of the local mentality. Interviews on local conditions are demanding discussion base to avoid the polarization and specify the topic. Design test would allow for the reflection on define theories and revision of the developed strategy.

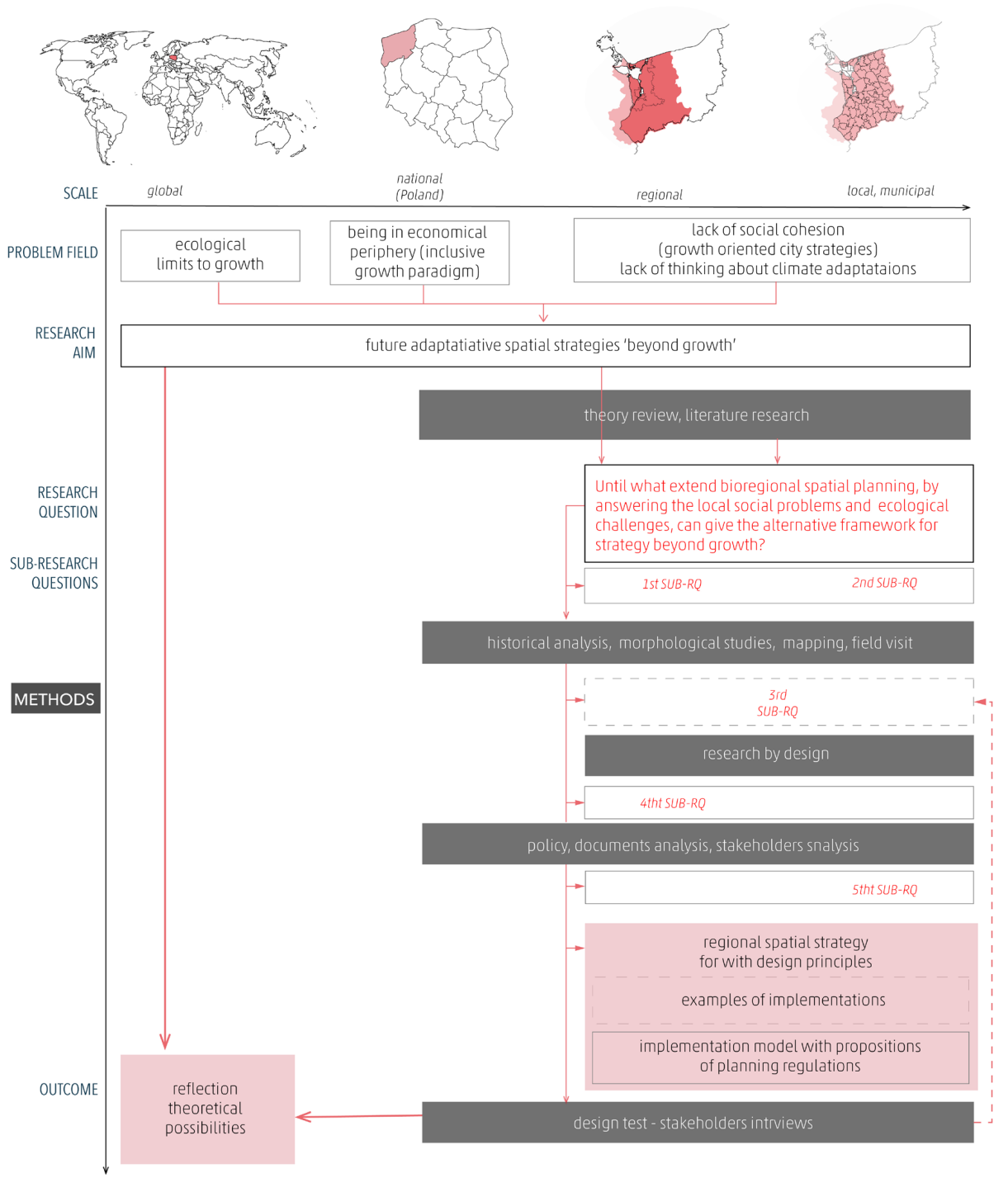
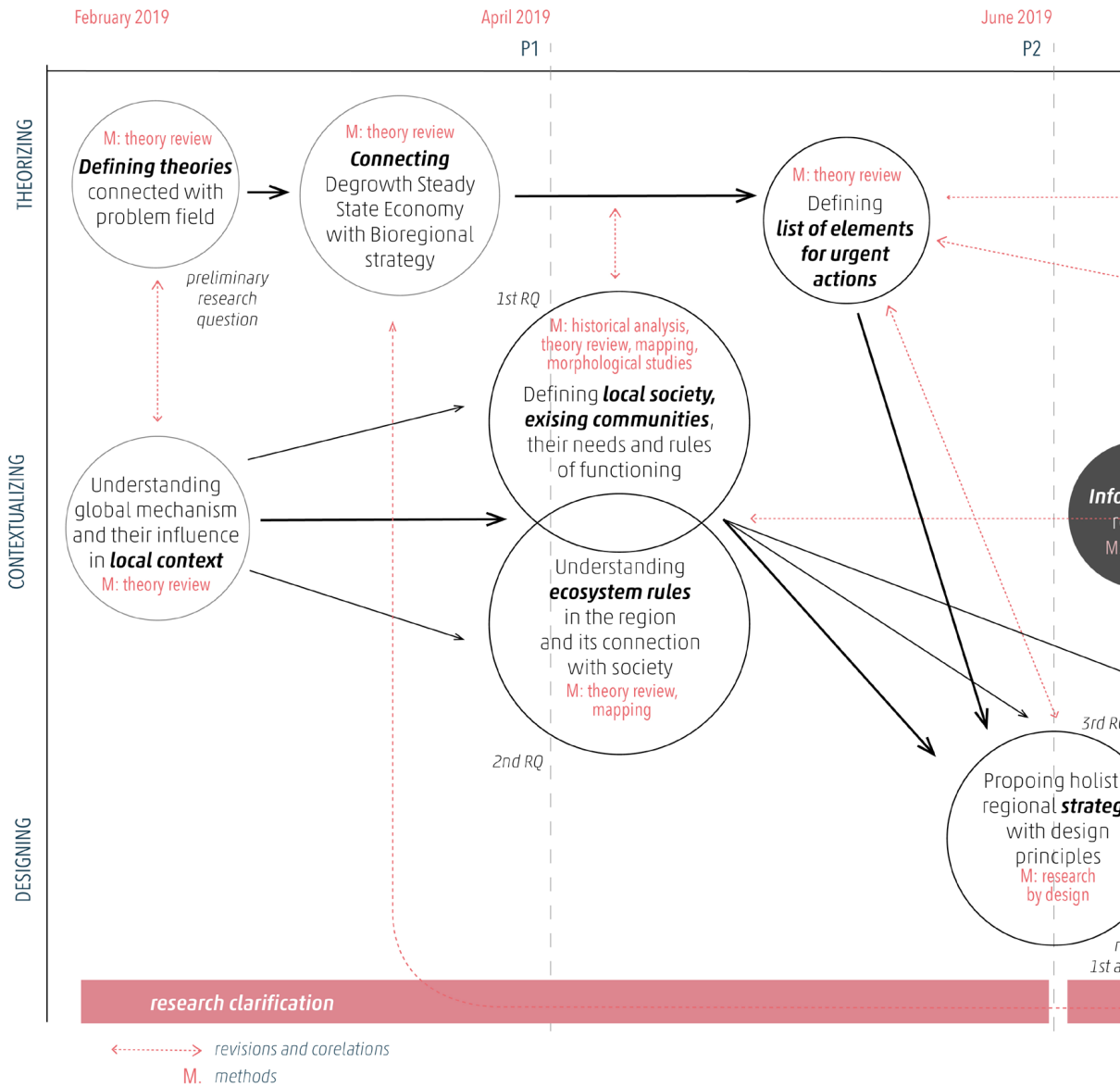


Figure 29. Research flow chart presenting methods, research questions and outcome elements trough the scales

Working plan



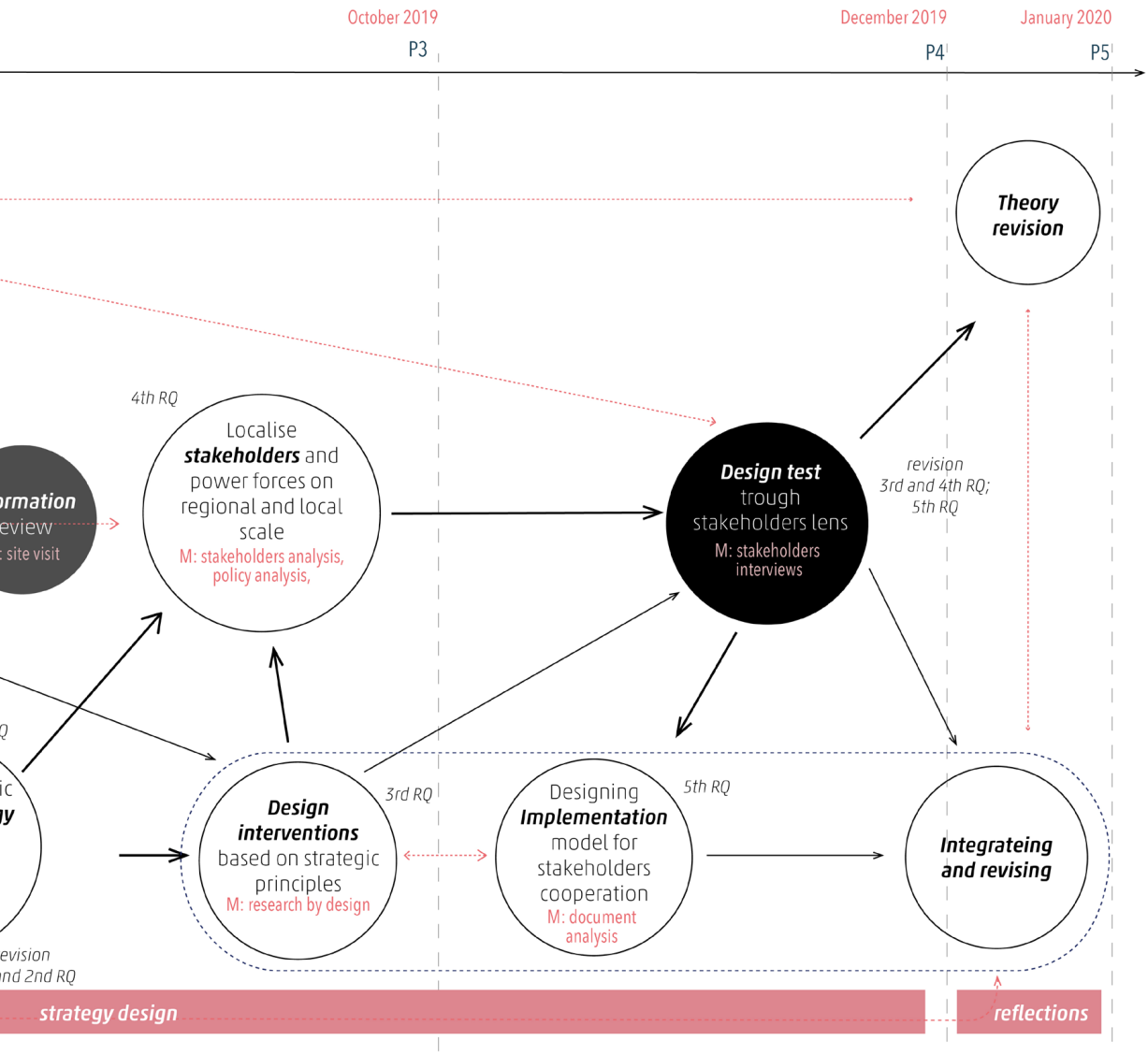
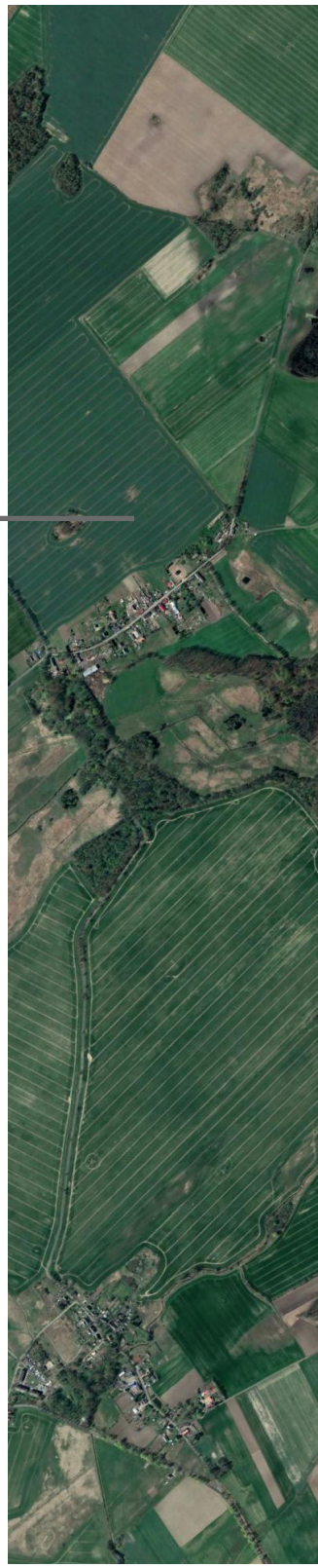


Figure 30. Thesis time line with define steps and use of methods

3. Landscape and the territory

" A bioregion is a land and water territory whose limits are defined not by political boundaries, but by the geographical limits of human communities and ecological systems. Such an area must be large enough to maintain the integrity of the region's biological communities, habitats, and ecosystems; to support important ecological processes (…) and to include the human communities involved in the management, use, and understanding of biological resources. Within a bioregion lies a mosaic of land or aquatic uses. Each patch provides habitats in which different species survive and flourish, and each has its own particular relationship to the region's human population. All the elements of the mosaic are interactive."
Word Resource Institute



Patchwork of agricultural land (village Sokolniki and Białuń) Source: Google Earth

Limiting the bioregion

Bioregions according to Word Resource Institute are defined as:

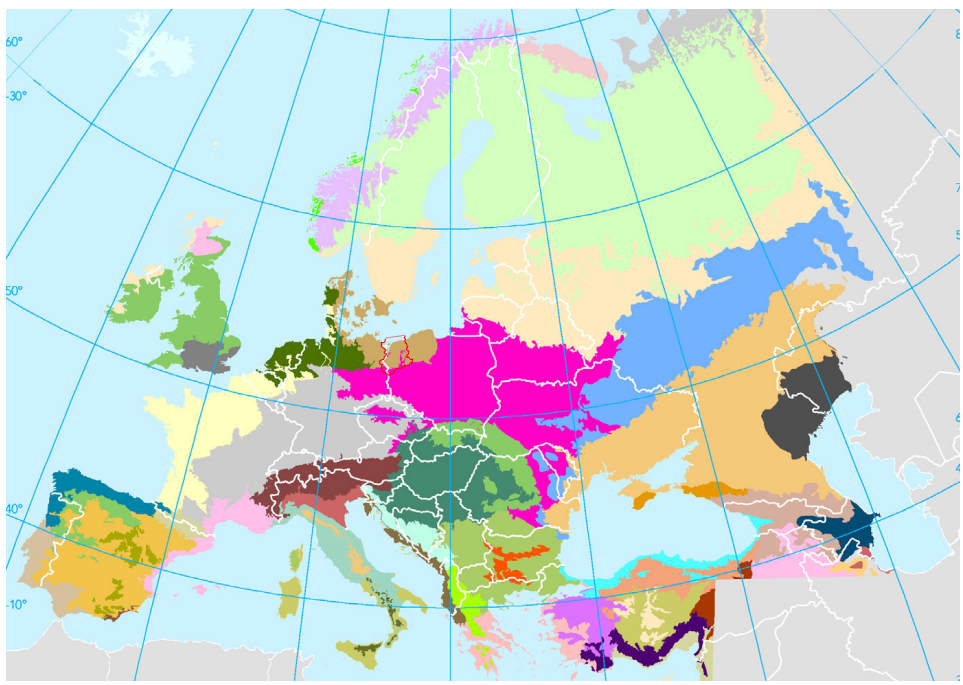
> *" A bioregion is a land and water territory whose limits are defined not by political boundaries, but by the geographical limits of human communities and ecological systems. Such an area must be large enough to maintain the integrity of the region's biological communities, habitats, and ecosystems; to support important ecological processes (…) and to include the human communities involved in the management, use, and understanding of biological resources. Within a bioregion lies a mosaic of land or aquatic uses. Each patch provides habitats in which different species survive and flourish, and each has its own particular relationship to the region's human population. All the elements of the mosaic are interactive."*

Definition provided by World Resource Institute is broad difficult to localised in project area due to long history of land transformation and construction. That is why I decided to advance with more detailed, biological descriptions.

Bioregion in bio-geographical unit, area defined by ecology and geography made by World Wide Fund. Ecology, as branch of biology calling bioregions Eco provinces, proposing also smaller units of its classification: ecoregion and ecosystem. Area that I decided to work on is decided as Continental Bioregion, Figure 31 (EEA, 2003). Ecological regions of Europe brining more specified description, defining my working area as the Baltic Mix Forest Region, Figure 32 (DMEER, 2000) localised on four countries: Germany, Denmark, Sweden and Poland. Region has been predominantly composition of lowlands, sub montane beeches, mixed forests and wetlands and, therefore comprised wide diversity of species.

Area of the Baltic Mix Forest region is estimated for 116 000 km^2 on four countries, with different social structure. Limiting working area to the Szczecin functional zone, having as an approach bioregional background, demand reflections on cross-border cooperation on the limited territory.

Figure 31. Above: Biogeographic regions (Bioregions of Europe) - light green as Continental (source: European Environmental Agency, 2003)
Figure 32. Below: European ecological regions (DMEER) - light brown as Baltic mix forests (source: European Environmental Agency, 2017)



Defining project boundaries - second-tier city and its functional area

The project will develop strategy not only for the city itself, neither for its metropolitan area, that region started developing recently. Due to peripheral dependence the focus will appear in territory described as Szczecin functional area. Bioregion is understood as cultural construct.

> *While it is common in bioregional thought to closely associate a particular indigenous community with a geographical referent such as a watershed, this would be reductionist in that 'a community is an experience rather than a place' (Meredith, 2005).*

The society on the area cannot be described as indigenous, because of that, using the sense of social construct, the territory being under city dependence is going to be tested.

The area is also overlapping with historical administrative division (Figure 34) and with the newest proposition of separation of the West Pomerania Voivodeship (Figure 35). Proposition of separation reflecting problems of the West Pomerania Voivodeship, being under strong influence of Szczecin, as well as geo-historical condition of peripheral characteristic.

Chosen location can be described as triple periphery: outside global economic core, outside European core and outside the national core. Szczecin, classified as second tier city, under effect of Polish Warsaw-centralised politics, repeating also effect of centralization for West Pomerania Voivodeship (Figure 33), as voivodeship capital, causing shrinkage of smaller sounding cities, increasing the dichotomy between urban and rural area.

Recent, there is growing interest on the second-tier cities. Cities with polycentric connections have more advantages, than monocentric one, what is reflected in recommendation for strengthening regional connections. Szczecin Metropolitan Area (*Szczeciński Obszar Metropolitarny SOM*) started developing its connections, especially economical and infrastructural ones connecting surrounding municipalities.

Secondary city-regions are described as those *whose economic and social performance is sufficiently important to affect the potential performance of the national economy* (ESPON/ SGPTD, 2012, p. 3) started being important in terms of stabilizing national and global economic system. Self-resilience of those territories is emphases as important element, when due to weaker performance, economic crises are much more noticeable.

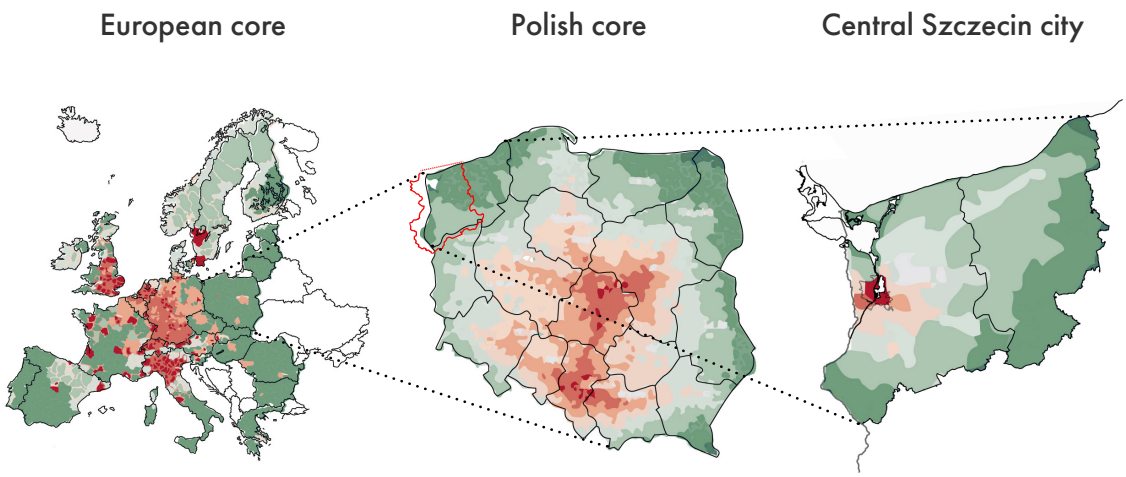


Figure 33. Presentation of core-periphery, based on accessibility map, on three different scales: Europe, Poland and West Pomerania voivodeship. (source: left: The Relation between Accessibility and Economic Development, ESPON 2006; middle and left: potential accessibly, 2015 on national and regional level, Rosik et al, 2015)

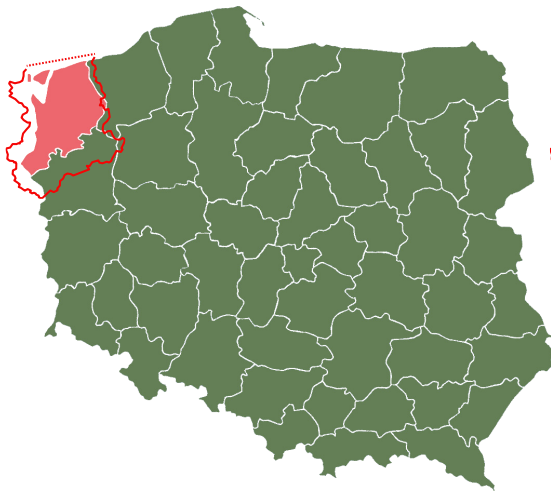


Figure 34. Administrative division 1975–1998 with the Szczecin voivodeship (source: wikipedia.pl)

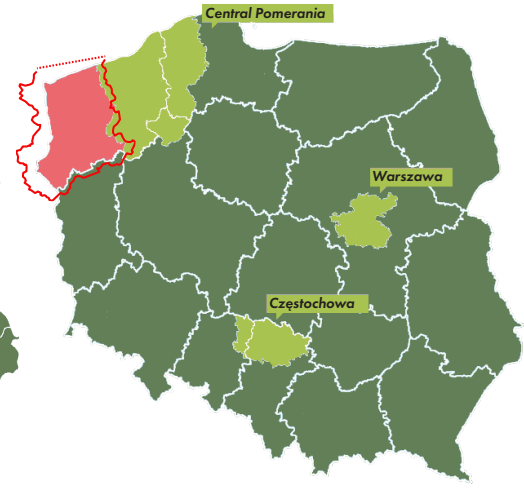


Figure 35. Proposition of changes in administrative division with three new voivodeships, 2019 (source: money.wpimg.pl)

Neighbourhood overview - cross-border cooperation

Following bioregional approach in urban planning, not only type of ecological structure is important, but connection and character of the communities living on the territory. As was explained in the first chapter, project would analyse Szczecin functional area, referring to city-region definition as an *area which is economically, socially, and culturally dominated by the city* (Davoudi, 2003 in Rodriguez-Pose, 2008). Such limitation of the project area reflecting social division due to historically determined conditions. Project are become limited to Szczecin functional area, however for the analysis purpose it is important to also take into account cross-border relations.

Analysis part, including German municipalities in the distance of around 50 km, are based on similarities in socio-spatial structure of the region, and ecological connection. Historically region have been developing differently, placing Szczecin as central part, still becoming central point for surrounding rural peripheries (Figure 36).

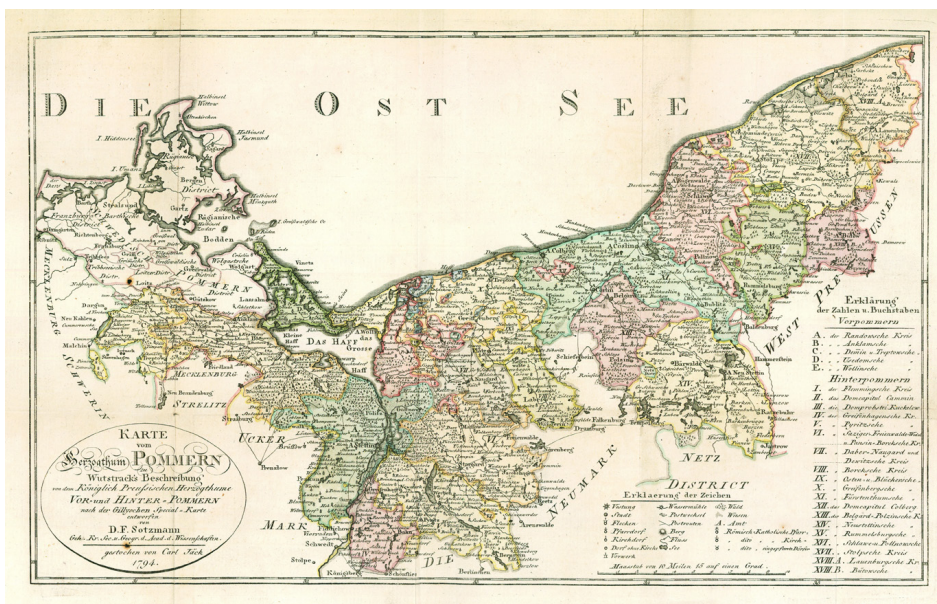


Figure 36. East Pomerania as part of Royal Prussia, map from 1794 (source: commons. wikimedia.org)

Temporary, Szczecin with West Pomerania Voivodeship is part of two cross border European Territorial Cooperation programs (2014-2020):

Interreg South Baltic (Poland-Denmark-Germany-Lithuania-Sweden)

Objectives: Competitiveness of SMEs; Environment and resources efficiency, Sustainable transport, Employment and Mobility and Better public administration.

Interreg Pomerania Euroregion (Germany/ Mecklenburg-Western Pomerania/ Brandenburg-Poland)

Objectives: Environment and resources efficiency; Sustainable transport; Better education, training and Better public administration.

What is interesting, the Pomerania Euroregion with Interreg program is overlapping ecoregion borders, described in on the previous pages. Also, presented Interreg programs are running until the end, while creation of new project with similar objectives becoming questionable. Recently more influential becoming development of Szczecin Transboundary Metropolitan Area, figure 37 (*Trangraniczny Obszar Metropolirarny Szczecina*), supported by Polish-German International Commission. Planning-based development conception answering need of territorial cohesion and were responsible for defining priorities in previous Interreg programs. Unfortunately Transboundary Metropolitan Are limit its priorities for the Szczecin Metropolitan Area do not taking into account peripheral belt around.

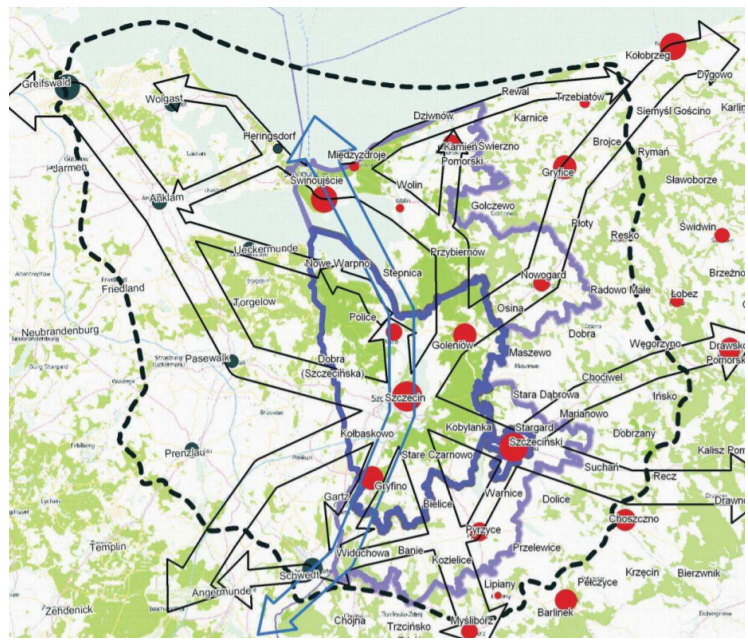


Figure 37. Boundaries of Szczecin Transboundary Metropolitan Area, with the boundaries of Szczecin Metropolitan Area (SOM) (source: som.szczecin.pl)

Regional environmental characteristics

Climate

Characteristic elements of the area are the result of landform and climate zone. Mild humid climate is a combination of sea one in the north and continental on the south with variation of other microclimates due to lakes or forest areas. Based on visible four year seasons with temperature amplitudes from -3,9 degree in winter to 23 degree in summer period with average year precipitation from 490 to 770 mm (28 mm in winter period and 65 mm in summer period).

Landform

Described as early post-glacial landscape, consist of: small hill, lowlands with esker as edges and variety of small lakes. In this rather flat terrain (slopes from 0,5 to 5 degrees) characteristic ecosystems are forest, wetlands, swamps and peatland. Typical deciduous forest in the south of the region or pinewood in the coastal zone, contemporary exist mostly as industrial pinewoods.

Landscape overview

Combination of landform, water system and climate condition reflect on the type of biome occurring in the region. However, natural conditions have been transforming the territory since centuries, resulting on characteristic big-scale patchwork of land use.

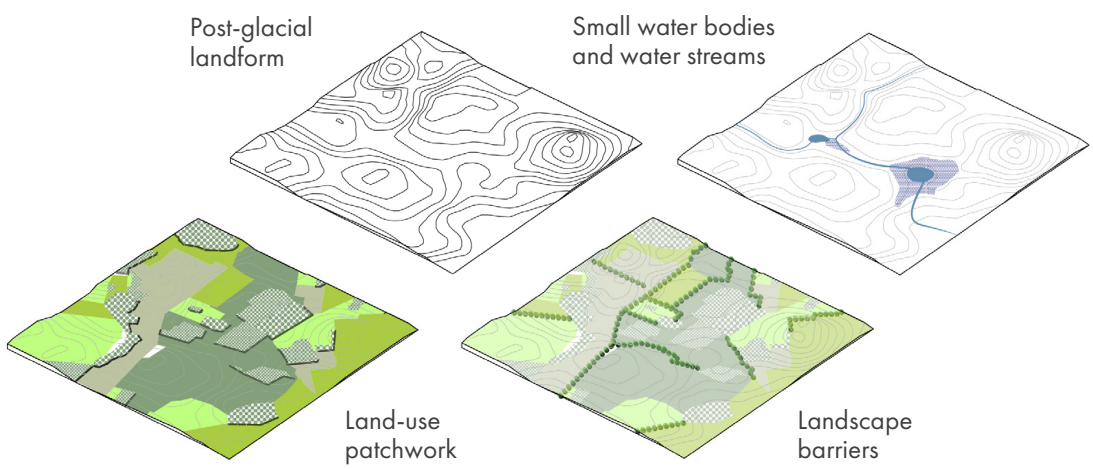
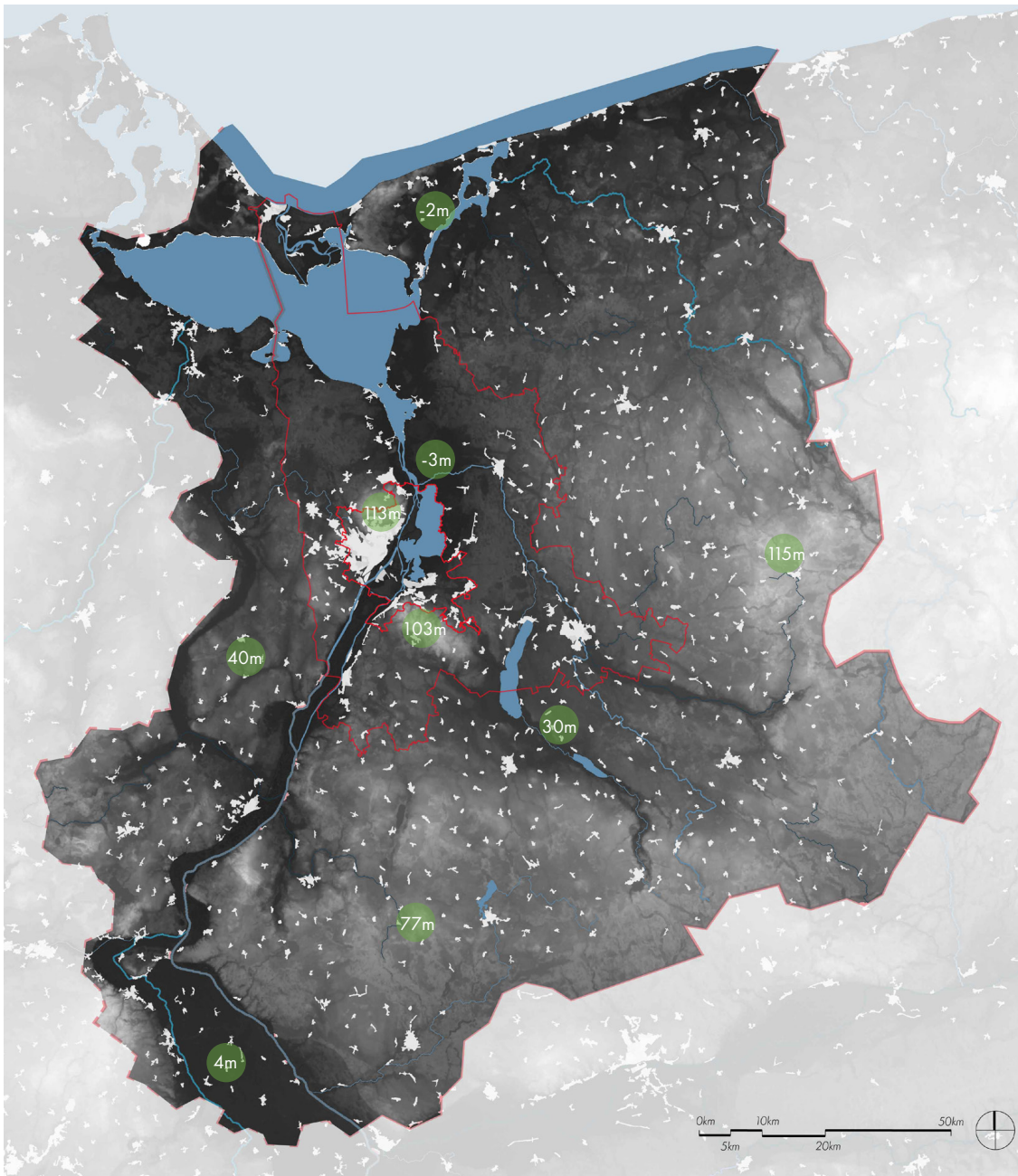


Figure 38. Schematic four elements of the territorial landscape



above the sea level

-6.8m 200m

Figure 39. Topographic map
(source: Digital Elevation Model over Europe (EU-DEM), 2017)

Water system

Area is divided on different catchment basins. The most significant: Oder river basin in its lower part, Oder lagoon basins, and Baltic Sea catchment. The Oder river, constituting boundary between Poland and Germany, connected to central European waterway network (with Vistula and Havel) has been already controlled sine 12th century. Final straightening has been compiled around 1900 due to flood risk but also transportation purpose. Oder river, flowing through industrialized regions, become heavily polluted, slowly limited trough growing number of sewage treatment plant.

Beside main river the area is cover by dense tributaries network with storage reservoirs. Management of tributaries has been diverse. Some parts have been regulated rigidly, some controlled on ecological basis, only few renaturalized. Originally, significant amount of wetlands or peatlands has been drained, mostly for agricultural purposed, due to national water politics. (Figure 42)

Water used for industrial, agricultural or consumption purpose is leverage from groundwater, that because of agricultural activity lower the class at some areas to critical. Additionally, points of water collection on coastal part of the area have difficulties with saltwater intrusion. Due to climate conditions region is struggling with periodic flooding. Due to location and character of the Oder Lagoon, Szczecin and surrounding lands struggling with high tides, projecting to be more significant according to sea level rise. Problems and characteristics summarize Figure 43.

Figure 40. Small lake next to Chociwel town (source: author's own)

Figure 41. The Oder backwaters south from Szczecin city (source: author's own)

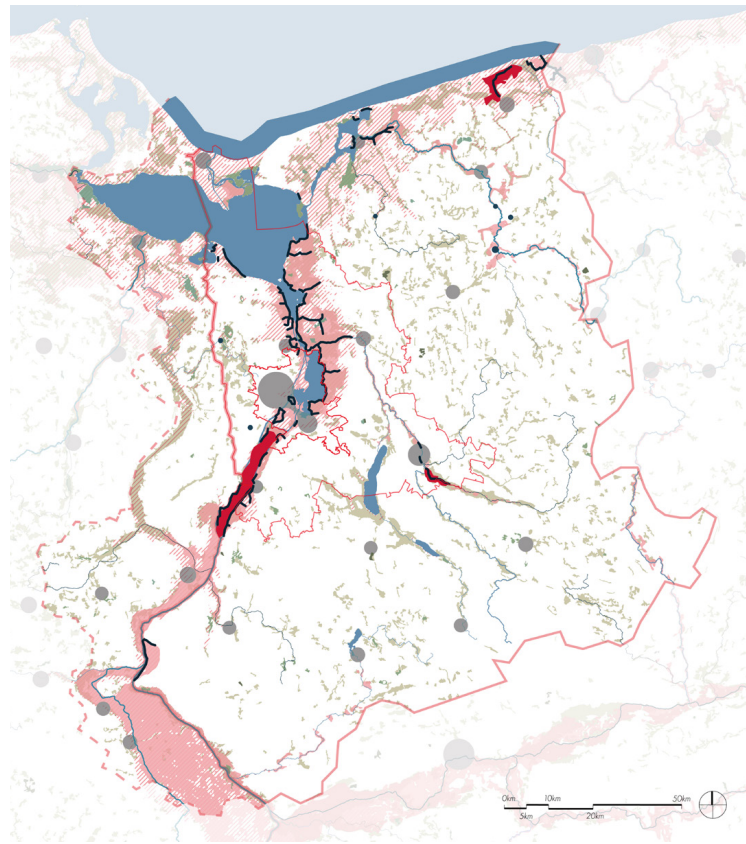


Figure 42. Flooding problems and planned protections (data: West Pomerania Geoportal)

flood danger
moderate
worst future scenario rise of sea level (12m in 2150)
polders
levees
retention ponds
wetlands/meadows

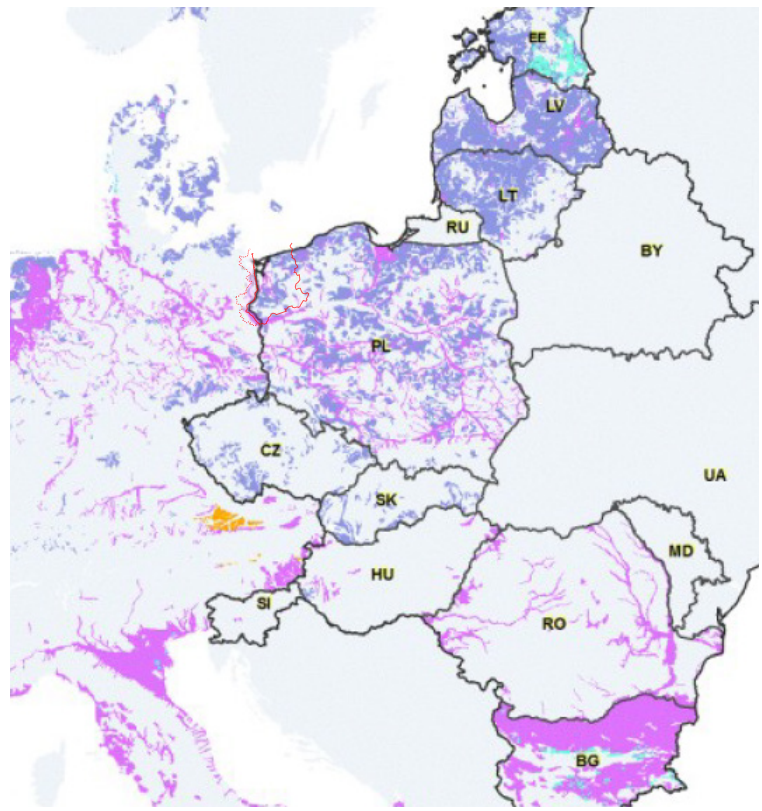
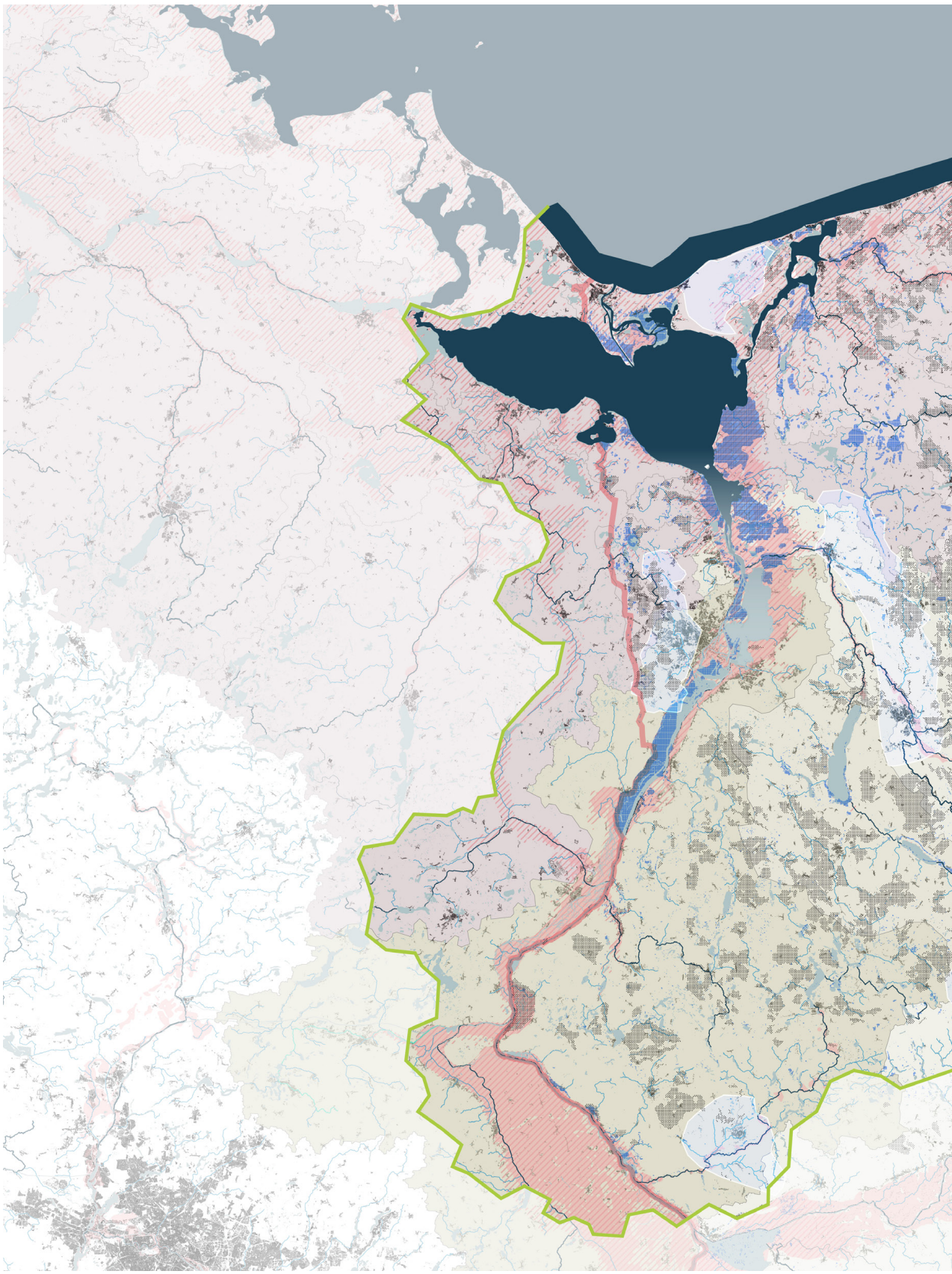


Figure 43. Type of local water management (source: Panagos, 2012- ESDB)

Decreasing saline intrusion (drainage)
Decreasing moisture level (drainage)
Decreasing moisture level and saline intrusion
Decreasing over-drying (irrigation)
Decreasing over-drying and moisture level



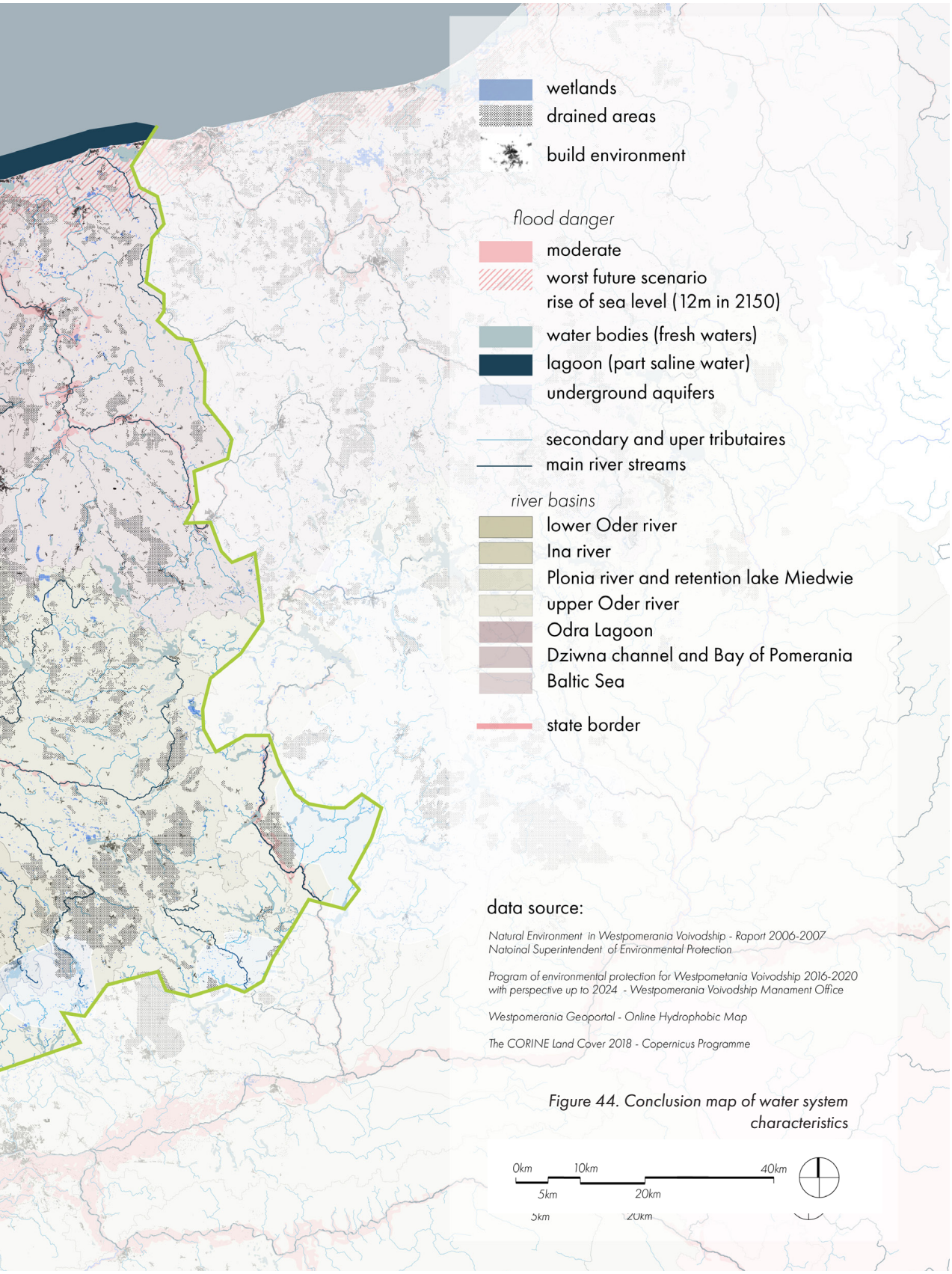


Figure 44. Conclusion map of water system characteristics

Protected ecological sites

West Pomerania voivodeship in many reports is described as the green voivodeship due to its relatively big amount of protects areas. On the project area occur two Polish National Parks, as reserve or semi-natural land: Woliński National Park and Drawieński National Park and one German National Park: Udertal Odertal, with the strictest protection rules (Category II of IUCN Protected Area Management Categories). Beside that on the area there are five Landscape Parks on Polish side (IUCN Category V) and two Nature Park on German side and areas describe as Protected Landscape Zones on Polish side with the non significant protection rules.

Nature 2000 protected zones of unique birds and other species habitats is overlapping with ecological corridors described by Polish Environmental Agency, however in many areas those corridors have no connections with protected areas. Furthermore, existing protection often do not stop the urban development.

Figure 45. The view for the left bank of Szczecin city from surrounding beech forest (source: author's own)

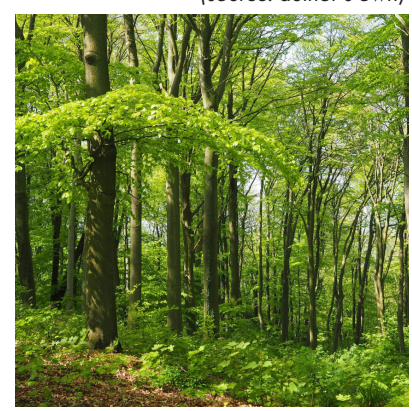


Figure 46. Szczecin beech forest (source: tearose, www.globtroter.p)

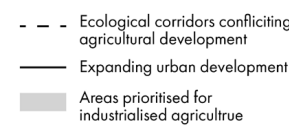


Figure 47. Areas of conflict between development and ecological protection sites (source: author)

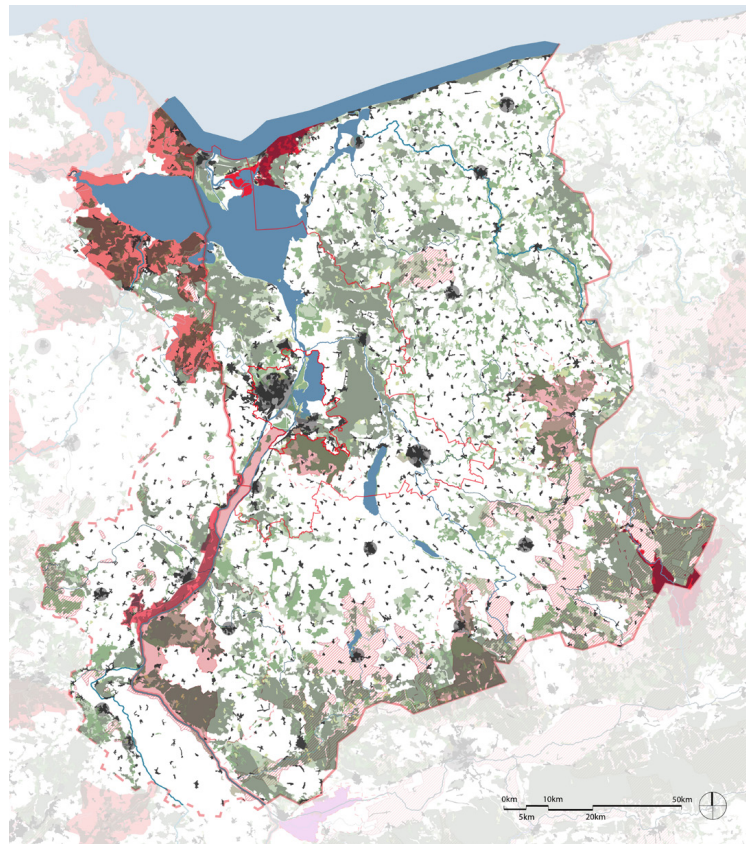


Figure 48. Areas with significant protection (Category II - V of IUCN Protected Area Management Categories) (data: Polish Environmental Agency)

National Parks
Landscape parks
Areas of protected landscape

Figure 49. Ecological corridors (data: Polish Environmental Agency)

Ecological corridors

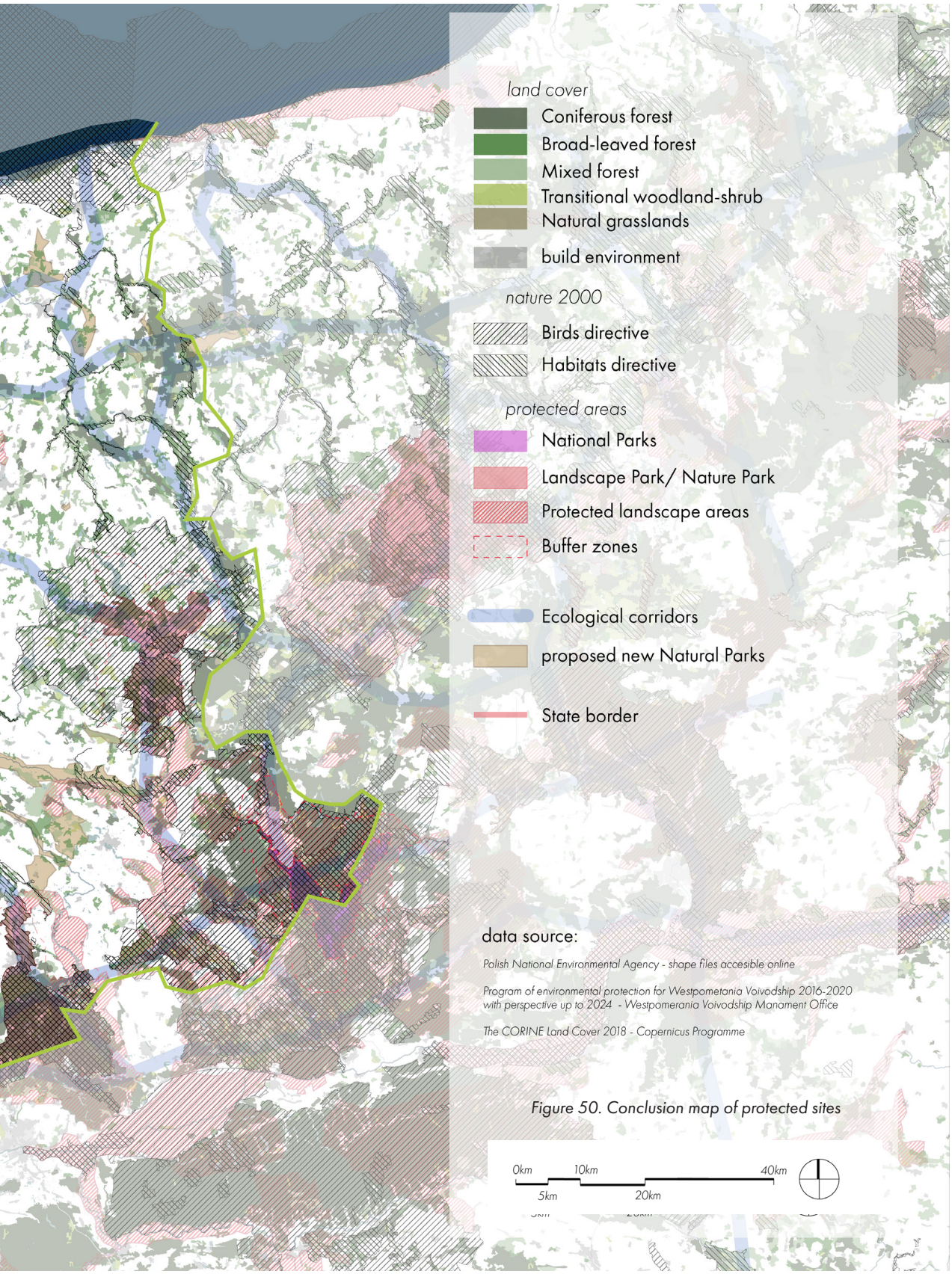


Figure 50. Conclusion map of protected sites

Productive landscape

Area, originally described above as Baltic Mix Forest Ecozone, due to human activity had been transformed singe Middle Ages. Majority of contemporary landscape is composed by farmlands and monocultural forests: pinewoods. Because of that it is necessary to not consider that territory as natural or 'green' while most of it is transformed for the productive purposes.

Transformation, being result of socio-economical historical conditions, that based upon soil quality and unique local landscape conditions brings modern shape of the landscape. However, the process is still present, reflecting profit oriented approach.

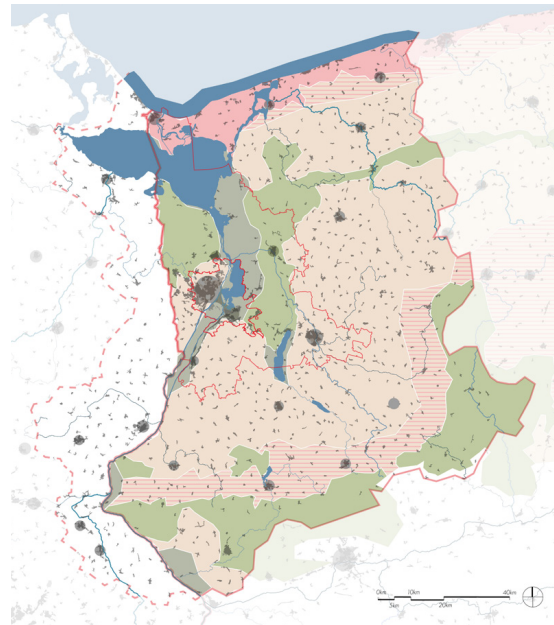


Figure 51. Functional division in the West Pomerania voivodeship (source: Regional Planning Office)

Figure 52. Monotonous agricultural landscape (source: author's own)

Figure 53. Industrial forest (source: author's own)

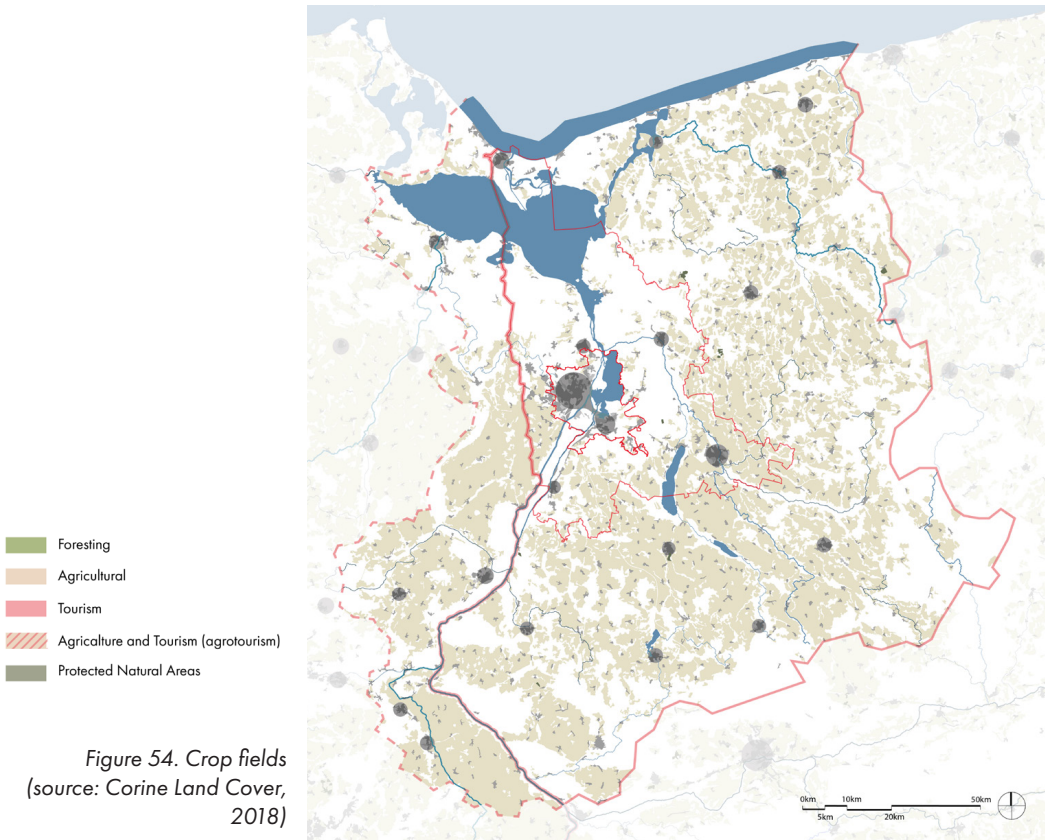


Figure 54. Crop fields (source: Corine Land Cover, 2018)

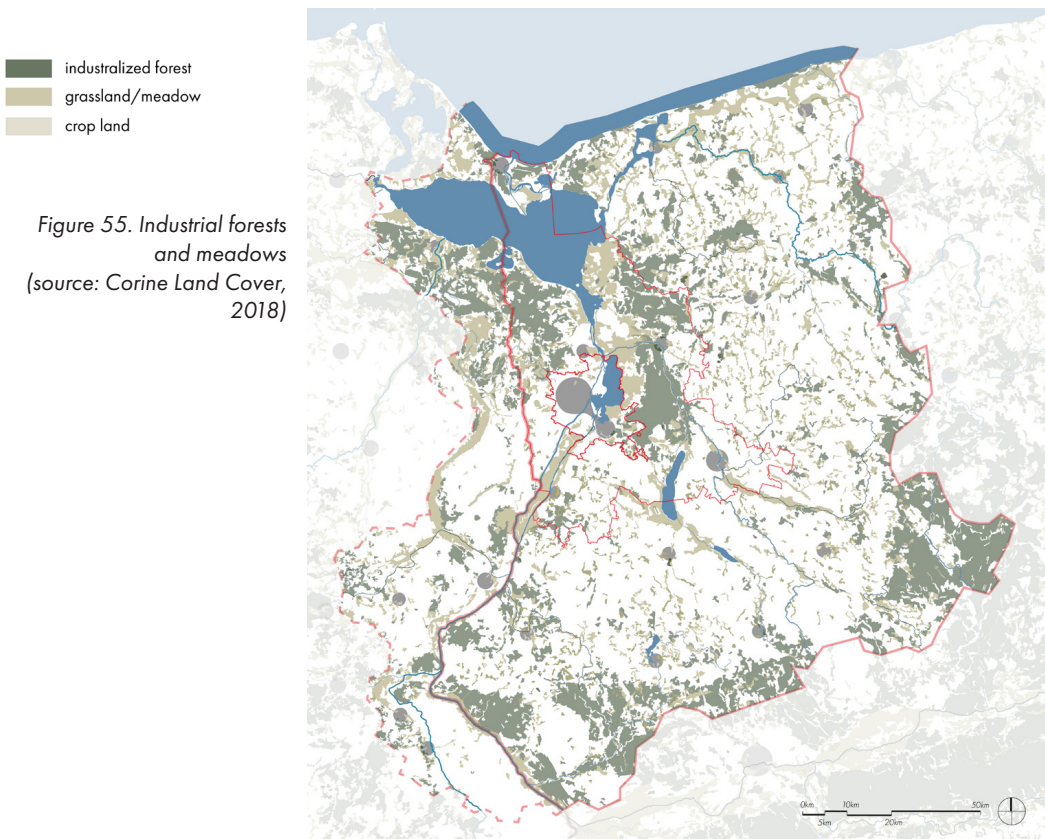


Figure 55. Industrial forests and meadows (source: Corine Land Cover, 2018)

Exploitation problems and climate change threats

Intensive agriculture cultivated on the regional scale has huge effect on the environmental layer. It has long time effects in the end influencing agriculture itself. Soil erosion, cause by intensive agrotechnical management, has been ignored element. Another problematic element of intensive agriculture is high level of nitrogen pollution being visible also in the groundwater, and water system around, influencing ecological layer. Existing problems become escalated in the future due to change mainly in the average temperature and the precipitation.

Projection of the climate changes impacts reflecting bioregion characteristics, that is why is important to mention influence of it on the working area. (EEA, 2016)

- Increase in heat extremes
- Decrease in summer precipitation
- Increasing risk of winter river floods
- Increasing risk of forest fires
- Decrease in economic value of forests
- Increase in the energy demand for cooling
- Higher crop yield variability

Figure 56. Visible dough season on the crop fields, June 2019 (source: author's own)

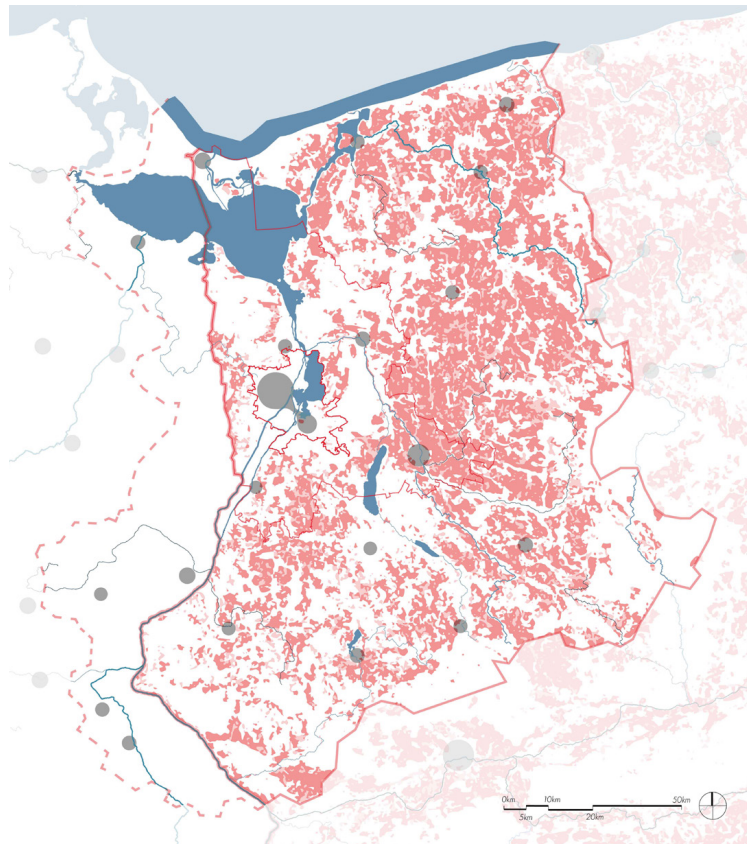


Figure 57. Drought threat, June 2019 (source: ZCPWZ- System Informacji Przestrzennej)

Soil categories prone to drought
- 1st category- very prominent
- 2nd category - prominent

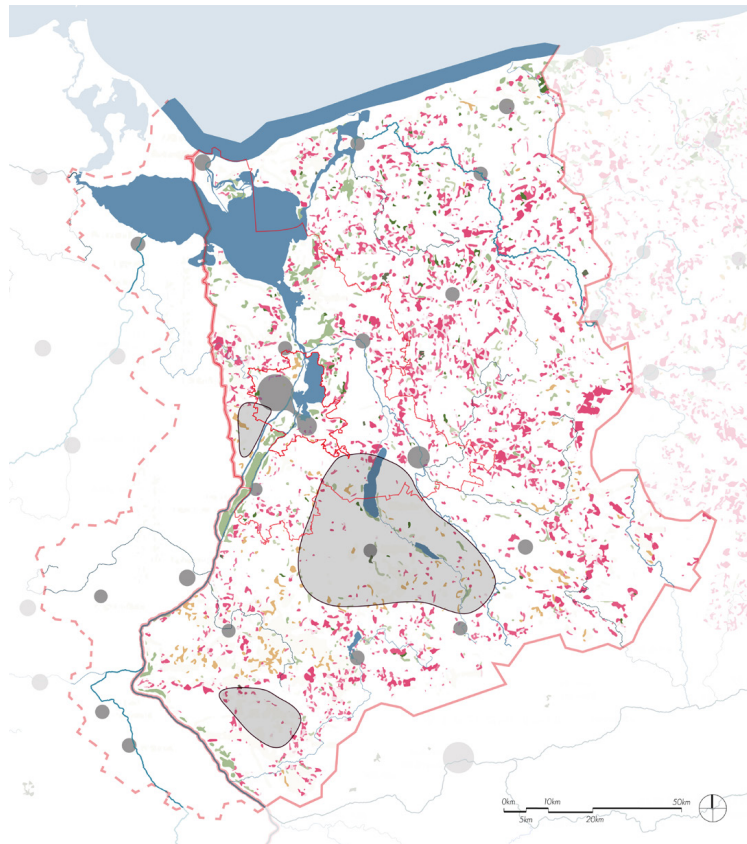
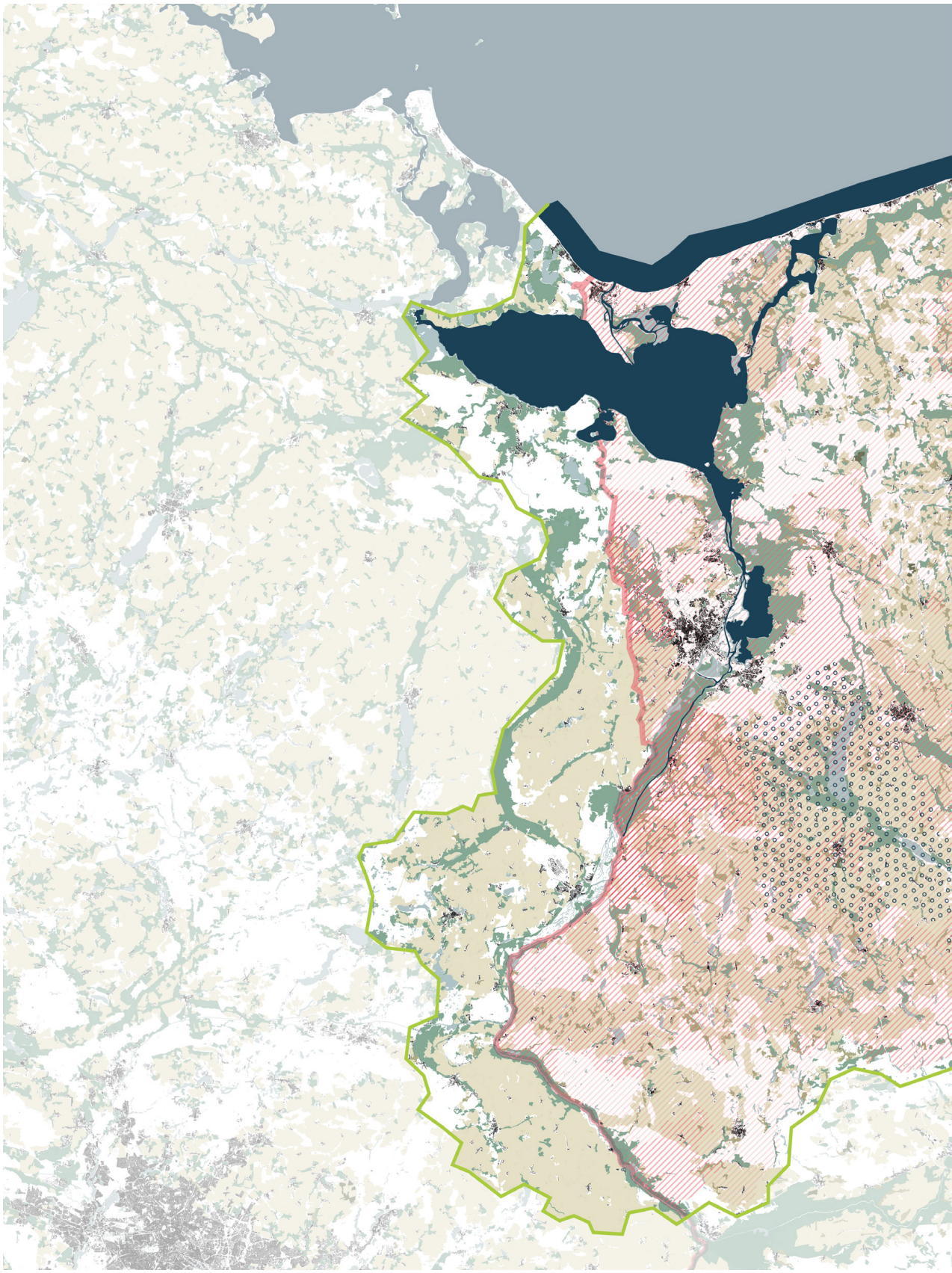


Figure 58. Soil qualified as the worse for agricultural purposes (source: System Monitoringu Suszy Rolniczej, 2019)

Soil dedication (worst quality)
- rye- weak
- corn-fodder - weak
- wheat - weak
- grassland - weak
- area with best soil quality



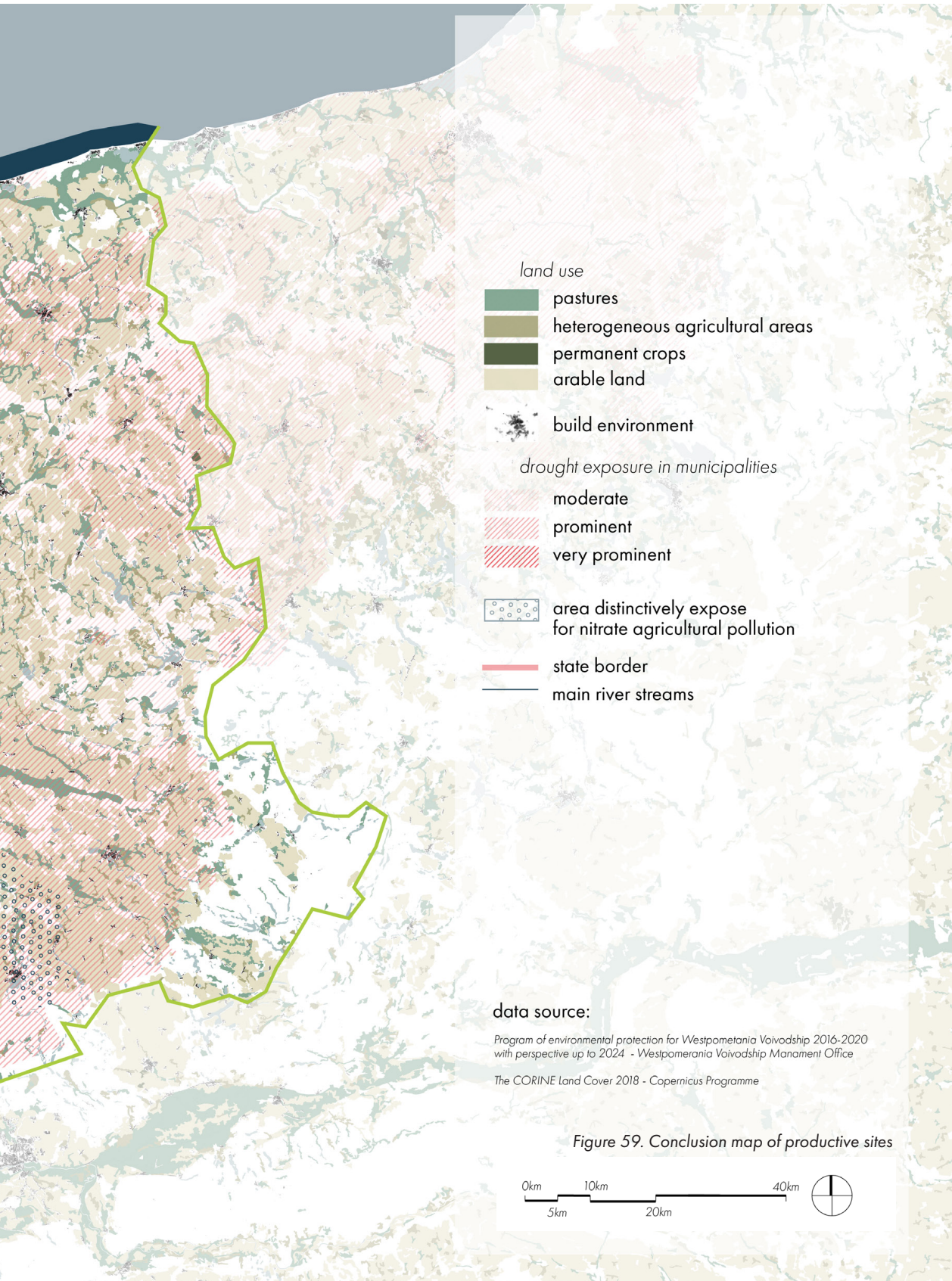


Figure 59. Conclusion map of productive sites

Constructed Baltic Mix Forest

Ongoing transformation of forest into agriculture and vice versa has highly visible influences. Rapid deforestation had place until first half of 19th century. During this time we can localise tree main periods of deforestation in the area: 12-13th century, as expansion of agricultural land for internal purpose; 16-17th century as agricultural expansion for external purpose (import to western Europe) and 19th century, that during industrial revolution rise demand for building and energetical resource. 19th century introduce first regulation of afforestation, also because of rising flooding danger in whole Oder river basin (Nyrek, 1997). Regulation, or rather change in national politics, nationalized forest areas being it from private ownership.

Process of 'afforestation' or 'forest construction' make significant change in biological structure. Because of economic reasons artificial plantations calculated for future maximal wood production assume different action than focus on stable ecosystem creation. One of the biggest failures has been made on the after-war period (1945-1970) when due to huge amount of empty agricultural land has been afforest by pine monoculture, without taking into account soil specification (around 933 thousands ha – for the whole Poland). West Pomerania Voivodeship have the bigger percentage of the areas transferred to State Forests, with 35,6% of total forest cover (Konieczny, 2018). According official information on State Forests website, changes in politics have been introduces for possible best diversification and further afforestation.

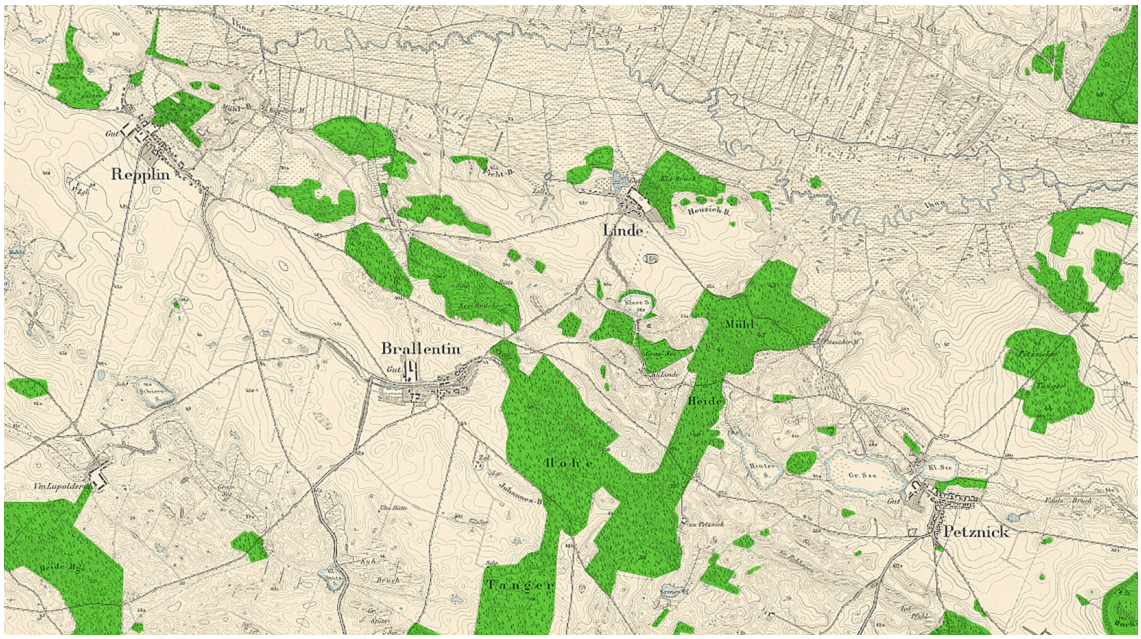


Figure 60. Rzeplino village and surrounding, 1891
(source: Reichsamt für Landesaufnahme, 1891, Meßtischblatt 1329, www.deutschefotothek.de)

ongoing process

AGRICULTURE ⇌ WOODS

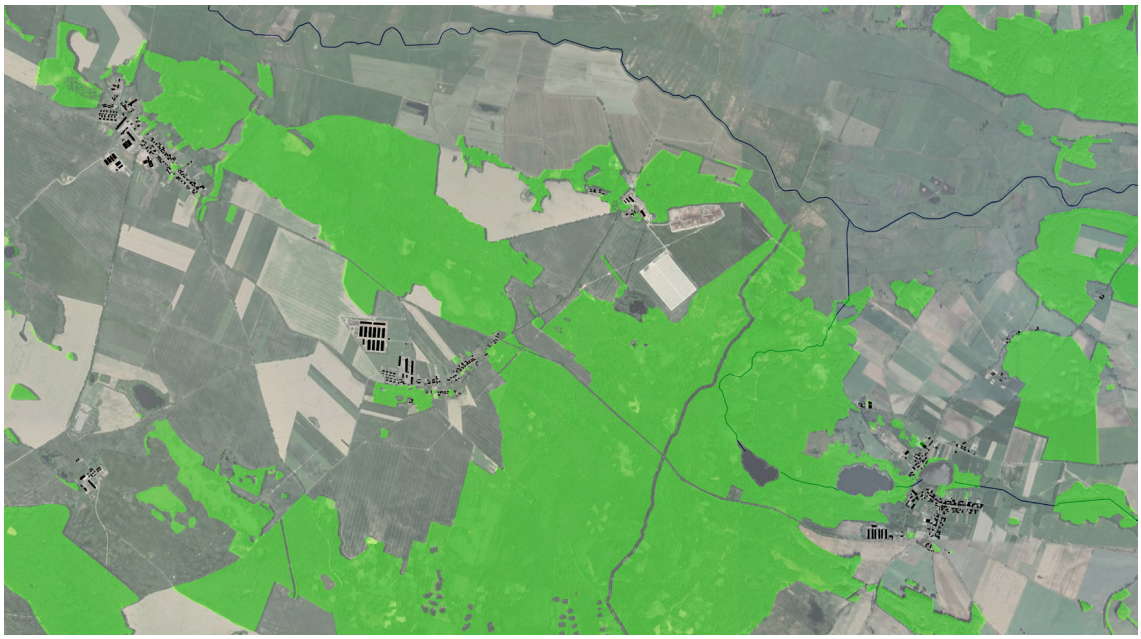


Figure 61. Rzeplino village and surrounding, 2019
(source: Google Earth)

Figure 62. Forest clearance (source: Google Earth)

Figure 63. Areas with still fragmented crop fields (source: Google Earth)

Figure 64. Patchwork of forest and agriculture (source: Google Earth)

Figure 65. Visible post-glacial landscape (source: Google Earth)

Historical origins of the agricultural landscape

Analysing economic core-periphery relations, according to Polish sociologist, Jan Sowa should start in the historical conditions of the area, looking for long-lasting phenomena. In analysed region peripheral, socio-spatial structure is created there historically. What is interesting, most of the Baltic Mix Forest Ecozone, based on agricultural landscape, developed similar spatial characteristics. In the book *Phantomic Kings Body* (*Fantomowe Ciało Króla*), Sowa is reflecting on those geographical conditions, describing division in the European development, pointing Elbe river as a border (Figure 69, following page), trough which in XVI century, transformation from feudal system into capitalistic economic system has not taken place. While European core developed into market oriented economy, its ester part had been transformed into specific manorial system. As result of that, western part of Europe in 14th until 16th century, did not rise importance of the cities, introducing, in opposition, big agricultural enterprise. Folwarks, similar to Roman latifundium, were owned with the land by noble class, constantly limiting rights of peasants (80% of the whole society) and townsfolk. As result of that, majority of Polish land has been constructed by small, private cities, and private folwarks (50-100 ha) with villages localized closed to it, producing grain for the export with low level of innovation.

Theory introduced by Sowa is based on Polish historical context. West Pomerania have not been part of Polish territory until 1944, however structure of land has very similar character. Still, in 1925 on north-west provinces of Germany, 49,81% of agricultural land has been owned by Junker's farms (more than 100 ha) that do not take place in other parts of Germany (Bański, 2010). Villages around were localized in distance of around 5 km. Even though Sowa explanations of socio-spatial structure do not directly apply for Pomerania region, strong similarities can be found in the land structure, with low density and big distances between ones or in the small, not developed industrially towns.

Figure 66. Abounded Junker's residence, Promień village (source: author's own)

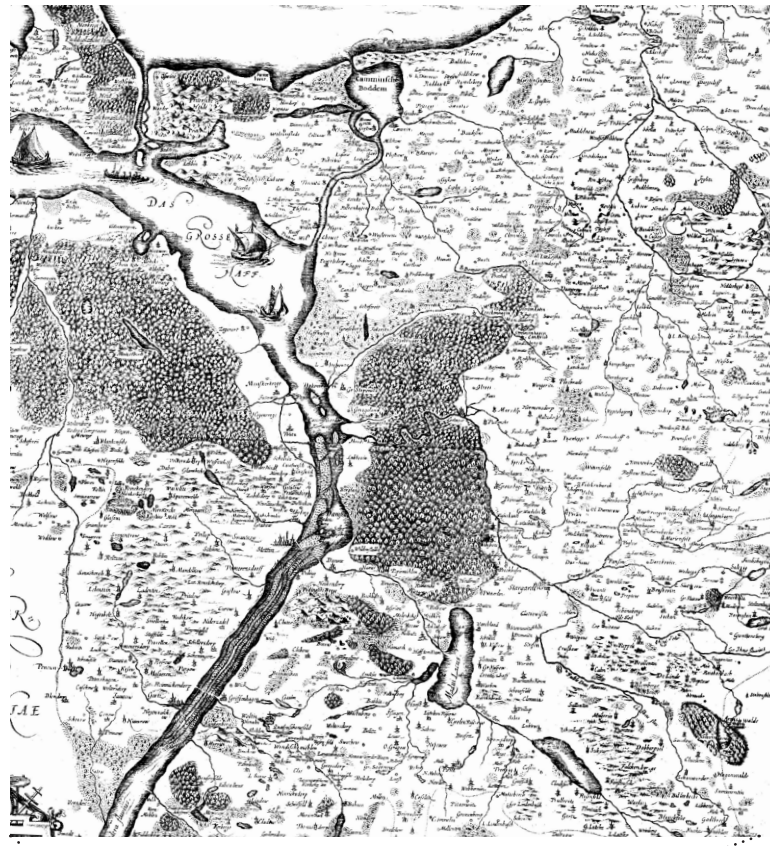


Figure 67. Part of Lubinus Duchy of Pomerania map, showing highly agricultural character of the land, in comparison to forestland that has been left in on difficult terrain, 1618 (source: commons. wikimedia.org)

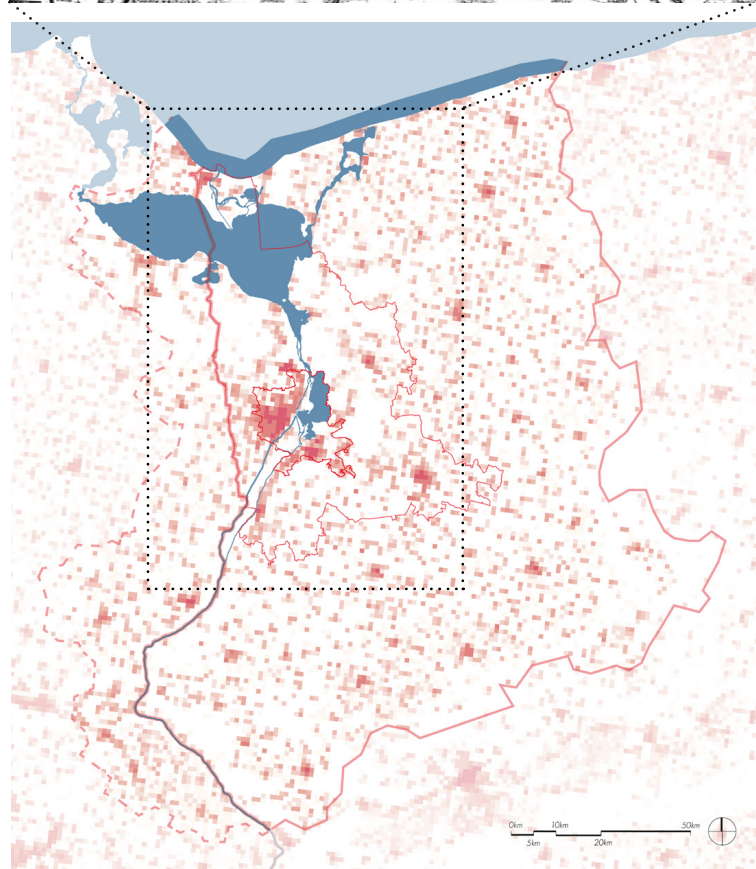


Figure 68. Present density map: population grid (source: Eurostat 2011)

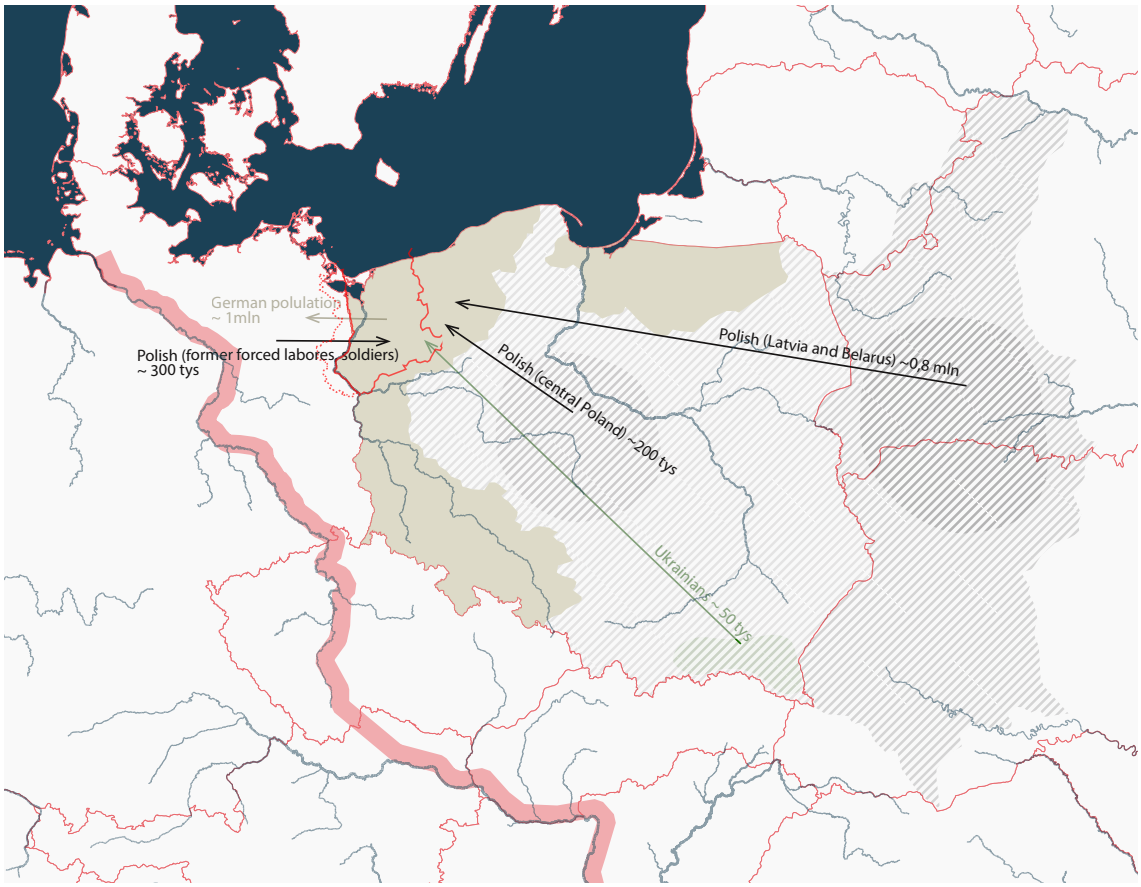


Figure 69. Deportation, resettlements, migrations 1939-1959 (data: Polish Historical Muzeum, 2008)

Figure 70. Transport of Polish citizens from Lvov to Wielgów village, after-war period 1948 (source: okolicelwowa.pl)

Figure 71. German citizens living Szczecin, 1945 (source: www.szczecin.wyborcza.pl)

Present social structure

The historical analysis create by Sowa has direct impact on Polish society, resettled there after II World War. Region of Pomerania, during Industrial Revolution was part of German Empire in (1871-1918). In this time history city and its regions have been developing as satellite of Berlin with strong emphasis on port and harbour giving Germany access to North Sea and Baltic Sea countries.

This, as well as the trial of region industrialization, had been reversed after World War II. Build structure inside cities had been destroyed in 70%, surrounded village in lower scale, 23% while region has been granted to Poland. Furthermore, destruction were continuing after the war, cause by: migration, politics forcing material transfer to the Warsaw city, and occupation of the industrial inventory by Red Army. In period 1939-1959 West Pomerania changed it societal structure almost totally to 96,4% of Polish citizenships, due to massive resettlements, introduce for political reasons (Figure 69).

Unclear border status after war, for new, resettled society, bring long-lasting '*psychosis of provinciality*' (Musekamp, 2010) The expression describes feeling of temporality of the Polish people, that last long until fall of Iron Curtain.

"After the fall of the Iron Curtain, both from the geographical and transport infrastructure perspective and from a psychological point of view, the city – situated 120 km from Berlin a pre-war motorway), yet 450 km from Warsaw (by country roads) – appeared to be somewhat distant from the rest of the country, while socio-economic links to the nearby German border area were poorly developed." (Tölle, 2014).

High level of destruction in the cities, but also need of populating empty areas have effect in soviet agrarian reform, offering ownership of land on agricultural farms also for non-agrarian people. The reform transforming ownership, also because of ideological aims, did not achieve fully its densification goal, however did introduce visible land transformation, creating new rural settlement. Left land have been afforested or transformed into State Agricultural Farm, that supposed to be major elements of food production based on collective farming.

Post-war politics, together with resettlement and the unclear brother status brought long-lasting challenges. Lack of knowledge and management tradition can be still noticed in the rural region, where a lot of agricultural traditions: maintenance of irrigation, planting protecting trees are neglected. Lack of long-lasting, intergenerational landownership, effected also relatively late introduction of revitalization work.

Communism impact and the transformation time

Process of revitalization have been proceeded slowly. The most visible element appearing during soviet system was massive block housing, trying to cover housing shortage. The period of rural-urban migration for polish socio-spatial structure has been the most prominent for the period before the transformation times (80's-90's)

This peripheralization started being much more problematic after Polish Round Table Agreement in 1989, where Szczecin and its region together with other Polish cities hits negative effects of the "shock" transition (Bontje, 2005) towards market economy and privatization. Because of this failed transformation, the biggest regional employment centre collapsed, for example all State Agricultural Farms. From the other hand transformation accelerated substantial structural changes of the cities. Big, new infrastructure projects have been developed in order to match the level of Western counterparts and give place for private sector development. (Pancewicz, 2010) However this development had been not followed by quality of living, like public transport or accessible housing market (Ciesiółka et al., 2017).

Figure 72. Block housing from 70's for 14 000 inhabitant, Szczecin city (source: author's own)

Figure 73. Block housing from 60's in the agricultural landscape (source: author's own)

Neo-liberal economy today

Figure 74. Szczecin- Goleniów Airport, 2019 (source: infoludek.pl)

Figure 75. Abounded buildings of State Agricultural Farm (source: author's own)

Market opening and also strong need of *'going after West'* has been major effect of coping strategies without analysing internal problems. An example on the regional scale could be development of international airport in Goleniów, that nowadays struggling with keeping amount of connection on profitable level (Figure 74). City of Szczecin decided to build football station of XXI century, having already examples of Wrocław or even Warszawa, being much resilient cities, that are unable to keep city budget, because of that. In the same time, 6000 flats inside city centre do not have toilets access. Also, possible tram connection between left and right part of the city has been cancelled in 2019 budget, due to city investment into Water Park.

What is important to underline, transformation brought big change in the political discussion and perception of the space. Social actions, or public goods, because of the history associated with communistic system, has been reduced, rising right for private developments and expectation that state would be supporting that.

Development of the West Pomerania voivodeship seems focus on economy under strong influence of Szczecin city. Regional income measuring through GDP (Figure 79) explain how big contribution is the bioproduction, occupying the majority of the territory. Ongoing strategies defining regional development focus on attracting foreigner capital and developing infrastructure as base for it. Inside region there can be localised four Special Economic Zones, occurring inside Szczecin Metropolitan Are, proposing subsidies or tax reduction. The idea behind, to activate local economy, materialized in creation of such Zones, left support of local entrepreneur as farther priorities.

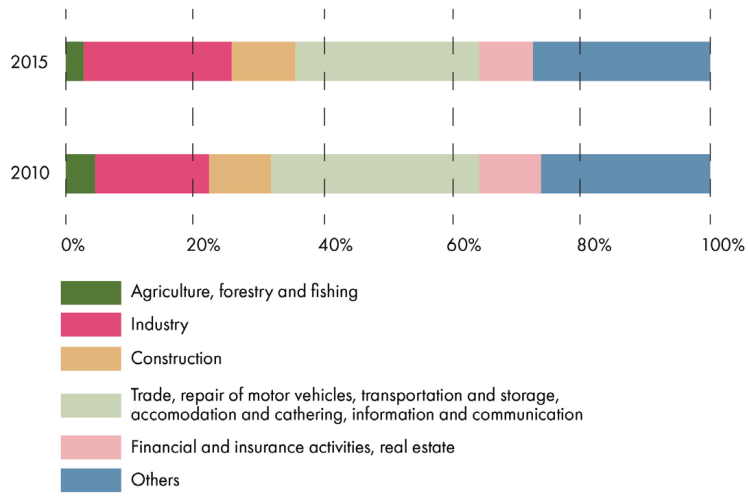


Figure 76. GDP in voivodeship by kinds of activity (source: Statistical Atlas of West Pomerania Voivodeship, 2018)

Figure 78. Special economic zone with Zalando logistic centre close to Gardno village (source: author's own)

Figure 77. Small repair services in the Brzózki village (source: Google Street View)

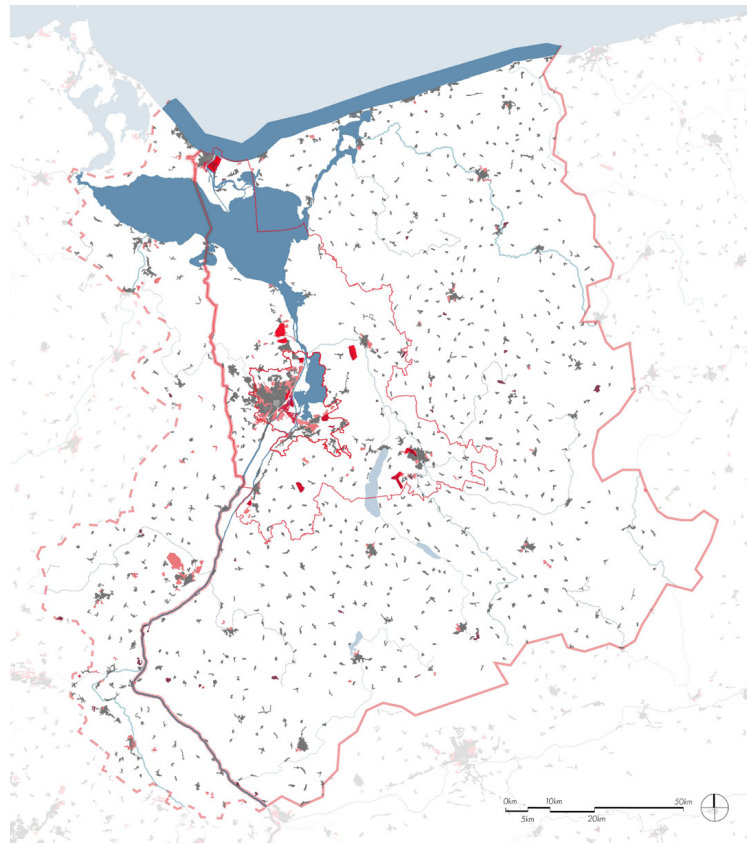


Figure 79. Location of industrial spots (data: Open Street Map, Corine Land Cover, author's own)

special economic zone
industry/production sites

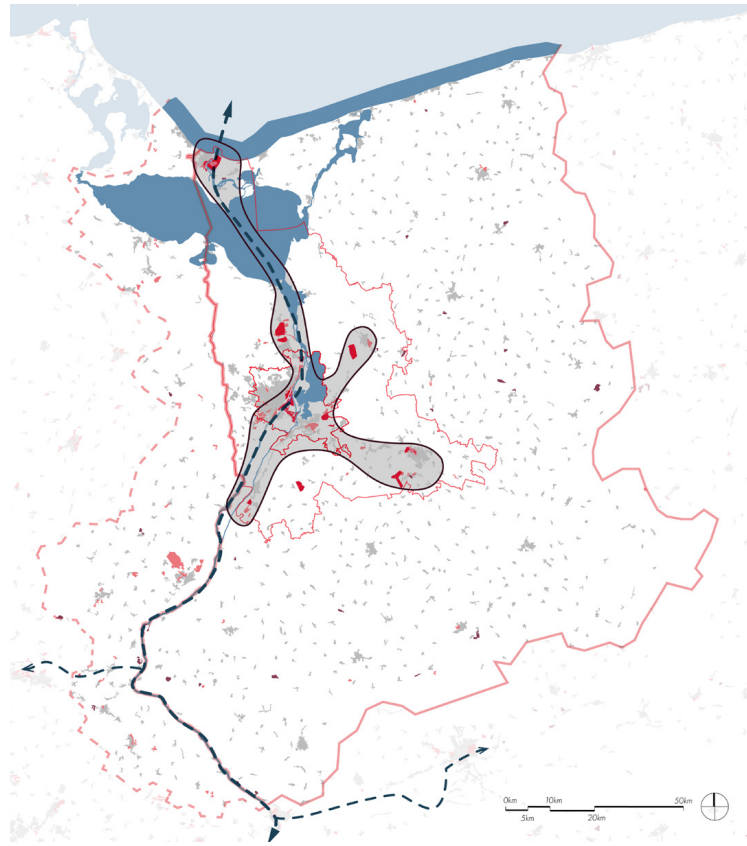


Figure 80. Territorial distribution of industrial production spots overlapped with water network (data: author's own)

inland water transport

Housing shortage - expansion

Economical spot: Szczecin with its metropolitan area, influences also housing pressure in the region. Urban-rural migration present on the territory and the war damage, brought the need for the new dwellings, that has been answer by mass block housing constructions. Program not efficient enough, during transformation has not been continued, leaving construction in the private developers hand. Private sector did not cope with the problem neither. Economic differences, when rural land with housing construction is cheaper than flat inside the city, the rural dream of the individuals, together with lack of strong planning system, resulted in extensive sprawl areas.

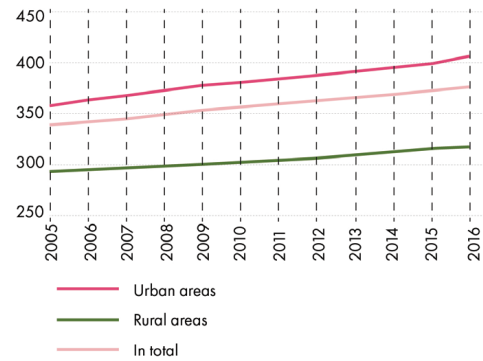


Figure 81. Dwellings stocks per 1000 population in voivodeship (source: Statistical Atlas of West Pomerania Voivodeship, 2018)

Figure 82. 'Sprawl' areas outside city borders: single family housing (source: author's own)

Figure 83. Housing build by developers on originally agricultural areas (source: author's own)

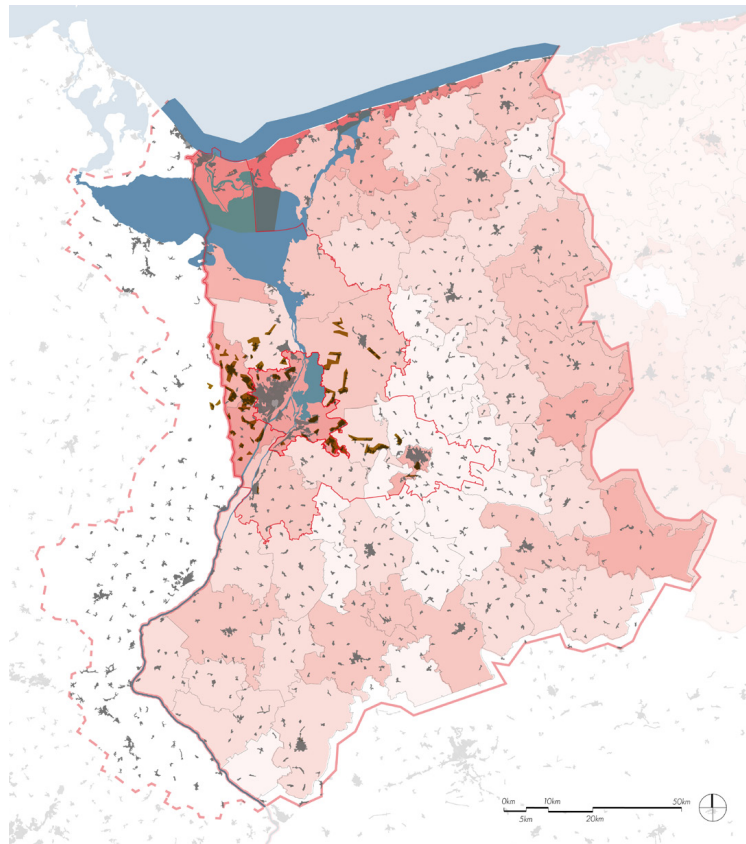


Figure 84. Dwelling stock and concentration of new sprawl zones (source: Statistical Atlas of West Pomerania Voivodeship, 2018)

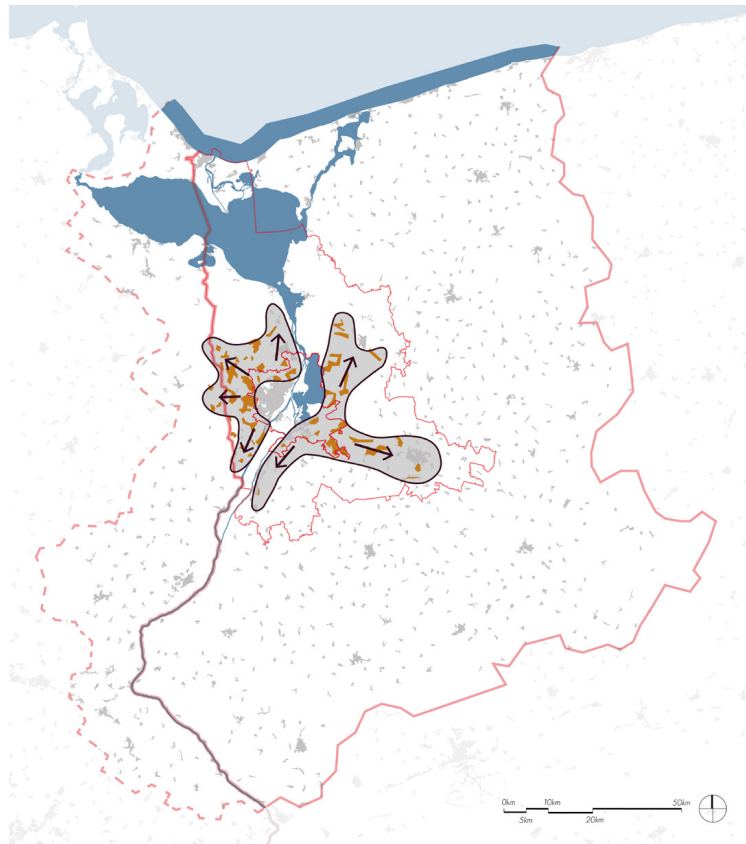


Figure 85. Concentration of 'sprawl' zones visualizing expansion of Szczecin as centrality of the region (source: author's own)

Infrastructure

Infrastructural system that economy and society is operating on, emphases centrality of Szczecin city. New infrastructural project has been focus on developing connection with Polish core and inside Szczecin metropolitan area, not in peripheral region itself. Historical influences can be still visible in existing, developed connection of the Szczecin city, and the Pomerania with Berlin. Oder river with its flooding areas, are the reason why there are only two Polish-German crossings on the territory below Szczecin city.

Figure 87. Express road S6, year of opening: 2017 (source: author's own)

Figure 88. National roads in the area (source: author's own)

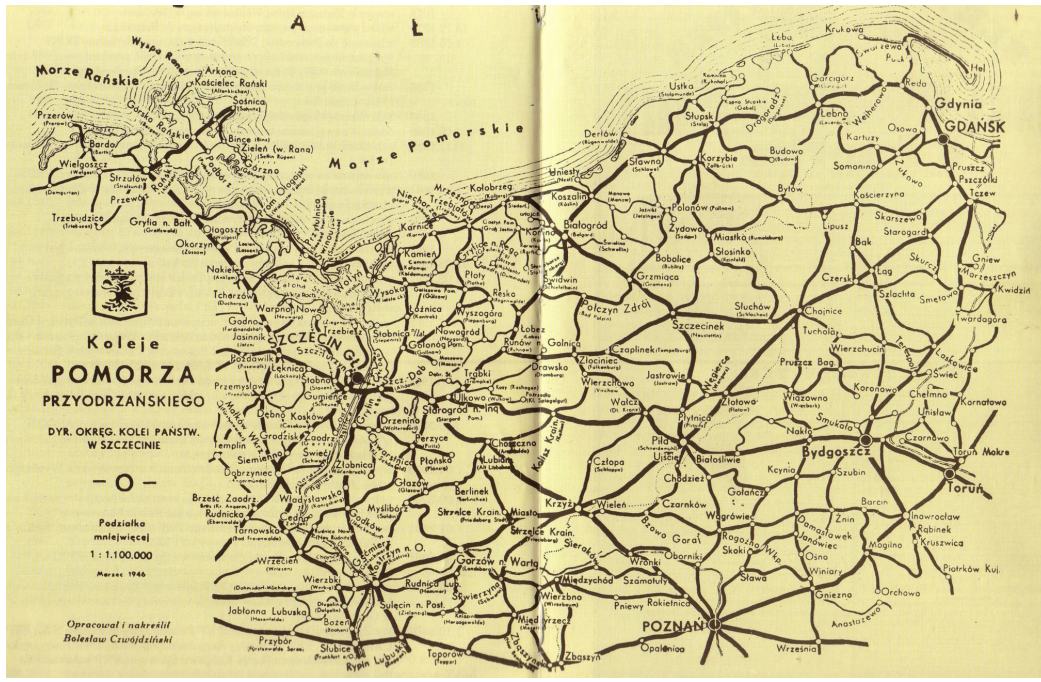


Figure 86. Railway network, together with narrow-gauge railway network abounded in the majority of the connections, Recovered Territories map, 1946 (source: zslp-bialogard.szczecinek.lasy.gov.pl)

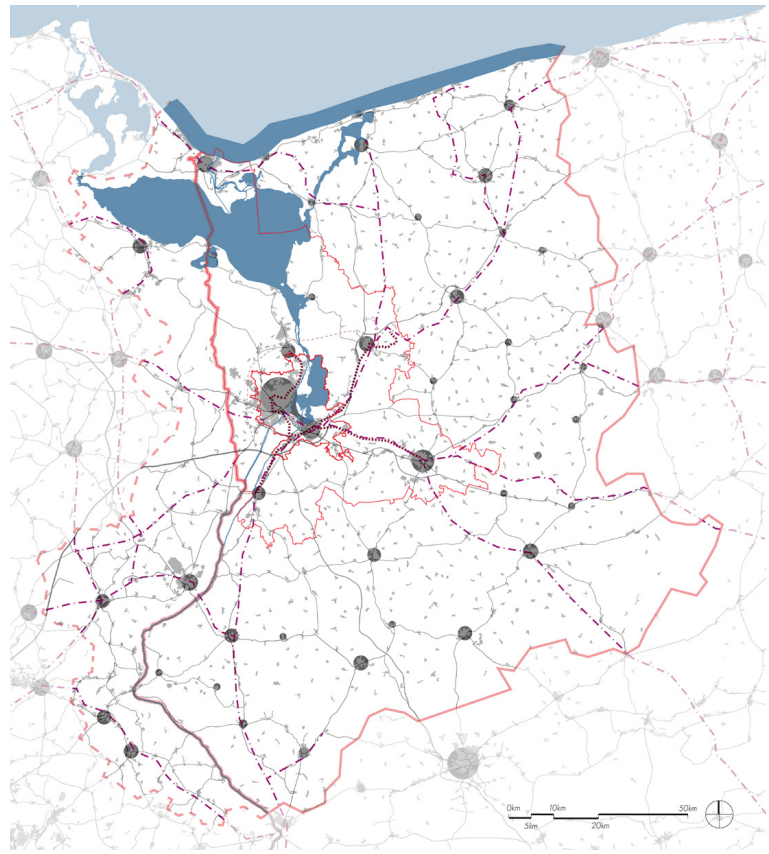


Figure 89. Infrastructure, existed and planned (data: Open Street Map)

- controlled-access highway
- expressway
- national road
- municipal road
- rail train
- planned Szczecin's beltway
- planned metropolitan fast rail

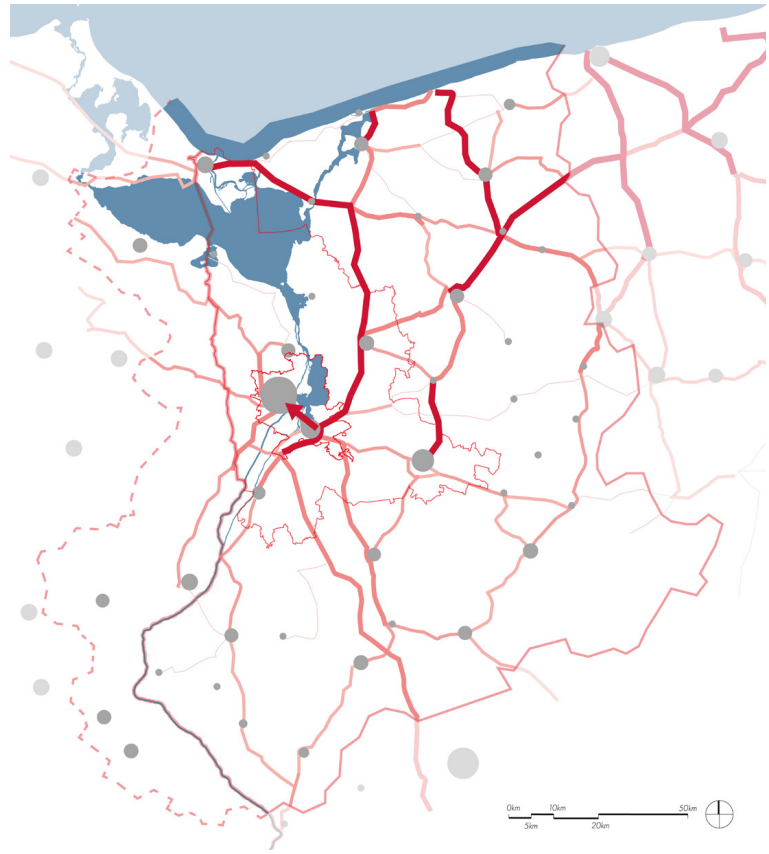


Figure 90. Load of communication network – work and tourist traffic (data: Central Statistic Department, 2014)

Number of travelers

- 0 - 1414
- 1415 - 4179
- 4180 - 9050
- 9051 - 18813
- 18814 - 36421
- 36422 - 127303

Internal peripherialization - struggles with mobility

During economic transformation, the role of public transport, on the city and regional level, declined dramatically, while amount of private car per person rise (672 cars per 1000 of citizens in 2018, while European Union average is 587, Netherlands 556). As the result, the mobility, especially in the peripheral areas decrease.

Existing train roads due to modernization abounded big amounts of existing lines, closing small stations, as not benefiting enough. Transformation period bring also political rejection of the regional public transport importance, where national bus carriers has been replaced by punctual private companies not coordinated and not supported on the regional scale.

Figure 91. Train station in Dolice village (source: author's own)

Figure 92. Bus stop in the village (source: author's own)

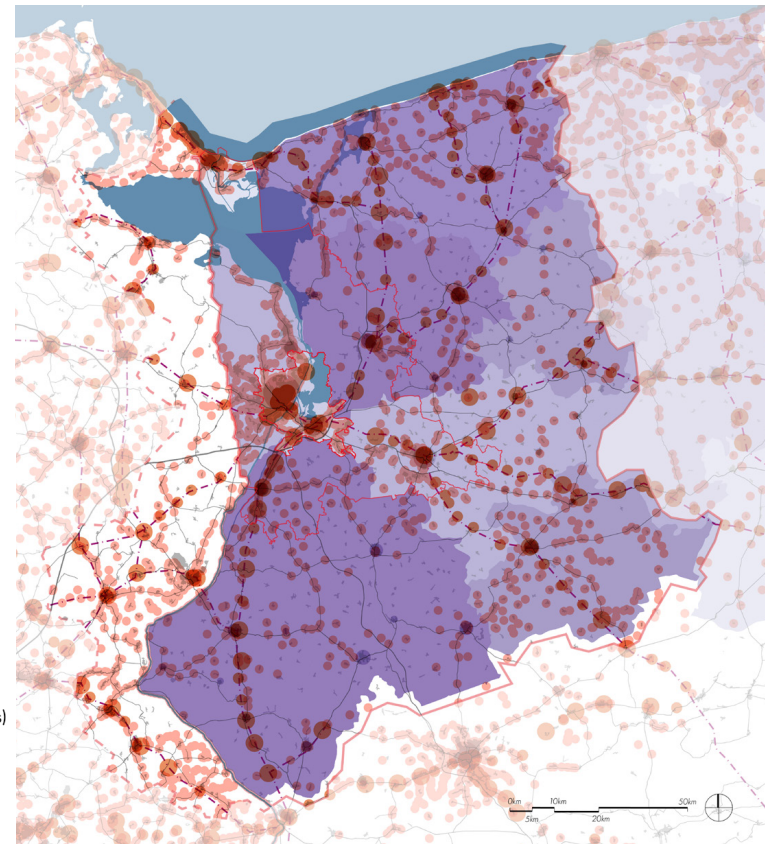


Figure 93. Amount of cars per population vs localisation of bus and train stations (data: Open Street Map, Statistical Atlas of West Pomerania Voivodeship, 2018)

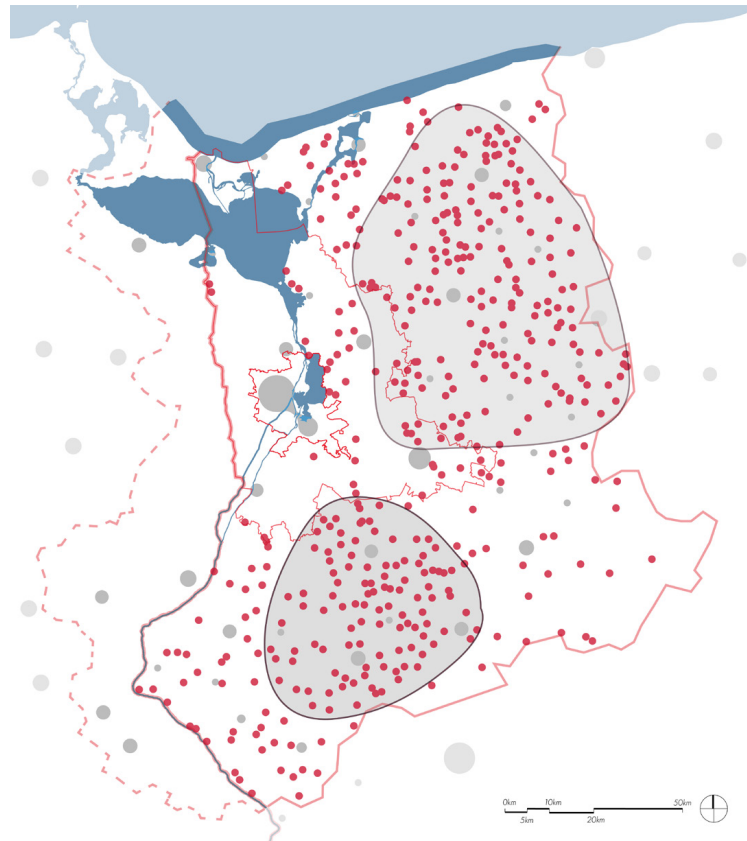


Figure 94. Concentration of villages without bus stop (source: author's own, data: Open Street Map)

Exclusion zone

Due to historical impacts and spatial structure (low density, lack non-agricultural industry inside region, lack of urban structure for polycentric development) region has been significantly struggling with exclusion. Region has the bigger percentage of social exclusion areas comparing to other Polish Voivodeships, also advancing at last in Local Human Development Index. Ongoing programs pointing Special Inclusion Zones *(Specjalna Strefa Włączenia na obszarze województwa zachodniopomorskiego oraz planowane kierunki działań interwencyjnych, 2018*) analysing complex problem and developing solutions of based on 6 elements: access to public facilities, demographic loss, technical infrastructure (lack of employment on area being part of the former State Agricultural Farms), economy potential and poverty (Figure 97). Recommendations for those areas pointing economic development, proposing development of infrastructure as major factor.

What is clearly visible in the region, introduced social and structural development has not been distributed equally. Comparing the occurrence of the Exclusion zone we can see the correlation with defined Functional areas in the region. Functional zones, defined on the level of Regional strategy, based on the existing connectivity and economic expansion were defined as based for further development project.

Figure 95. Shrinking Pyrzyce town (source: author's own)

Figure 96. Not functioning bus stop, Dołgie village (source: author's own)

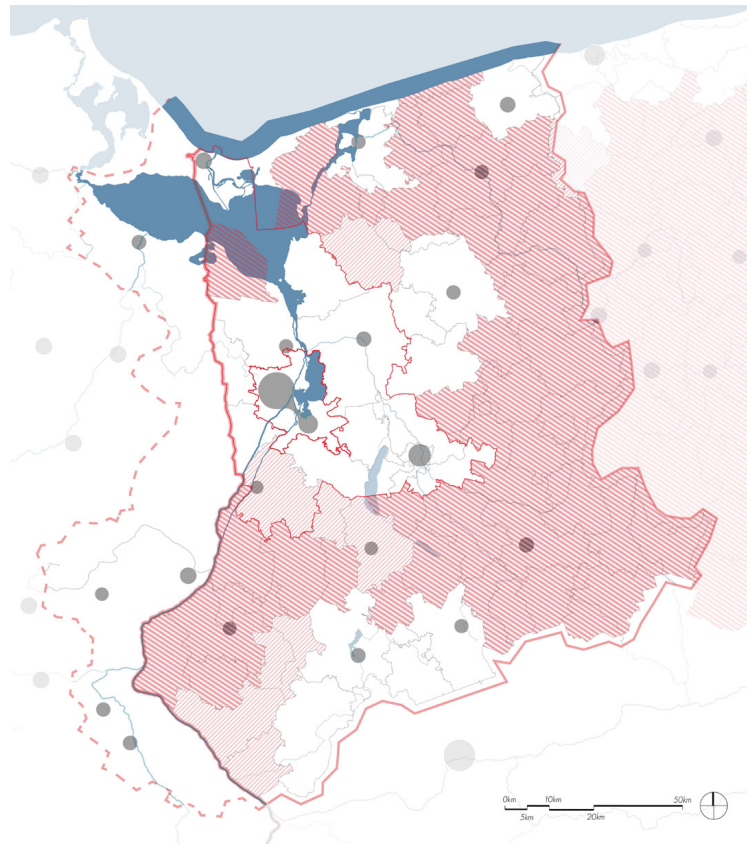


Figure 97. Regional Inclusion Zones (source: Regional Development Office, Program for Exclusion Zones, 2017)

municipality in the exclusion zone
municipality on transformation stage

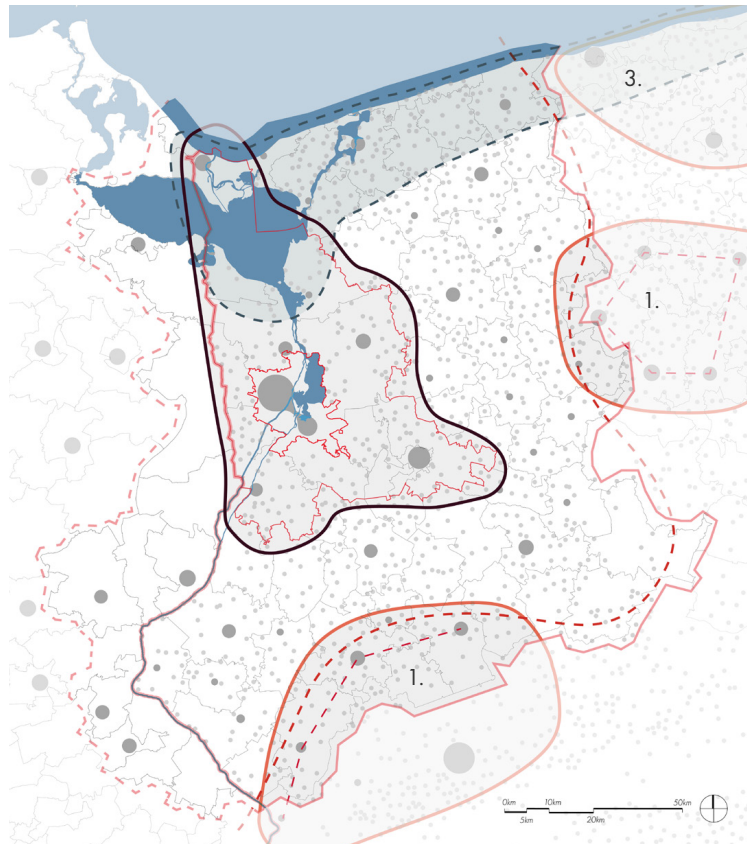


Figure 98. Functional zones in the regional planning (data: West Pomerania Spatial Planning Office)

village
town

Transregional functional Areas
Szczecin Metropolitan Area
Coastal Zone

Regional functional Areas
1.Barlinek - Mysliborz -Debno Zone (Subregional group of towns)
2. Central Zone (Subregional group of towns)
3.Koszalin-Kolobrzeg-Bialogard (Regional group of cities)

Regional functional are of Szczecin city

Depopulation

As result of economic expansion region advance in lowering its unemployment index to 9,1% (GUS, 2018). However, more advanced production create working places requiring specialization, that is not included in the development strategies. Region struggling with high skilled workers demand, mostly due to internal migration to central Poland or abroad. Data ,from the year 2011, pointing 107 thousand emigrants, however there is of lack of detailed date of its structure. *(Struktura ludności w województwie zachodniopomorskim w 2017 r., 2020*)

Another difficult element for projected economic development is the future demographical lost. The more general data of population change pointing loss of 1,9% proposing total change for -10% in 2040, what create real future problems for developing economy. For data 2010-2016 only 7 municipalities growth in terms in population- municipalities surrounding Szczecin city, showing clear correlation with sprawl areas. In terms of population is important to point German part, that have been shrinking much rapidly for longer period of time. Also, here is visible additional increase created by migration from Szczecin for its surrounded municipalities, even across the national border. Beside city and its surrounding, the whole region is shrinking, what is visible even more for smaller towns than revitalized and supported villages.

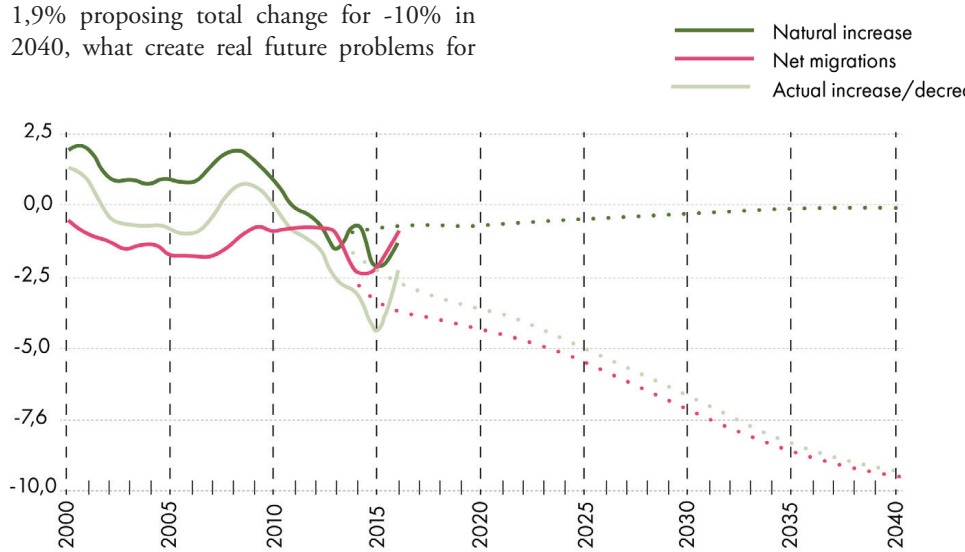


Figure 99. Natural increase, net migrations as well as actual increase in West Pomerania Voivodeship per thousand people (source: Statistical Atlas of West Pomerania Voivodeship, 2018)

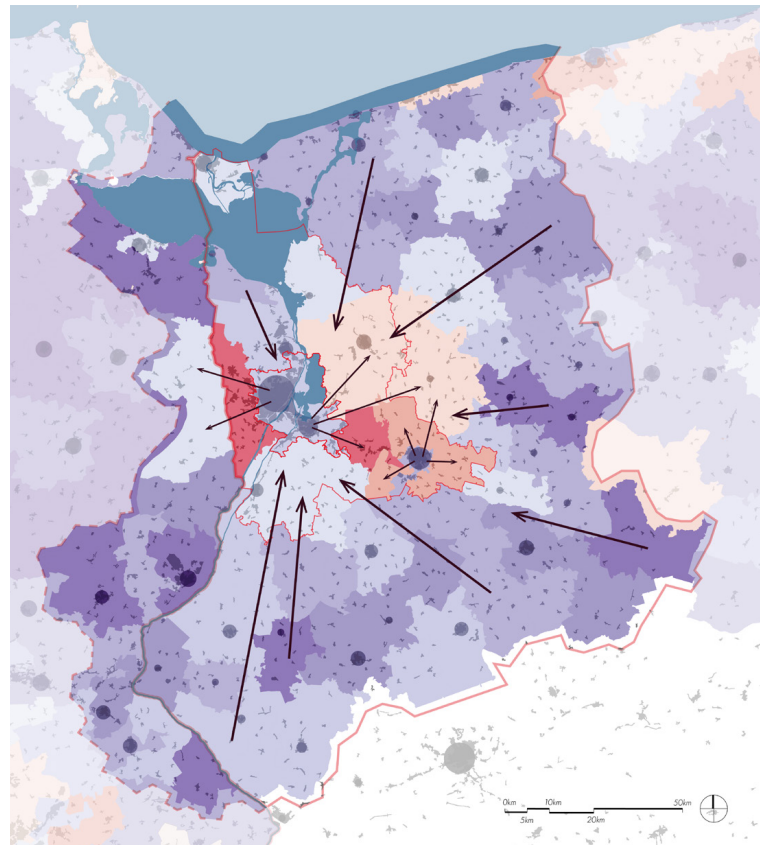


Figure 100. Change in population and internal migration directions (source: Statistical Atlas of West Pomerania Voivodeship, 2018)

Figure 101. Abounded buildings in the Parsów village (source: author's own)

Social capital

In terms of socio-ecological resilience, for the region with huge ecological potential it is important to take into account also social resilience. Historical influences, as well as ongoing neo-liberal trends, prioritizing individualistic approach building characteristic opposite to needed. One of other worrying trends have been localized in decreasing amount of local initiatives (Zielińska & Kraszewski, 2019). Implemented participatory tools have not risen amount of introduced initiatives (Figure 102). So called social capital (calculating trust and social involvement) is relatively low in Poland, decreasing gradually since 2008 (Wosirek, 2014) (Figure 103). Problems in social self-organization bringing challenges for strategies addressing bottom-up approach.

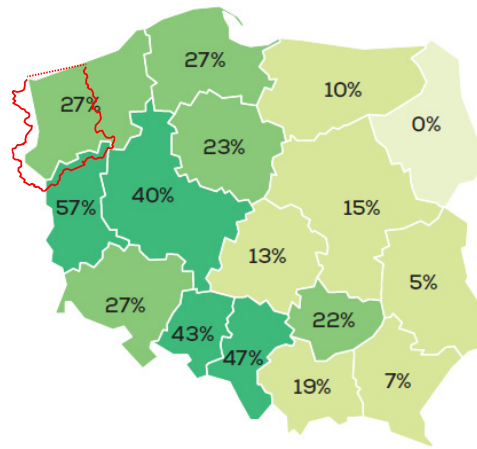


Figure 102. Amount of municipalities in voivodeship, where are resolutions based on local initiatives, 2014-2017 (source: Rapport of participatory tools in local initiatives in years 2014-2017)

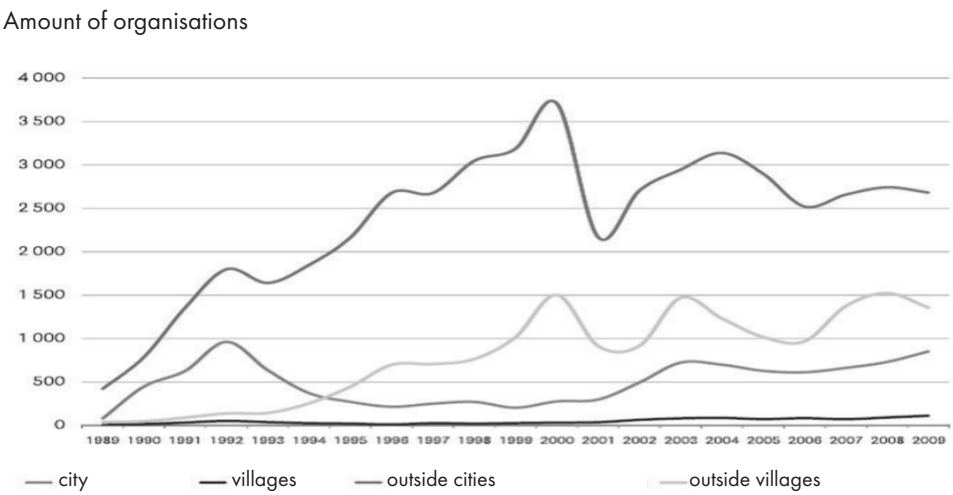


Figure 103. Number of non-governmental organizations in Poland, 1989-2009 (source: Zakrzewska, 2012)

Figure 104. Bars as the local centres, Lipiany town (source: Google Street View)

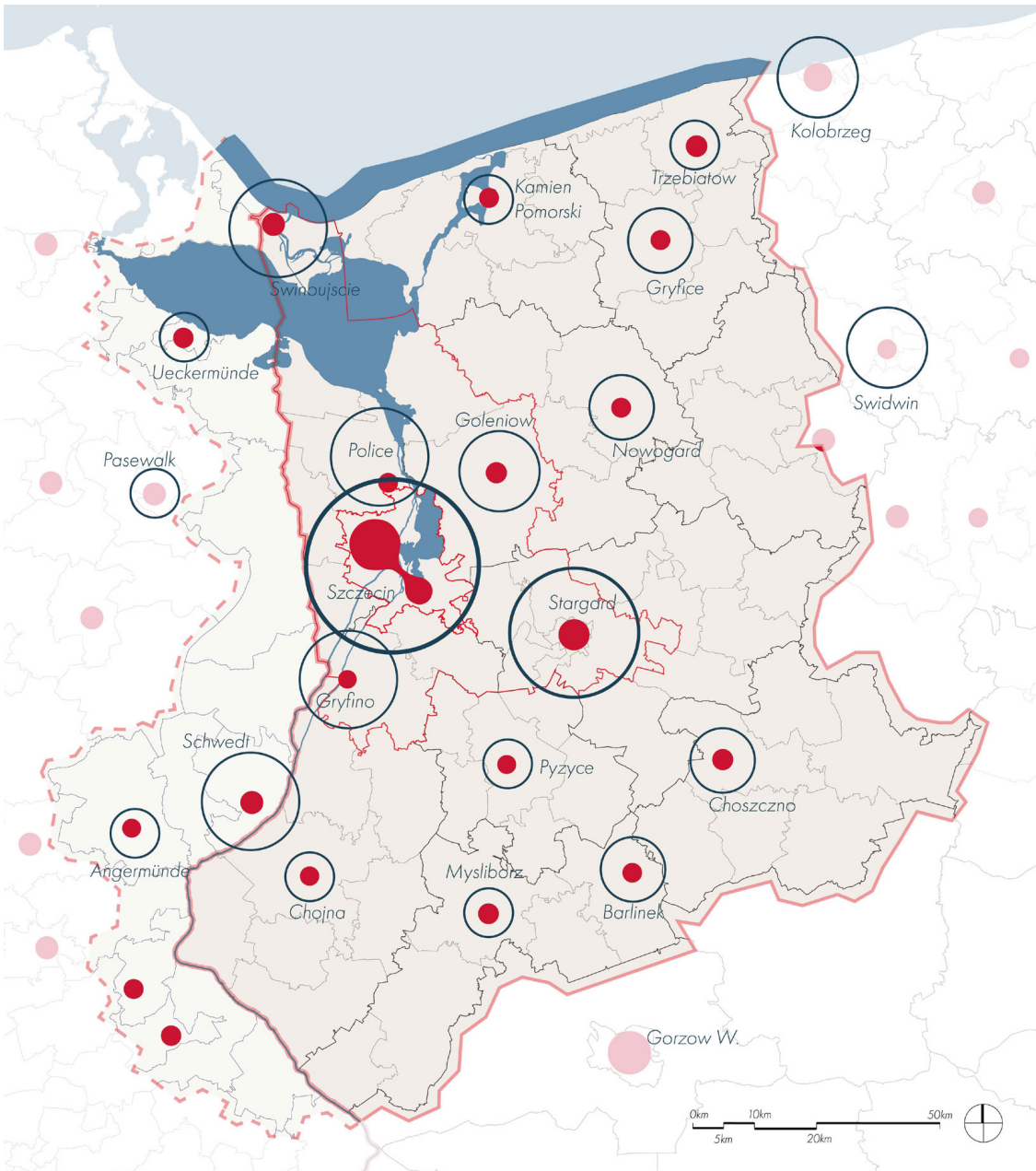
Figure 105. Project of new church in the sprawl areas around Szczecin city (source: Google Street View)

Figure 106. Small individual initiatives improving conditions of the place are really rare, Bukowe neighbourhood, Szczecin (source: author's own)

Figure 107. Village activity oscillate around club rooms, being fire houses in the same time, Wierzbięcin village (source: Google Street View)

Summary

- Structure of the region is strongly centralized by Szczecin city, converging the majority of the services and governmental offices. City development increasing migration from region into city, while in the same time expanding, leaving not revitalized city centre. City expansion, going beyond its border, create peri-urban landscape, partly limited by protected green spaces and flood risk zones.
- Similar process of city expansion can be noticed in other, metropolitan cities due to rising amount of per-urban area (single-family housing) in non-controlled structure.
- Szczecin as central point of the area is also the major service center for surrounding villages, decreasing potential of smaller towns.
- Economic cooperation inside the metropolitan area in the result creates special economic zones outside urban or peri-urban areas, does not cross beyond municipal borders.
- Peripheral areas outside metropolitan core are struggling with peripheralization and demographical lost. Villages, because of visible, national and European support advanced much more in comparison to small towns, what increase the functional importance of Szczecin city.
- Rural areas, with trend of big agricultural farms transfomration, introduced often in drained land, due to climate changes expecting more water shortages.
- Green structure of the area is composed mostly by industrialized, monocultural forests, and proposed new afforestation is limited by rising, positive agricultural conditions. Visible in the forests structure, advanced logging, explained as the protection, is balanced by new afforestation according to officials. However, official State Forests data are questionable.
- Big potential can be noticed in advanced agriculture and strategies strengthening bioproduction. Touristic functions could be also described as positive, focused only on sea coast zone. Population shrinkage can give advantage for biodiversity restoration.
- Historically determined social structure, mentality and the low social capital, should be another factor taken into account. Education, especially in the matter of internal communication and cooperation should be be area of actions.



cities/town population size

400.000 inhabitants

71.000 inhabitants

30.000 - 40.000 inhabitants
20.000 - 30.000 inhabitants
10.000 - 20.000 inhabitants
5.000 - 10.000 inhabitants

biggest cities/towns

Gmina/ Municipality

Powiat / Countries

urban settlements

Szczecin City border

Szczecin Metropolitan Area (SOM)

project boundaries
(Szczecin service zone)

Area of cross border
functional influences

National border

Figure 108. Administrative division with the biggest urban settlement location
(data: Open Street Map, wikipedia.pl)

4. Morphological Studies

source: author's own

Urban settlement- typology

Temporary structure of the region is the effect of determined geographical and historical conditions. For reflection of all information described in the territorial analysis it is important to ground them on urban level. Analysing conditions of socio-spatial layer in the region, it is important to contextualize it according to type of urban settlements.

Typological division in Polish spatial planning system, include three elements: urban, rural and suburban. In terms of the different role and accessibility to the serviced, and as reflection on the regional structure, studies has been divided into four elements: village (rural), town (urban-immaterial), city (urban-substantial) and suburbs (suburban).

The following pages presenting case studies of each typological element, with division into infrastructure, services, elements of environment and land structure. Together with morphological studies, there are presented generalized proximity studies for each typology, in order to find relations to the peripheralization factor. Because peripheralization of the region is pointed as lack of services, studied elements, have been defined with support of social infrastructure theory (Latham, Layton, 2019).

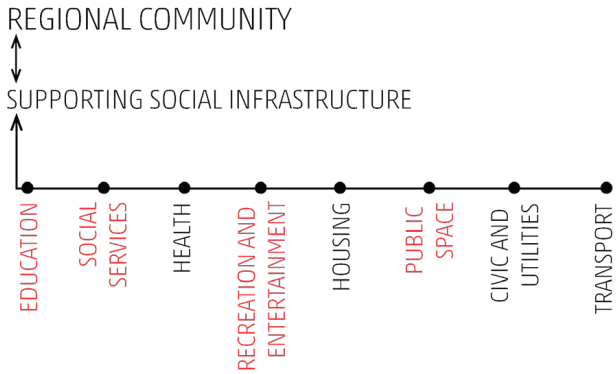


Figure 109. Types of social infrastructure (source: author's own based on Latham, Layton, 2019)

1. Village (rural)

Figure 110. Nieborowo village, with characteristic linear structure, 240 inhabitants

2. Town (urban-immaterial)

Figure 111. Pyrzyce town with still visible mediaeval central city structure, 13000 inhabitants

3. City (urban-substantial)

Figure 112. Szczecin city centre with star block structure filled after war with block towers

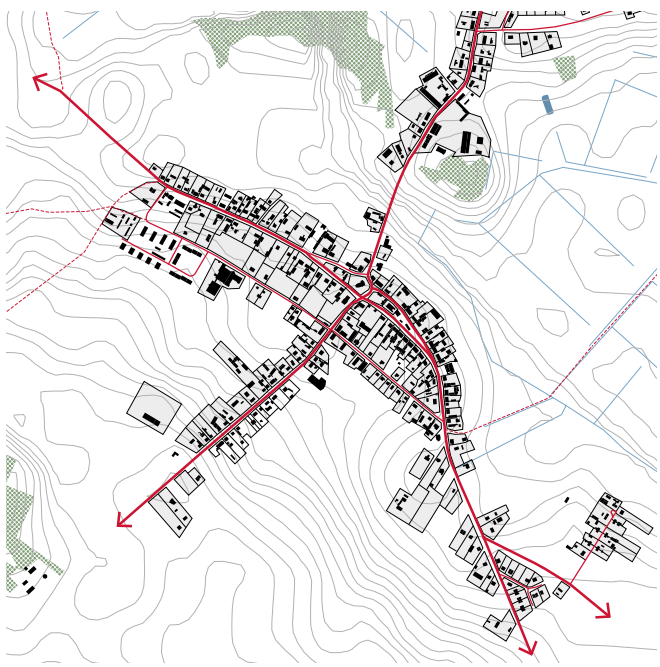
4. Suburbs (suburban)

Figure 113. Szczecin suburban area outside city borders

Village

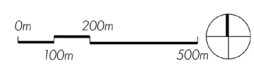
Sosnowo

Figure 114. Sosnowo village map (data: Open Street Map)



Dolice

Figure 115. Dolice village map (data: Open Street Map)



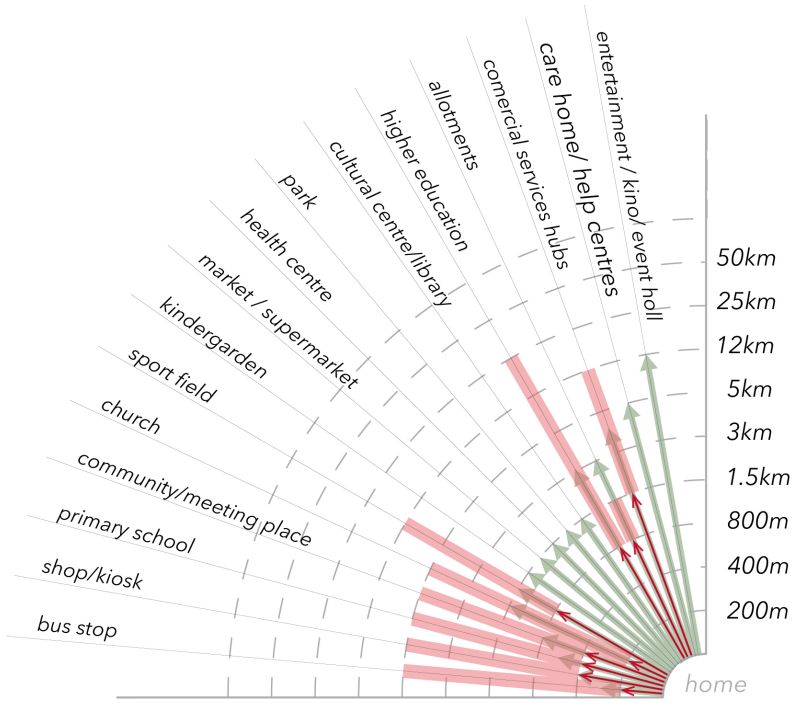


Figure 116. Proximity studies – villages (source: author's own)

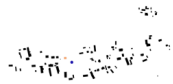
Beside different timeline of agricultural settlements locations, there is limited variety of villages types. Majority of the villages is based on German colonization law (13th-14th century) characterized by regular land division among major road with public village green, mostly with church in the centre. Further development of German latyfundiums (Polish folwarks) introduce farm buildings on the edge or in central parts of the villages, but never as far separate unities. Existence of big agricultural enterprises influence the low density and high distances between villages, where majority of crop land have not been owned by workers. Post-war agricultural modification in the year 1945-1948, especially in the region, were based on transformation of latyfundiums into State Agricultural Farm and additional housing intended for its workers, that did not increase the density on visible level. Infrastructure development of the transformation time, place national or regional roads through many street-base villages, limiting possible communal use of the internal common space.

Strong support of communism system into communal life of the villages (libraries, meeting places, schools and nurseries) decreased during transformation time. A lot of abounded buildings have been renewed after accession of the Poland into EU – cohesion founds focus on the highly peripheral landscape.

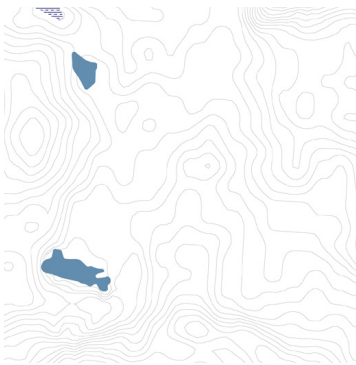
In terms of present conditions: due to high amount of small communities and limited regional founds for infrastructural development a lot of villages struggling with lack of public transport. Development of visible community places is dependent of the community involvement applying for the founds and maintaining it.

Sosnowo village (population: 150)

Infrastructure



Services / Public place



Landscape / Natural Environment

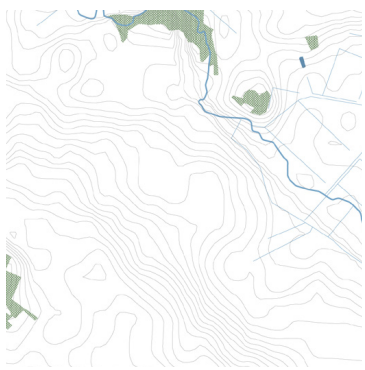
Land structure

Figure 117. Sosnowo village – morphological studies table
(data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Dolice village (population: 1980)

Infrastructure

Services / Public place



Landscape / Natural Environment

Land structure

Figure 118. Dolice village – morphological studies table
(data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Rzeplino village (population:640)

Infrastructure

Services / Public place

Landscape / Natural Environment

Land structure

Figure 119. Rzeplino village – morphological studies table (data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Basic village typology

Ribbon village (linear-single)

Ribbon with street-plaza (linear- double)

Oval village (with functional village green)

Rundling village

Figure 120. Regional villages typology table
(data: Open Street Map, EU-DEM 2017/ pictures: Google Street View)

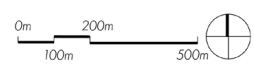
Town

Pyrzyce

Figure 121. Pyrzyce town map (data: Open Street Map)

Lipiany

Figure 122. Lipiany town map (data: Open Street Map)



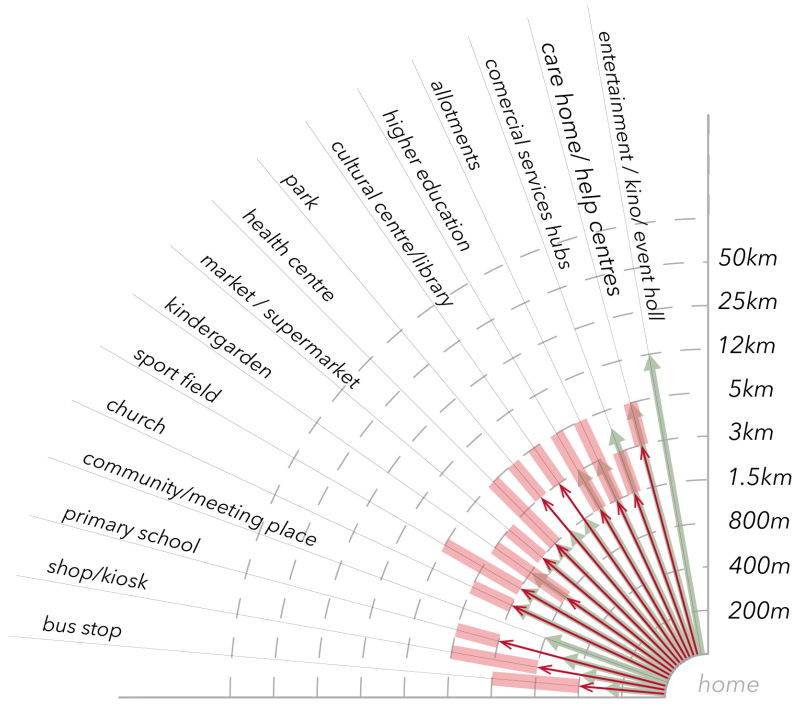


Figure 123. Proximity studies – towns (source: author's own)

Weak industrial development in the majority of towns in the region result in still visible historical medieval structure, with central public space: square with church, defensive walls and tower gates. Location of such towns were usually connected with characteristic landscape conditions, supporting possible war defence of the towns. In comparison to the bigger Polish cities, 18th century trend of removing the defensive wall did not take place, as well as those cities rapid development.

Reconstructions after war brought filling block architecture, placed on historical footprints. Renewal plans or defined development strategies have not been made allowing for organic urban spread along existing infrastructure. Growing population were localized outside city walls as single-family housing suburbs or block neighbourhoods in farther distances. Transformation period with its infrastructure development, in a way similar to villages, place municipal and national roads through the city centres in the majority of the examples. Because of that, the value of centrally planned public space decrease introducing parking lots. Typical squares or markets have been replaced by large scale supermarkets outside city centre.

Towns characterised by better connectivity and type of services, do not have full range of it in comparison to central Szczecin city. In theory should also provide basic services for municipal villages around, what unfortunately sometimes do not have place.

Pyrzyce (population: 13 330)

Infrastructure

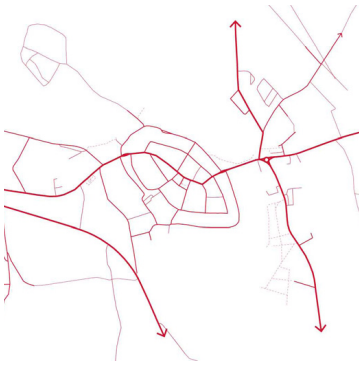
Services / Public place

Landscape / Natural Environment

Land structure

Figure 124. Pyrzyce town – morphological studies table
(data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Lipiany (population: 4150)



Infrastructure

Services / Public place

Landscape / Natural Environment

Land structure

Figure 125. Lipiany town– morphological studies table
(data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

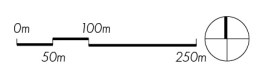
City

Szczecin
historical centre
(XVIII century structure)

Figure 126. Szczecin historical centre map (data: Open Street Map)

Szczecin
soviet block housing
(XX century structure)

Figure 127. Szczecin block housing map (data: Open Street Map)



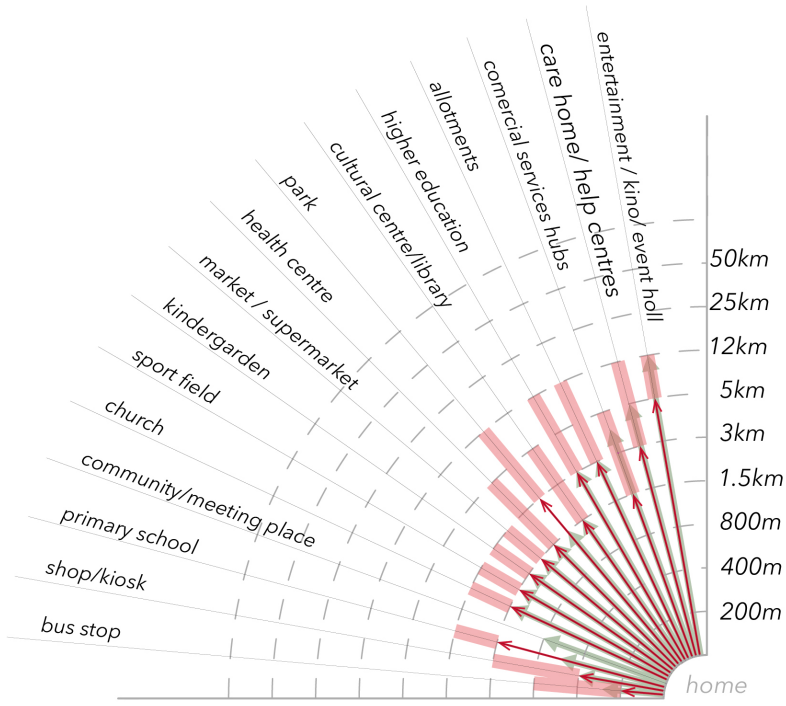
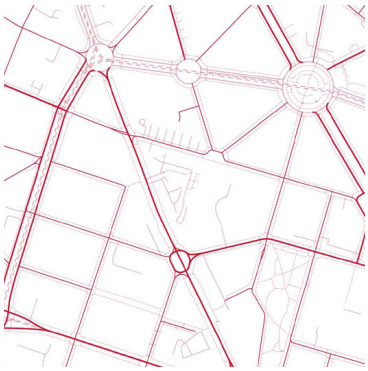


Figure 128. Proximity studies – city (source: author's own)

For the historical 18th block structure in the region, can be categorised only Szczecin city. Starting as a castle location for Duke of Pomerania, Szczecin had been developing as harbour city. The German planning, integrating infrastructure and distribution of the services, with planned parks as well, give base for the functioning, but for present identity as well.

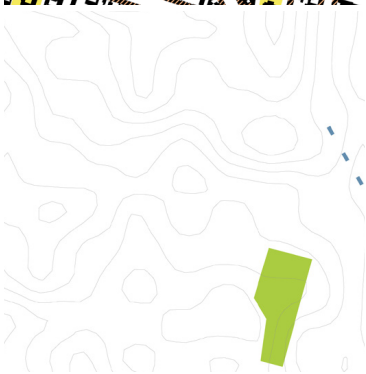
Big parts of the Szczecin city centre, has not been revitalized yet. Empty plots, walls with gun shots, are still visible. Because of highly politicize approach, the city after war renewal, was based on modernistic values. City expansion, planned in the soviet block housing type, neglected 18th German block structure. As an effect, trestle bridges, high speed roads and block buildings, have been the major element filling destroyed centre. Nowadays, the city struggling with lack of parking places and small, accessible public area. Accessible public transport is slowly revitalizing. Lack of meeting places, typical services and cafés, or shopping streets, that's are the element city is still struggling with. Additionally, typical markets have been replaced by big shopping malls inside city centre, and introduce outside its borders. City due to its central character is service centre of the region: administration, higher university, good medical care and entertainment like cinemas or shopping malls.

Historical centre (18th century structure)

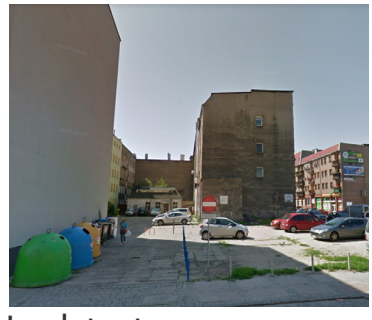


Infrastructure

Services / Public place



Landscape / Natural Environment



Land structure

Figure 129. Szczecin historical centre – morphological studies table (data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Soviet block housing (20th century structure)

Infrastructure

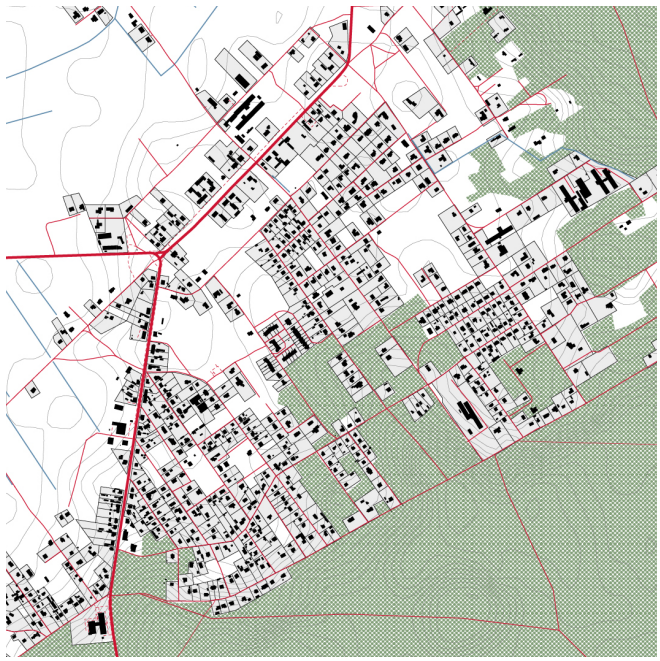
Services / Public place

Landscape / Natural Environment

Land structure

Figure 130. Szczecin block housing – morphological studies table (data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Suburbs

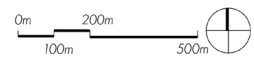


Wielgowo-
Sławociesze-Zdunowo
(Szczecin city's suburb)

Figure 131. Wielgowo - Słowieszcze - Zdunowo map (data: Open Street Map)

Mierzyn

Figure 132. Mierzyn map (data: Open Street Map)



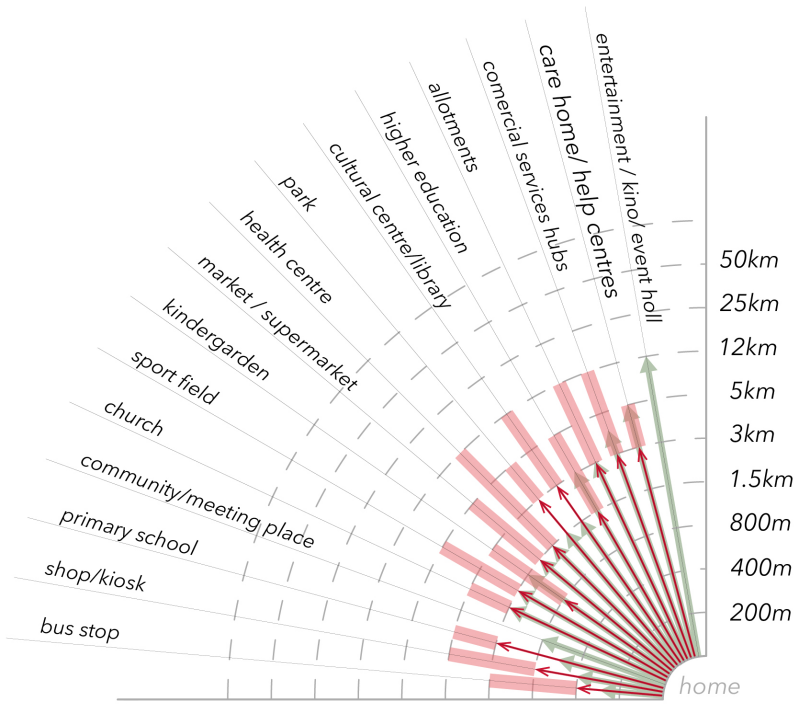


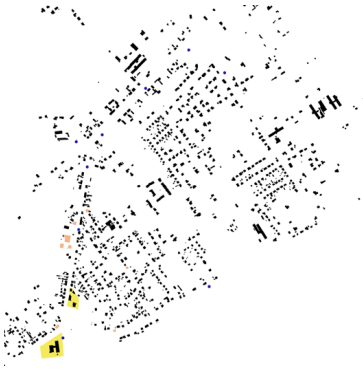
Figure 133. Proximity studies – suburbs (source: author's own)

Uncontrolled land development, is taking place not only in Szczecin, but also in the other Polish cities. Difficult suburban areas are localized on the territory of the surrounding municipalities. Agricultural private land of originally located villages, is in ongoing transformation phase. Supported by many tendencies (lack of affordable good quality housing inside city, cheap land and construction possibilities) the area can be described as transformation landscape of manor houses. Fenced around, highly individual area is real reflection of dreams of the Polish society, dreams of *'rural living'* and *'Sarmatic landownership'*.

Municipality, as a governmental body, is responsible for providing media and basic infrastructure. However, because of rapid expansion in many cases the municipalities have not been able to made it on time. Popular approach is providing infrastructure and media by the share costs of inhabitants. Areas are characterized by lack of social facilities, parks, just monoculture of single-family housing. Division of the plot is applied privately by land owners, in the majority of the cases not coordinated into planning development of the municipalities. As a result, the access to the services is highly unplanned. Big shopping malls outside city borders are the closest facilities, beside the private initiatives, inside the housing structure. Accessibility in terms of public transport is even worse that at village case, and the whole are is car oriented.

Wielgowo-Sławociesze-Zdunowo (3700)

Infrastructure



Services / Public place

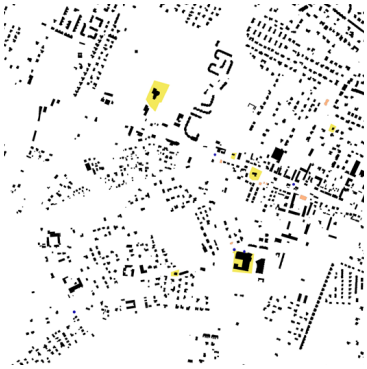
Landscape / Natural Environment

Land structure

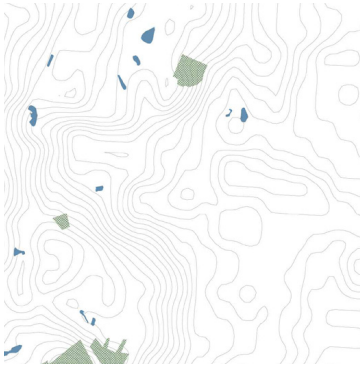
Figure 134. Wielgowo - Słowieszcze - Zdunowo – morphological studies table (data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Mierzyn (7200)

Infrastructure



Services / Public place



Landscape / Natural Environment

Land structure

Figure 135. Mierzyn – morphological studies table
(data: Open Street Map, Regional Geoportal, EU-DEM 2017 / pictures: Google Street View)

Conclusion

Accessibility to different types of social infrastructure on different typologies, allowed concluding possible ideal conditions for the region (Figure 136).

Since 2004, because of politics of European Union, based on equal opportunity approach, Poland received important amount of grants for development of infrastructure – 11396 projects where project values of 13 billion euro were granted by EU in 7,4 billion (mapadotacji.gov.pl, 2019). Highly beneficial in these terms become especially rural areas and infrastructural projects. As an effect of that, the middle-size settlements, have been neglected in development strategies. In order to strengthen regional network it is important to introduce the middle network element. Similar process can be found in the relations of city and its suburbs, where lack of middle centralities encumbering central city.

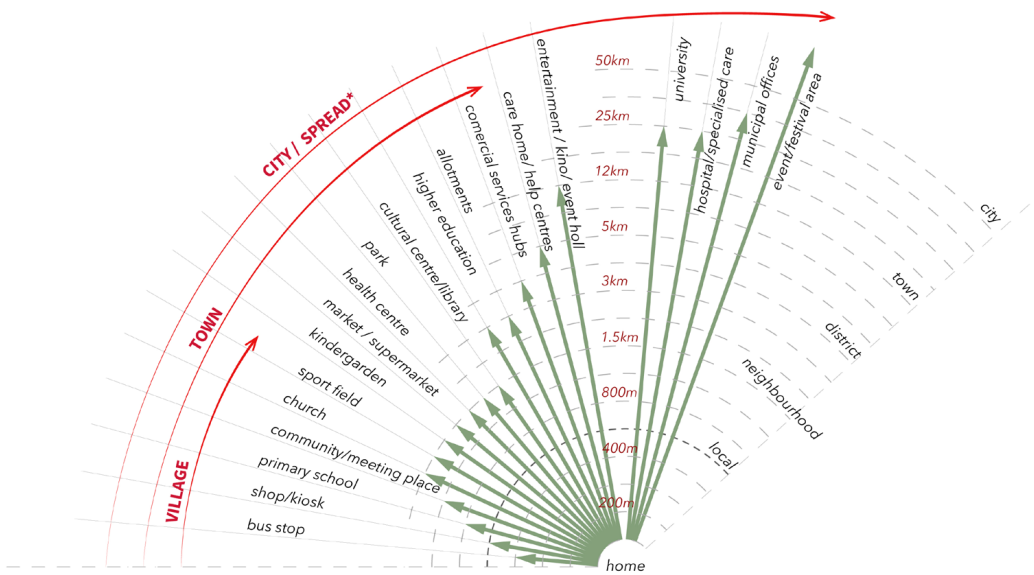


Figure 136. Desirable proximity to different type of services (source: author's own)

village - town relation

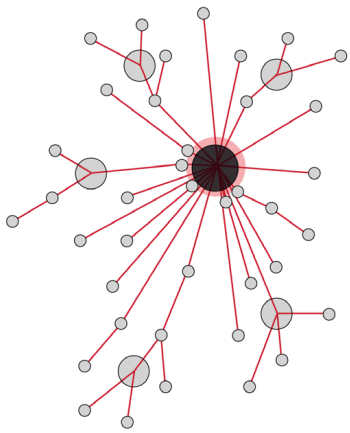


Figure 137. Localized network – City is the central point for the majority of the settlements (source: author's own)

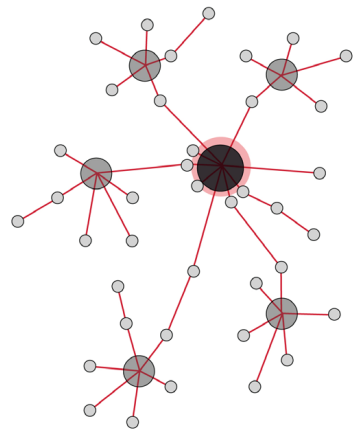


Figure 138. Expected network – Town is the first central point for surrounding villages (source: author's own)

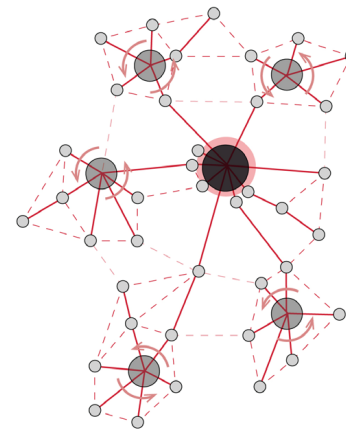


Figure 139. Expected network – Increase the value of the smaller towns for surrounding villages. Towns as centralities responsible for networking (source: author's own)

city - suburbs relation

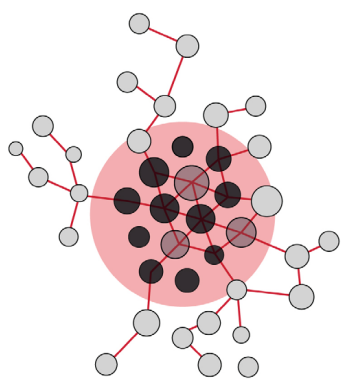


Figure 140. Localized network – Limited public space occurring in the city (source: author's own)

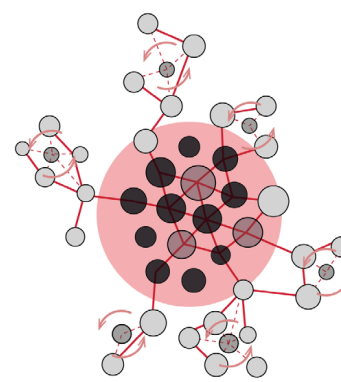
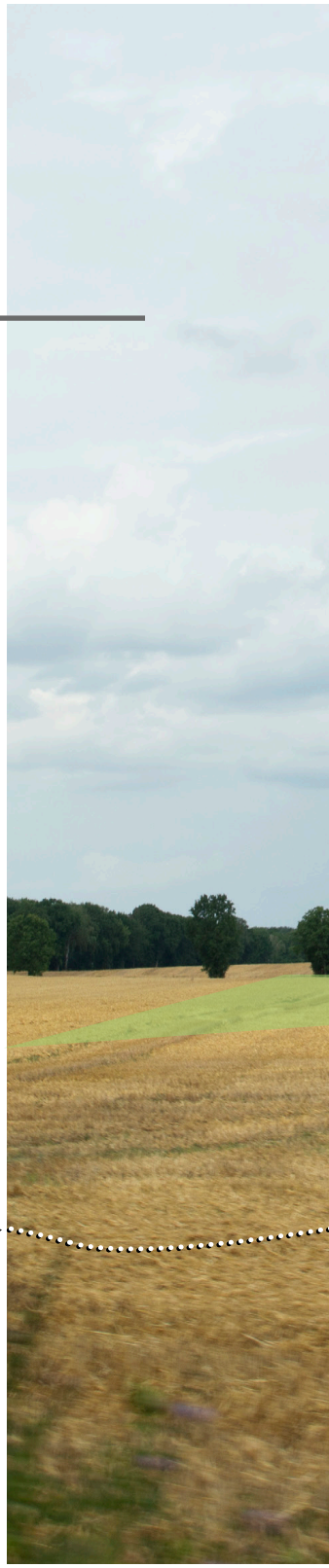


Figure 141. Expected network – Increasing the presence of public space on the suburbs areas in order to build sub-centres and network (source: author's own)

5. Strategy

"Three-quarters of the land-based environment and about 66% of the marine environment have been significantly altered by human actions."
IPBES report (2018)



source: author's own

Strategic objectives

Structural and territorial analysis allowed to localise and translation global problematic for spatial occurrence and exact problems. Table below shows translation of each problem into the objective based on division for socio-spatial and biophysical structure of the working area.

Defined objectives creates set of elements – answers for the local problems, which directly reflect crossed planetary boundaries. However, for truly sustainable transformations, and socio-ecological cohesion, socio-spatial aspects have been also taken into account, to omit the danger of just more 'ecological' rational resource management. (Cook & Swyngedouw, 2012)

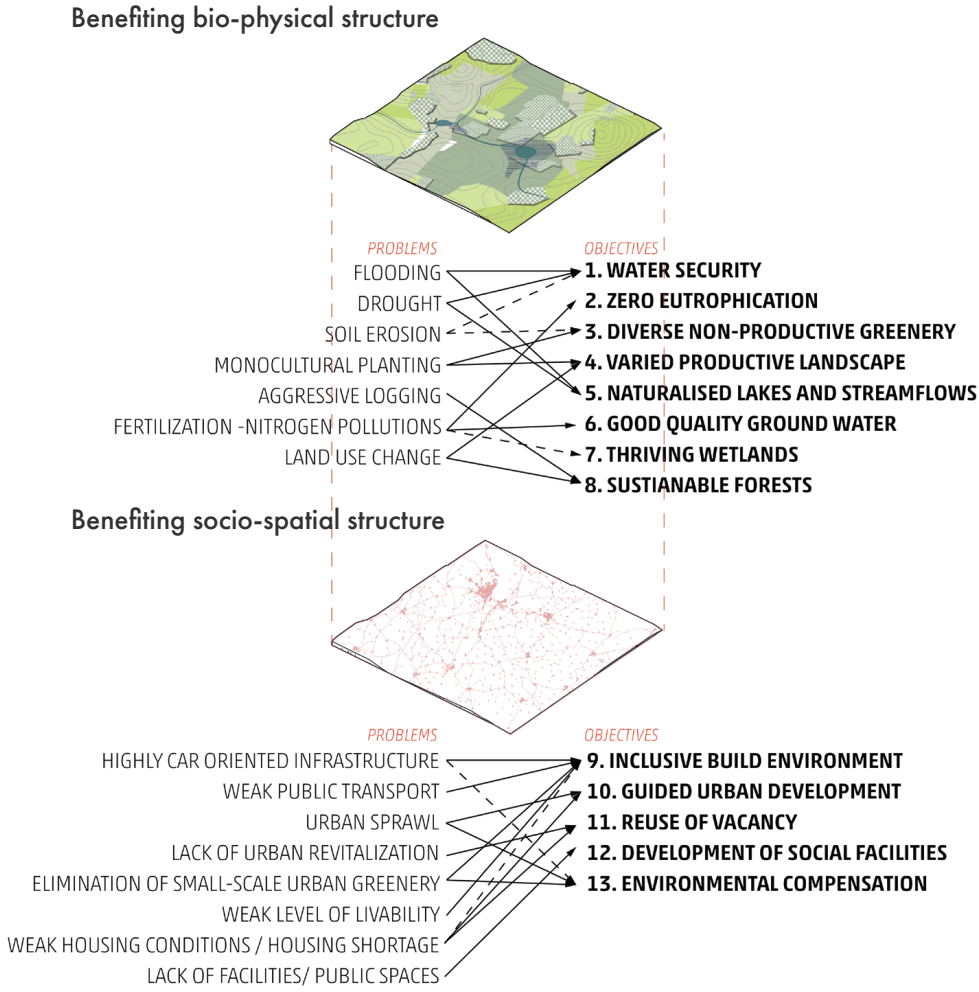


Figure 142. Summarizing problems through objectives

1. Water security	Fulfilling the demand for water storage in wet times, and extra demand for water in dry periods.
2. Zero eutrophication	Limiting agricultural fertilization, limiting impact of already polluted ground and water circles.
3. Diverse non-productive greenery	Including indigenous types of greenery, characteristic for local region in terms of any biological structure on regional, but also on the local level in urban greenery.
4. Varied productive landscape	Diversified land use, preventing soil overexploitation.
5. Naturalized lakes and streamflows	Removing quantifiable human influences, including natural water circles in planning.
6. Good quality ground water	Protection and regeneration in terms of industrial or agricultural pollutions, controlled ground water exploitation.
7. Thriving wetlands	Maintaining and protecting, bringing back, controlling land drainage.
8. Sustainable forests	Increasing afforestation, introducing tactical logging, diversifying existing forests.
9. Inclusive build environment	Community oriented urban design including diverse social needs, non-commercial approach.
10. Guided urban development	Indicated areas in terms of connectivity and access to services, minimalizing environmental impact.
11. Reuse of vacancy	Prioritixing reuse of existing build structure, revitalization of existing infrastructure. Reuse of non-build land vacancy.
12. Accessible care facilities	Increasing amount, but also quality of care spaces: social facilities, public spaces, community
13. Environmental compensation	Balancing impact of build environment trough regeneration of natural environments.

Figure 143. Defined objectives and their explanation

From goals to design principles

In order to define priorities and major pillars of strategy research goals have been transformed into principles. Principles, being base for the strategy, defining spatial actions and following it stakeholders involvement, answering for the similar range of objectives. Objectives, used as element allowing for translation, helped to answer for the local problems of the territory.

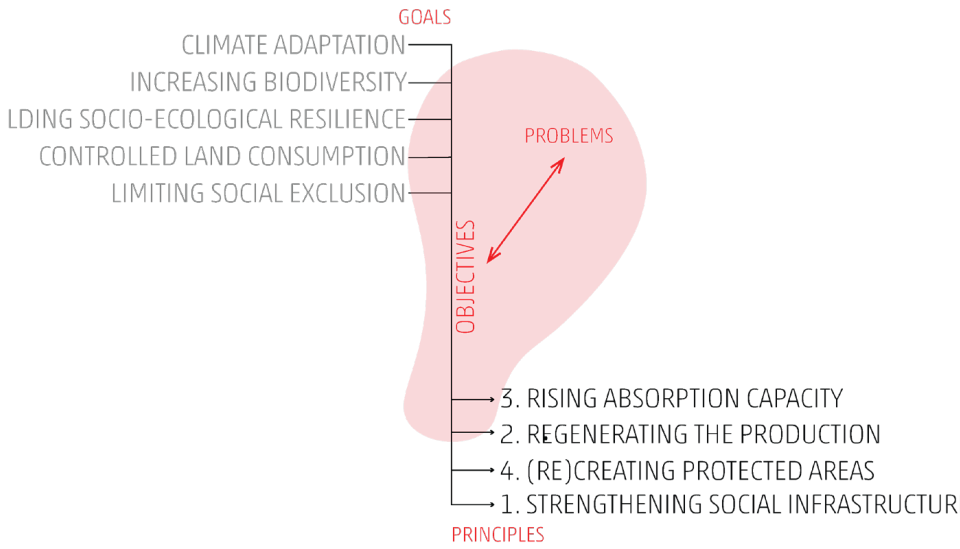
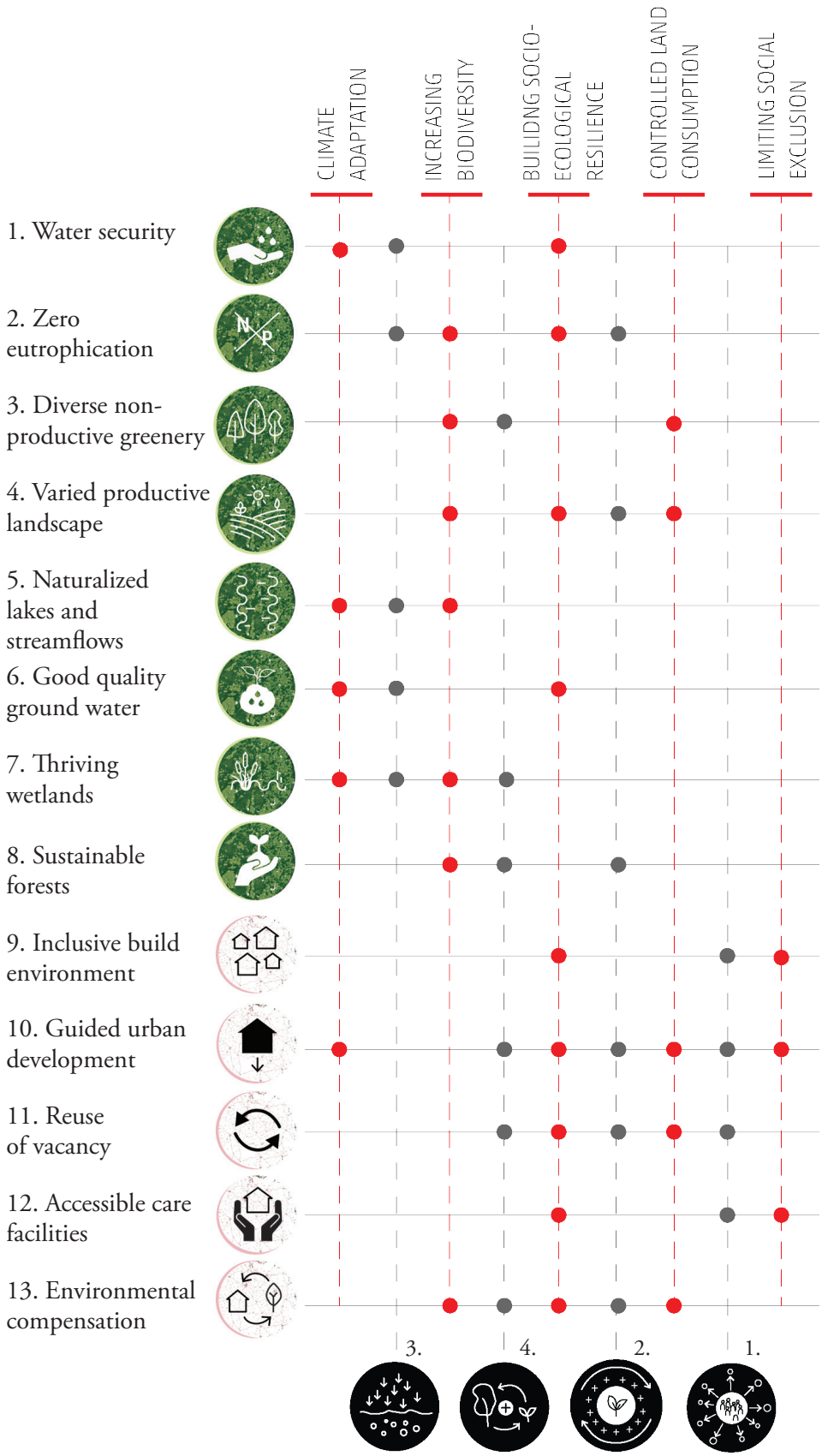


Figure 144. From goals to design principles, through area problematic

Figure 145. (Right) Table showing comparison of relations between strategic goals and design principles to defined objectives.


CLIMATE ADAPTATION
INCREASING BIODIVERSITY
BUILIDNG SOCIO-ECOLOGICAL RESILIENCE
CONTROLLED LAND CONSUMPTION
LIMITING SOCIAL EXCLUSION
1. Water security
2. Zero eutrophication
N
P
3. Diverse non-productive greenery
4. Varied productive landscape
5. Naturalized lakes and streamflows
6. Good quality ground water
7. Thriving wetlands
8. Sustainable forests
9. Inclusive build environment
10. Guided urban development
11. Reuse of vacancy
12. Accessible care facilities
13. Environmental compensation
3.
4.
2.
1.

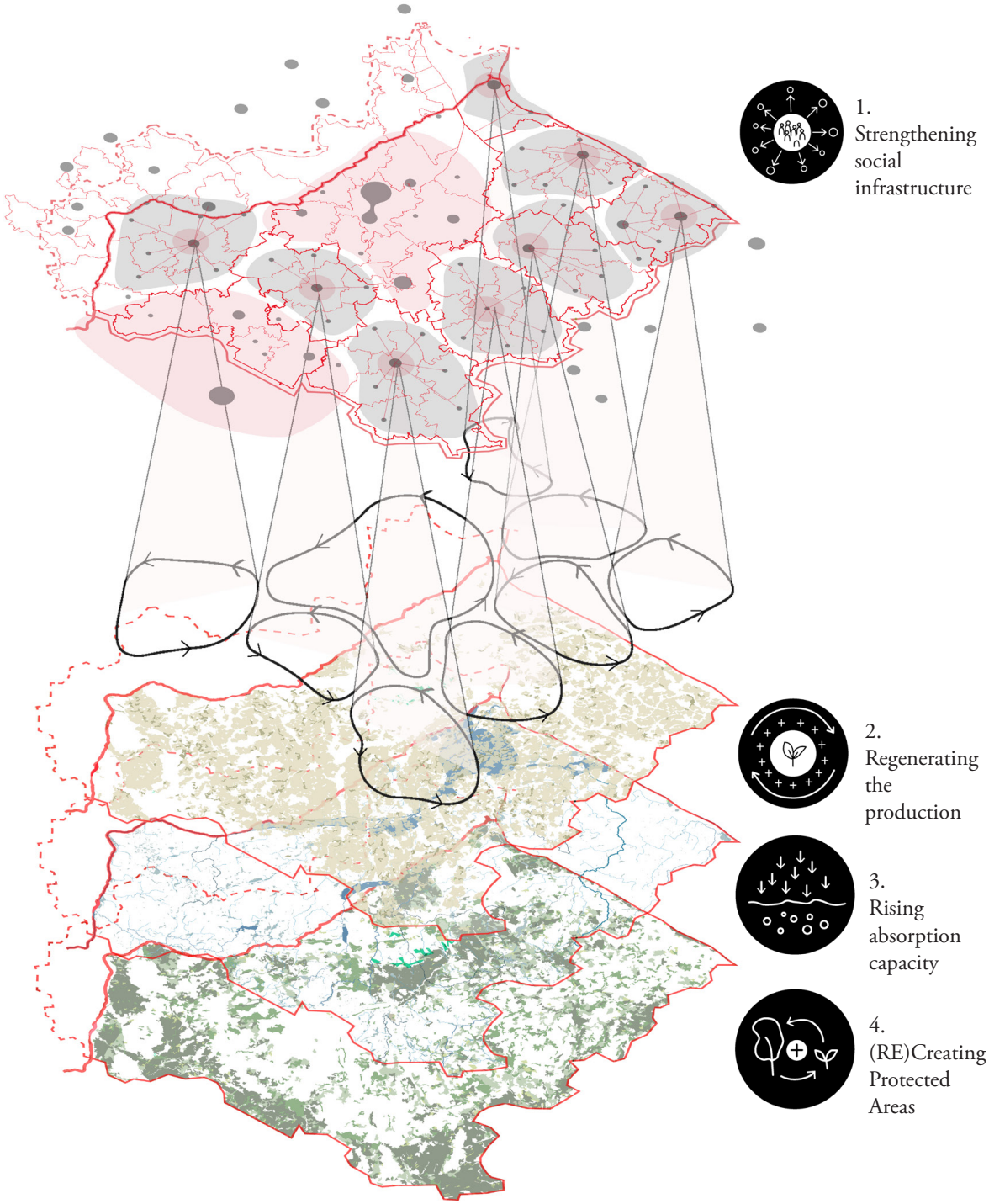


Figure 146. Design principles related to layers of interventions

Design principles

List of principles define the most urgent and demanding actions. Each principle has defined spatial actions, reflecting paradigms changes, creating guidebook of good practices. Combining groups of actions under each theme introducing changes on different structures. Landscape changes are reflecting changes in bio-physical structure, while build environment changes socio-spatial structure. The scheme below explains how each principle is influencing each structure and benefiting those actions in direct or non-direct way.

Principles were defined in order to prioritize actions and group them into specific types of spatial intervention, that might be introduced as a separate regional projects. That will be translated into stakeholder involvement and with specific initiators.

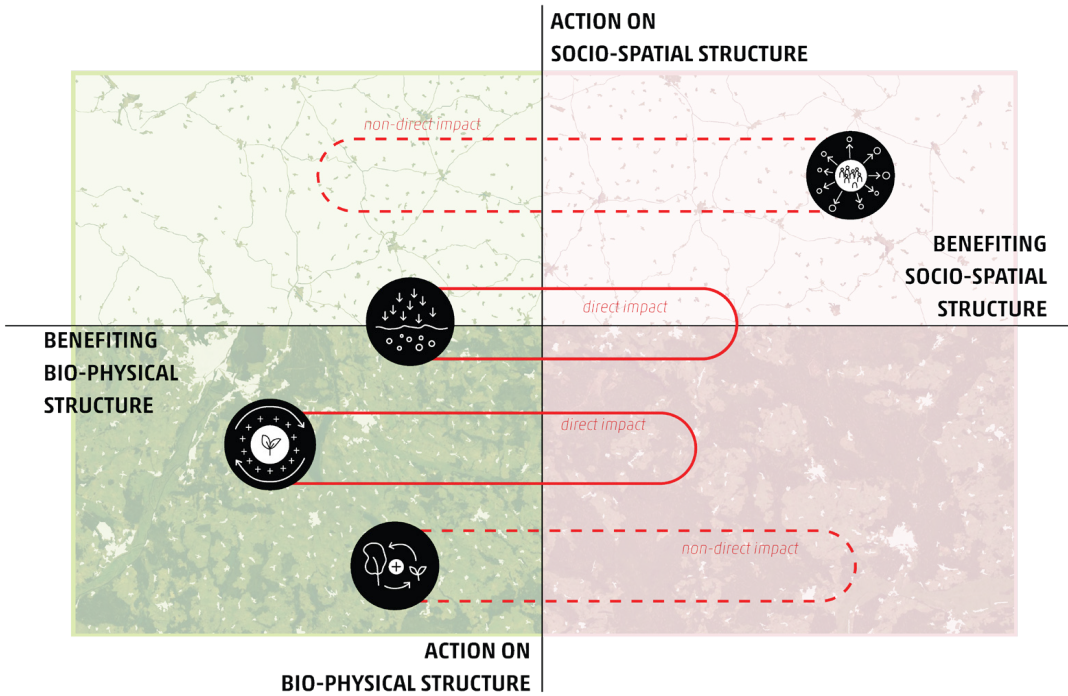
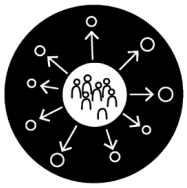


Figure 147. Principles and its relations with spatial structure



1. Strengthening social infrastructure

Improving conditions for the commons

Prioritizing strong sustainability it is important to take actions aiming for social justice. Introducing elements of sustainability without taking into account social layer, just 'greening' strategies aiming for growth. (Cook & Swyngedouw, 2012) Socio-ecological resilience demand spatial transformation, prioritizing community building and inclusion. It is reflected in basic principles of Bioregional planning, where for regional society has to understand its own 'ecological boundaries' (Cappuccio, 2009). In order to strengthen the understanding, create consciousness about own region, two basic elements should be applied: developed contact with nature for leisure and for educational purposes.

Due to Polish history, in which communism, as totalitarian system, play really hurtful role, 80s transformation bring not only change of the regime, but also strong shift in social values. Prioritizing individualism, and rejecting any social or common actions, Poland contends with really low social capital and lack of experience in models introducing social inclusion.

First principle is based on social infrastructure concept, focusing on four basic elements, neglected the most in local strategic planning. Structural studies presented in chapter 4 analysed different urban settlement, paying special attention to the proximity to different elements of social infrastructure (Figure 148).

Objectives:

9. Inclusive build environment

10. Guided urban development

11. Reuse of vacancy

12. Accessible care facilities

Actions:

1.1. Innovations
1.2. Care
1.3. Culture
1.4. Commons

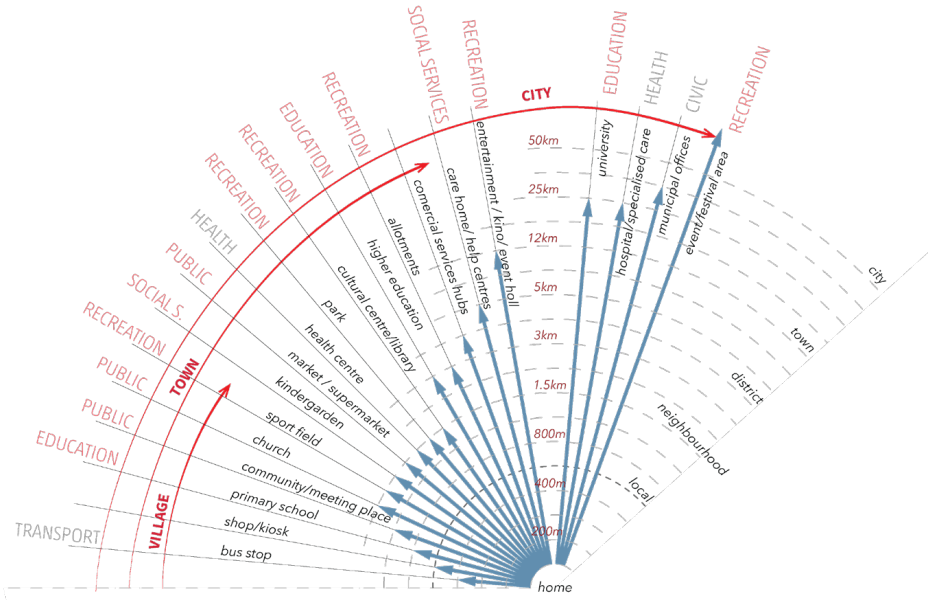


Figure 148. Desirable proximity to different type of services

Based on analysed four types of urban settlement: village, town, city and suburbs, the ideal, demanded proximities has bed determined. It estimates 25 km distance to centralities, creating clusters, providing the most important infrastructural elements. Figure 148 present localized centralities in the region with it specific functions.

However, in order to go beyond car oriented mobility, social perception should be also included. Before strategy implementation, this ideal distances should be confronted with opinion of regional society, as was made on Swedish example of tree western municipalities (Gil & Vilhelmson, 2019). Created above estimation do not include specific local mobility perception, that might be important, and detailed general 25 km distance. Figure 149 showing which scales should be determined in social workshops, also starting cooperation with local and municipal stakeholders.

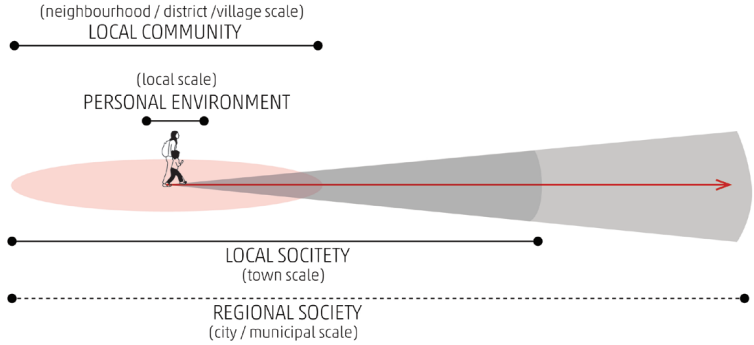


Figure 149. Negotiating Proximity in Sustainable Urban Planning (source: Gil & Vilhelmson, 2019)

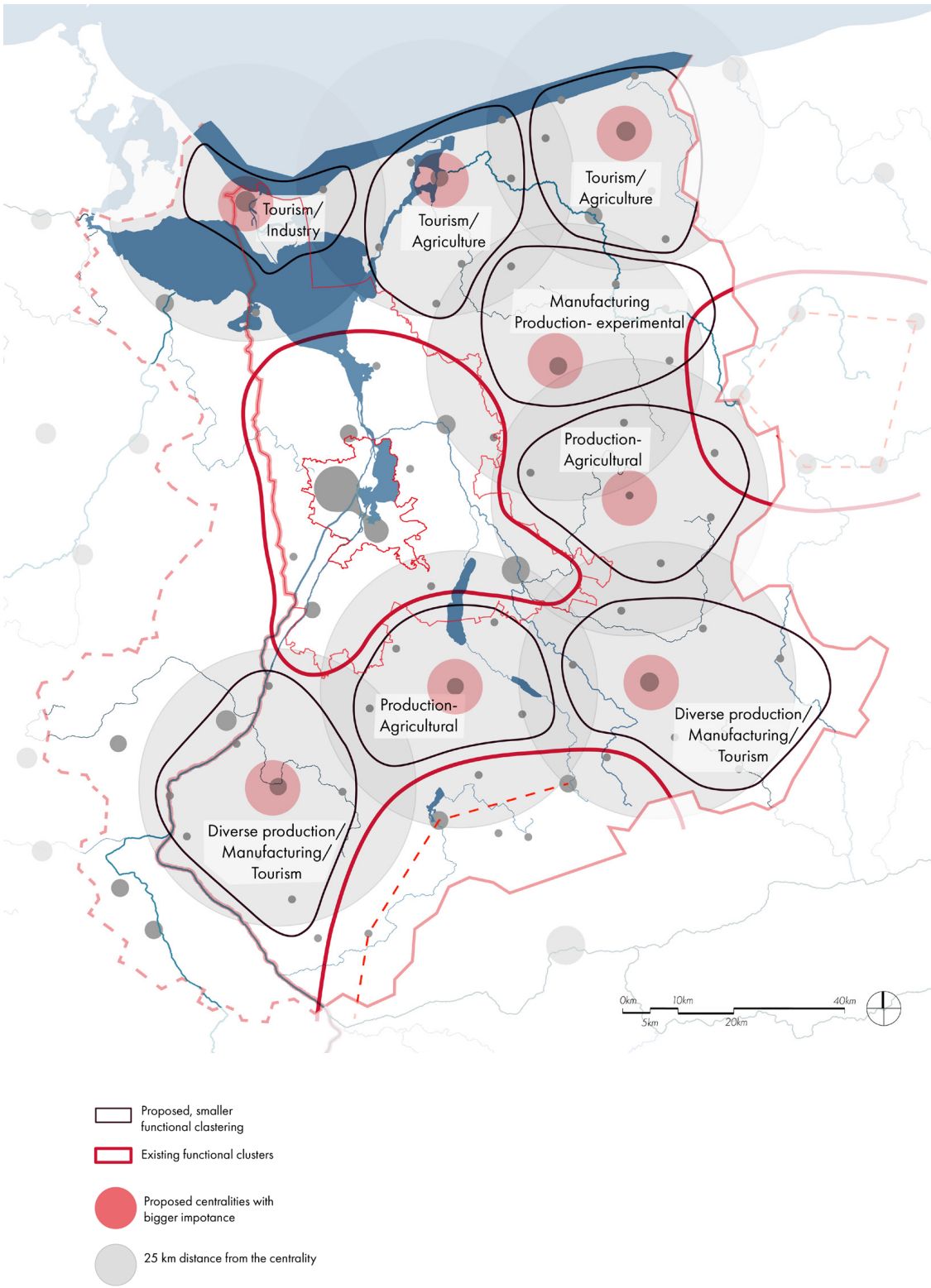


Figure 150. Design principle 1- Division into clusters, based on 25 km proximity, and clusters characteristics

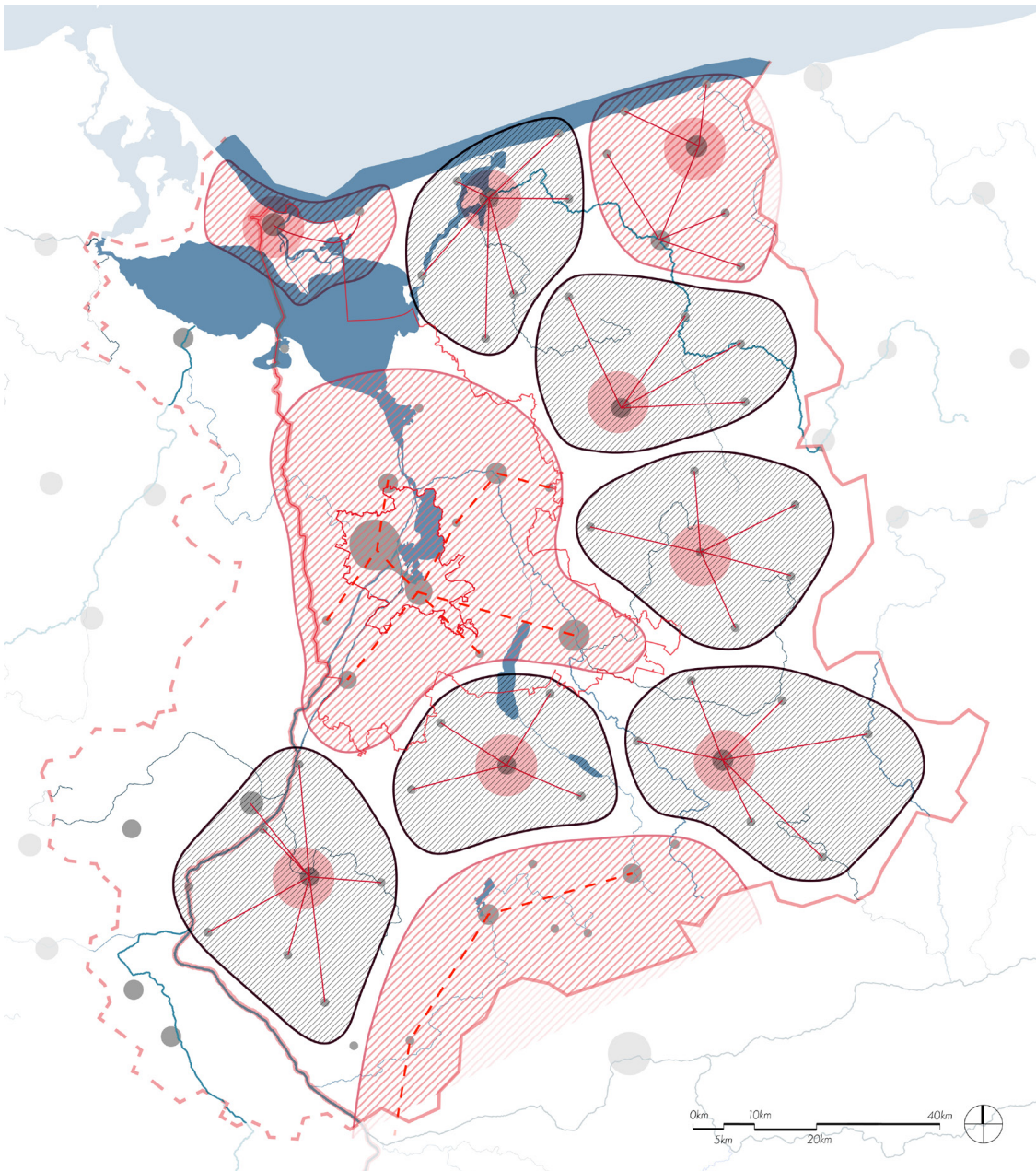


Figure 151. Design principle 1- map showing division into clusters and types of taken actions

Localized clusters can be divided into peripheral (Action 1) and central (Action 2). Because of strong centralized role of Szczecin city and its metropolitan areas relation, demand different set of action. Peripheral region, fighting with exclusion have also different spatial pattern, characterized by internal centralities, smaller internal networks. Actions in both type of clusters answering Degrowth values of dematerialization on right to the commons.

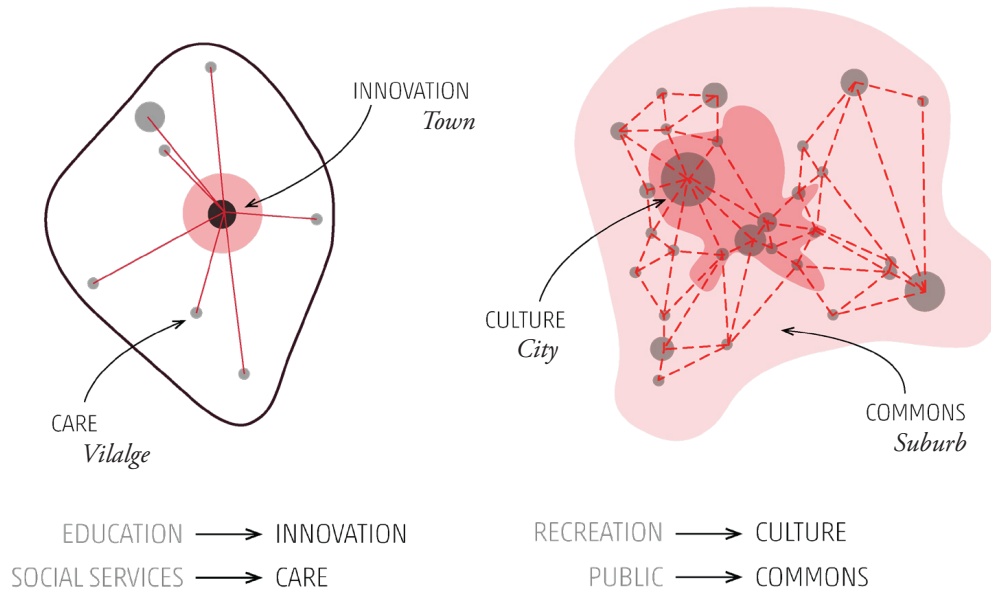
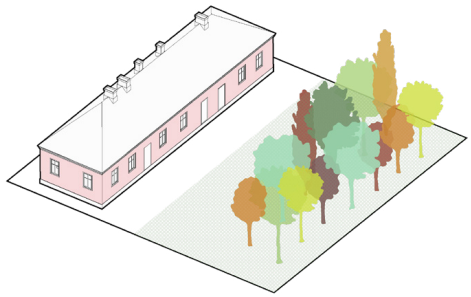


Figure 152. Design principle 1- two types of clusters with necessary actions

Based on structural study's conclusion, the most missing elements in peripheral clusters is access to education and social services: including kindergartens and family help centres. Increasing demography should also reflect creation of extra space for elderly people. Because of that cluster centralities should focus not only on education, but go step beyond, bringing social innovations: creating networks, improving entrepreneurship, introducing digital possibilities for common purposes. Innovation centres should be supported by social facilities around, transforming the attitude from 'top' service approach into 'bottom' care one, internal exchange.

Szczecin and its metropolitan region demand implementation of elements. Strategy is proposing introduction of cultural centres in opposition to leisure. Because of non-controlled development around city centre, there is urgent need of improving amount and quality of public space. Space for gathering, community building, should go beyond typical approach of the public. Constructed on local communities should aim for place for the commons.

Also, first principles should reverse the most forgotten paradigm: community-ecology interaction. By small actions and presence of greenery in every intervention location, there is introduced awareness building and important change of habits. Combining architecture with landscape design, introducing parks, gardens or orchards, water elements and diverse planting, it is important to reverse perception of nature. Making it accessible, functional, building connection and interaction, teaching how to take care and have positive impact, this principle would allow to upscale further human-nature paradigm shift aiming for coexistence understanding.



Innovation - Town

Because the peripheral region struggles with low level of education and lack of new initiatives, while small towns have been declining even more than surrounding its villages, it is important to reverse the situation. Proposed innovation centres aiming to bring innovation and build/ strengthen network in its cluster. Centre should be institution responsible for exchange of knowledge for small entrepreneurs, supporting opening new local business, exchange of product and services inside its own clusters. More than that, place should have been open for supporting of digitalization of those networking, helping local society improve their organization, educate and support self-learning by organizing courses, lessons and showing good practice examples. Being open for society, place should be also connected with area for ecological experiments, that can improve ecological or social conditions of the region.

In practice:

Figure 153. Orchard next to the car barn (source: Miasto Stołeczne Warszawa)

Figure 154. Neighbourhood educational orchard, Białystok, Poland (source: www.bialystok.pl)

Figure 155. A fully equipped public access wood and material workshop, London, United Kingdom (source: assemblestudio.co.uk)

Care - Village

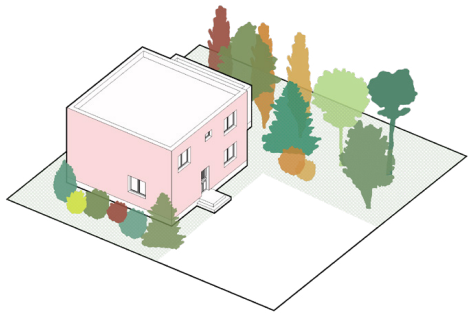
'Care is the daily action performed by human beings for their welfare and for the welfare of their community.' (D'Alisa, Demaria, & Kallis, 2015) Care facility, as reverse of social service facility should be based on non-monetary value of community, according to Degrowth movement. With spatial support it is possible to achieve in surrounding villages. Space for all, where people are able to take care of each other is an answer for challenge of ageing society and lack of kindergartens or nursery homes. Exchange of time, older community members taking care of younger, brining also values of common action, while challenging economical limitation of villages development.

In practice:

Figure 156. Parking lot exchanged for school garden Totteridge Academy Quad (source: assemblestudio.co.uk)

Figure 157. Urban garden maintenance as part of group activities (source: www.openschools.eu)

Figure 158. Combining activities for groups of elderly and kids, supporting knowledge exchange (source: left: tutajglogow.pl, right: pozatorun.pl)



Culture - City

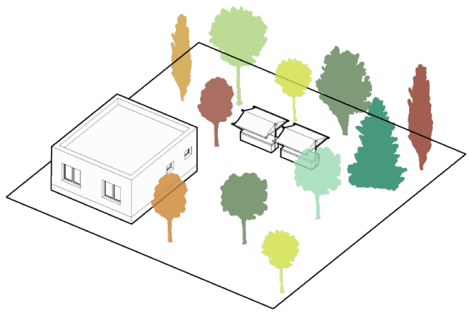
Most dense and centralized structure demand element building new habits, entering competition of developing elements of individual commercial leisure. In such case culture: theatre, books, music, classical and digital art; teaching and experiencing; exchanging or just creating; is highly valid element. Local culture centres should answer needs not only on neighbour scale, but also for regional scale, being place of exchange. In those centres is important to build proper relation of architecture and its surrounding, changing perception of landscape and greenery.

In practice:

Figure 159. Służew Culture Centre, Warsaw, Poland, as an example of landscape responsive architecture (source: https://projektinwestor.pl/)

Figure 160. Culture Centre in Ustka, with limited but still present element of greenery next to the entrance (source: nocowanie.pl)

Figure 161. Club house in Modryń, with lack of interaction with green, despite open possibilities (source: www.kronikatygodnia.pl)



Commons - Suburbs

Element of spacious public space is easy to achieve in peripheral area, where historically planed villages and towns had had designed squares or meeting facilities. In temporary urbanized areas, of monotypical single-family housing, there is important to bring factor of public. Because of that, more than anything else, it is important to bring more strict planning rules, plans, introducing limitation and leaving such space among rapid development. However, to go step further, more just than public, space should be the common element, supporting collectively. It would allow building responsibility and group connection in place without tradition. Examples of such space is not only squares or parks, places for organizing markets, festivals or meeting, but also clubhouse or workshops.

In practice:

Figure 162. Breakfast market, Warsaw, Poland (source: metrowarszawa.gazeta.p)

Figure 163. Open playground with facilities, Cobertura Praça da Republica / Coletivo Cais (source: www.archdaily.com)

Figure 164. The South Bank as example of centre parka and interactive public space (source: southbankleeds.co.uk)

2. Regenerating the production

Diversifying local production, enhancing local distribution

One of the most influential aspects for biodiversity and, the element being exposed for climate changes, is food and other plant-based production. Only 6,2% of project territory is urbanized, 7% is strictly protected, while rest categorized as rural land create various patchwork of forests and agricultural land (*Statistical Atlas of Zachodniopomorskie Voivodeship, 2018*) Calling it properly the productive landscape would help realized influence of human activity, when controlled land use change are combined with rapid fertilization and monocultural planting. In order to adapt and introduce socio-ecological resilience factor of biological production has to be balanced, what is opening big window for innovation.

Due to historical influences project territory demand specific actions in this field. Originally constructed by vast agricultural enterprises, folwakrs or latyfundiums, what is visible in the land use pattern, comparable to other agricultural European sites. Bigger and characterized by more monocultural character production sites already now dealing with soil erosion and exposure to drought due to climate change. Forests, also due to historical afforestation are characterized as well as monocultural.

Figure 165. West Pomerania land use pattern (source: Google Earth)

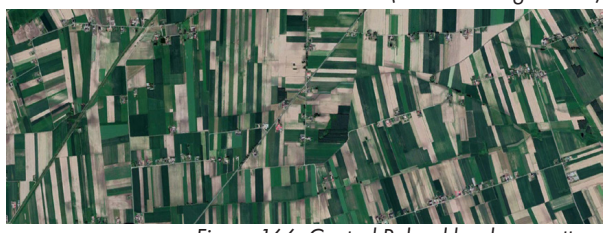


Figure 166. Central Poland land use pattern (source: Google Earth)

Objectives:

2. Zero eutrophication

4. Varied productive landscape

8. Sustainable forests

10. Guided urban development

11. Reuse of vacancy

13. Environmental compensation

Actions:

2.1. Organic Agriculture

2.2. Buffer strips

2.3. Silvopasture and Agroforestry

2.4. Shift of production type

Regional production, should build also regional identity. Such spatial characteristic of the territory is real advantage. Due to that second principle aiming for change of paradigm in production perception introducing long term thinking, with necessity of limiting soil extraction, biological diversification but also benefiting surrounding ecosystems. Such change demands conscious change in way land is maintained, what demand change of habits and education as well. Innovation centres, being element of first principle creating here background, building network of good practices, being responsible for social involvement.

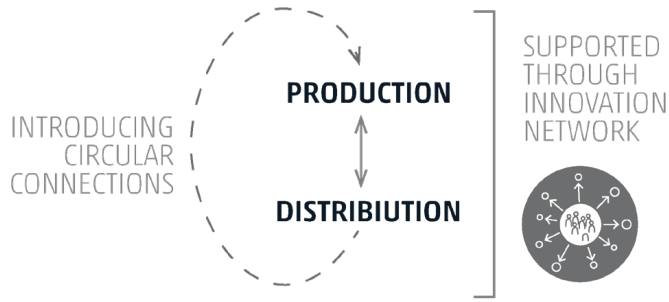


Figure 167. Imagining renewal of the production - distribution connections

Regeneration of production should be also connected with regeneration of distribution, what demand economical regulation, supporting local producers on the local market. Because of separation in production and distribution, following that consumption in majority of situation create huge amount of wastes. Created network of local entrepreneurs would allow introducing more circular connections benefiting not only producers/distributors but also ecosystems. Opening the network through public markets and local shops would stretch presence of local products for the community.

Despite large amount of reports and programs pursuit by European Union and also Polish National Governmental Agencies, proposing climate adaptations actions and supporting it foundings did not face real changes. Actions described below describe Nature Based Solutions helping with adaptation and supporting biological diversity.

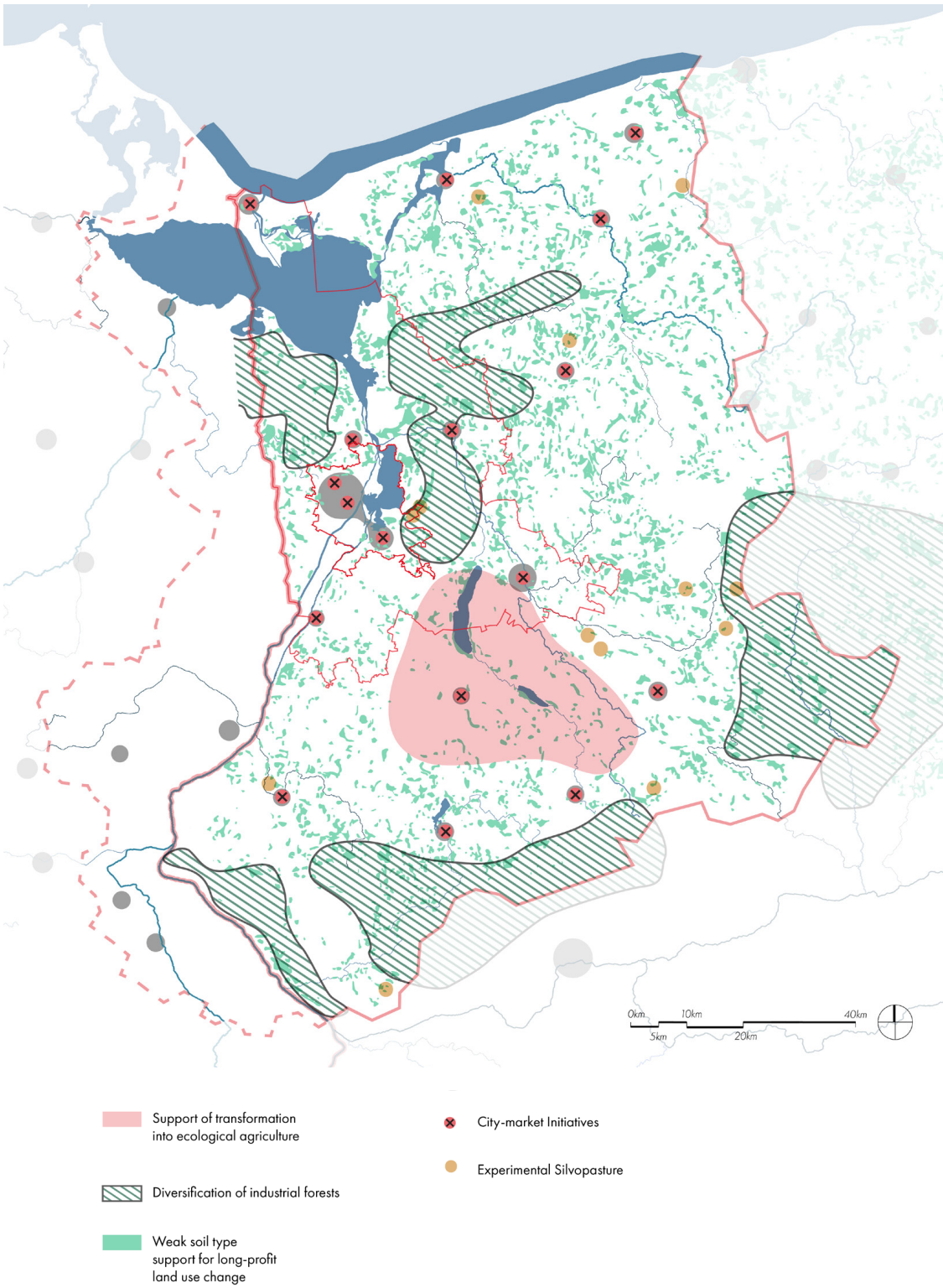
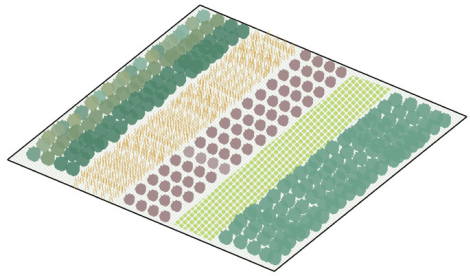


Figure 168. Design principle 2- map pointing areas prioritized for each type of action



Organic Agriculture

Since 2014 amount of organic farms registered in Poland critically decreased (*Wspieranie rozwoju rolnictwa ekologicznego*, 2018) in favour of more industrialized agriculture type of production. While organic farming, with diverse land use and crop rotation rules allowed limiting nutrition's overexploitation, also increase biodiversity and limiting use of water. Knowledge about proper use of plants and its order allows for improvement of retention and soil infiltration also increase of organic matter content, while limiting use of fertilizers. Hoverer, more than ecological benefits, its supporting also regional community, building regional food identity.

In practice:

Figure 169. The biggest difficulty in switch into ecological production is lack of knowledge about complicate maintenance (source: www.sadyogrody.pl)

Figure 170. Organic farm with seven stages of crop rotations, Maszkowice village, Poland (source: www.ecoarka.com.pl)

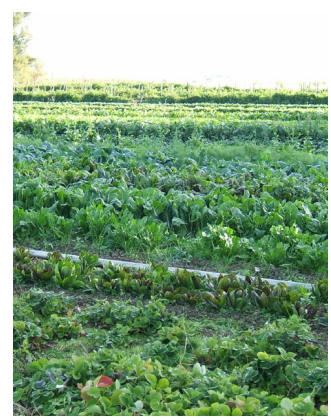
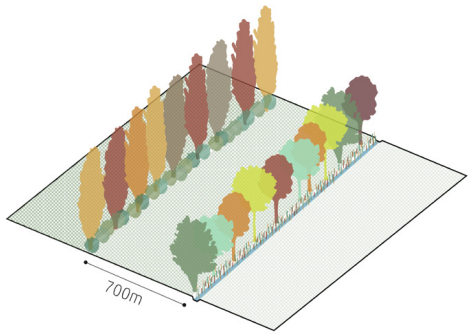
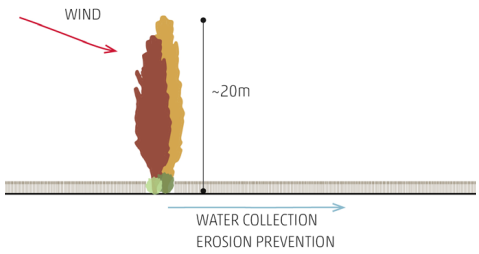


Figure 171. Manure or other organic fertilizer application (source: downtoearth.org.in)





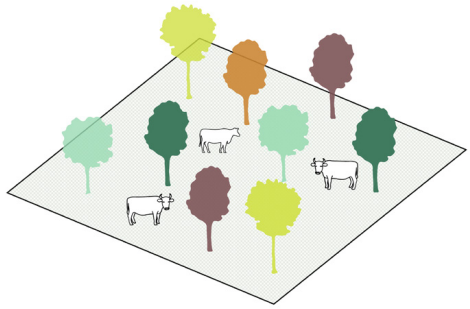
Buffer strips

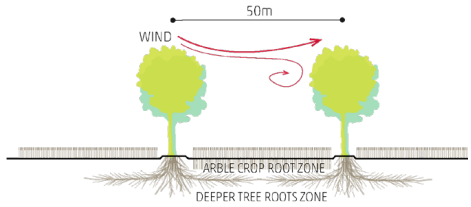
Introducing simple nature based solution with permanent vegetation, do not occupy a lot of land in the same time helping with sedimentation, filtration and collecting water. Depending on the type of planting, trees high, used as wind protection - windbreak. The presence of trees limiting water lost for 25%, create ecological corridors, birds sides and also diversion in landscape. Regional identity by used of natural type of trees.

In practice:

Figure 172. Windbreaker characterized by high permeability of trees structure (source: borowkawysoka.pl)

Figure 173. England and dense net of buffer strips (source: ocplayer.pl/57691063-Zadrzewienia-srodpolne.html)





Silvopastrue and Agroforestry

To increase biodiversity, but in the same time help with climate mitigation and water retention much more that with Organic Agriculture, extremely helpful might be combinations of different land use patterns. Combining forestry, orchards, pastures, meadows and crop lands in different variety demand higher biological knowledge but also different production focus of the farmers. Innovation centres that might be support for this element as well, by opening experimental sites in order to find the best combination answering local climate. Benefits of this solutions might be high not only for the farmers. Land equivalent ratio of 1 hectare of agroforestry produce the same level as 0,6 hectares of forestry and 0,8 hectares of crops, what clearly increase total production (Briggs, 2012).

In practice:

Figure 174. Claude Jollet, Agroforestry system, Combining walnuts with barley, France (source: www.foodandforest.co.uk)

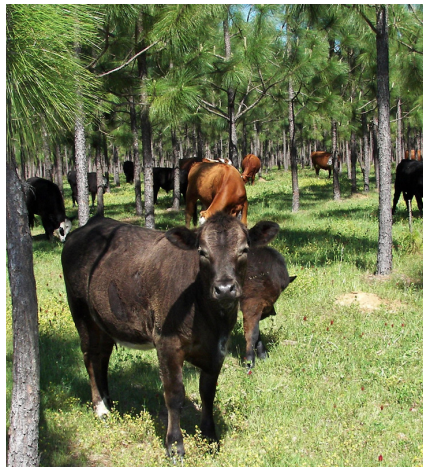
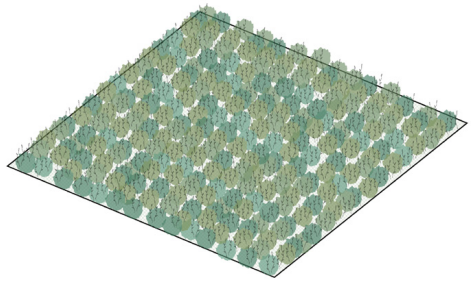


Figure 175. Silvopasture, combination of food, fodder and animal stock production, demand planning and biological knowledge (source: www.centerforagroforestry.org)

Figure 176. Agroforestry, where trees grow in the same field as crops, improves soil while the wood provides an additional source of revenue, Guelph (source: commons, wikimedia.org)



Shift in production type

Taking into account existing low quality of soil lit is important to give space and time for the renewal. As an answer for that, change in type of production might be the answer in semi-long thinking. Long-term plantations with specifically chosen type of plants/herbs helped to accumulate carbon and tie nitrogen from the fertilizer. Flower-type plants brings also important elements for bees. (*Zazielenienie - broszura informacyjna, 2018*) Also different type of shrubs, being produce for energetic purpose is solution benefiting economically and biologically.

In practice:

Figure 177. Energy willow 'Salix viminalis' adapting in sloughy conditions, what might be useful in wetlands areas, without irrigating it (source: www.muratordom.pl)

Figure 178. Planned use of specific plants or herbs during catch-crop tie nitrogen pollutions, creating also bee-friendly environment (source: youtube.com)

3. Rising absorption capacity

Responsive water managment

Upcoming climate changes, in case of studying bioregion, would have the biggest effect on the water system. On the first and main, due to high demand, the agricultural production would face the biggest problems. It will also increase fires dangers among monocultural forests. Following changes influencing groundwater levels, obtain water for the household needs would become problematic.

Main characteristic of the territory is its water network. Due to ongoing water management focus on the majority of the areas on limitation of the soil wetness. National Water Framework Directive *(Ramowa Dyrektywa Wodna)*, program introduced in years 2010-2015, focused on highly technical works, regulating rivers, streams, removing riparian tree-coverage. Ongoing yearly agricultural droughts, far more than ecological harm, forced to make a management change.

From big infrastructural projects to small water retention, renaturalised water streams - change of paradigm is already visible in some of recent governmental projects: Small Retention *(Mała Retencja)* introduced by Ministry of Agriculture, while National Water Management Authority still focus on big retention infrastructure. The paradigm change is important in the way water system is perceived. As part of ecosystem water work should include also biological structure, protecting, infiltrating greenery, supporting extension of time and the route of water stream into its catchment.

Figure 179. Comparison of two types of river maintenance (source: right: WWF Guidebook, 2018 left: WWF report, 2014)

Objectives:

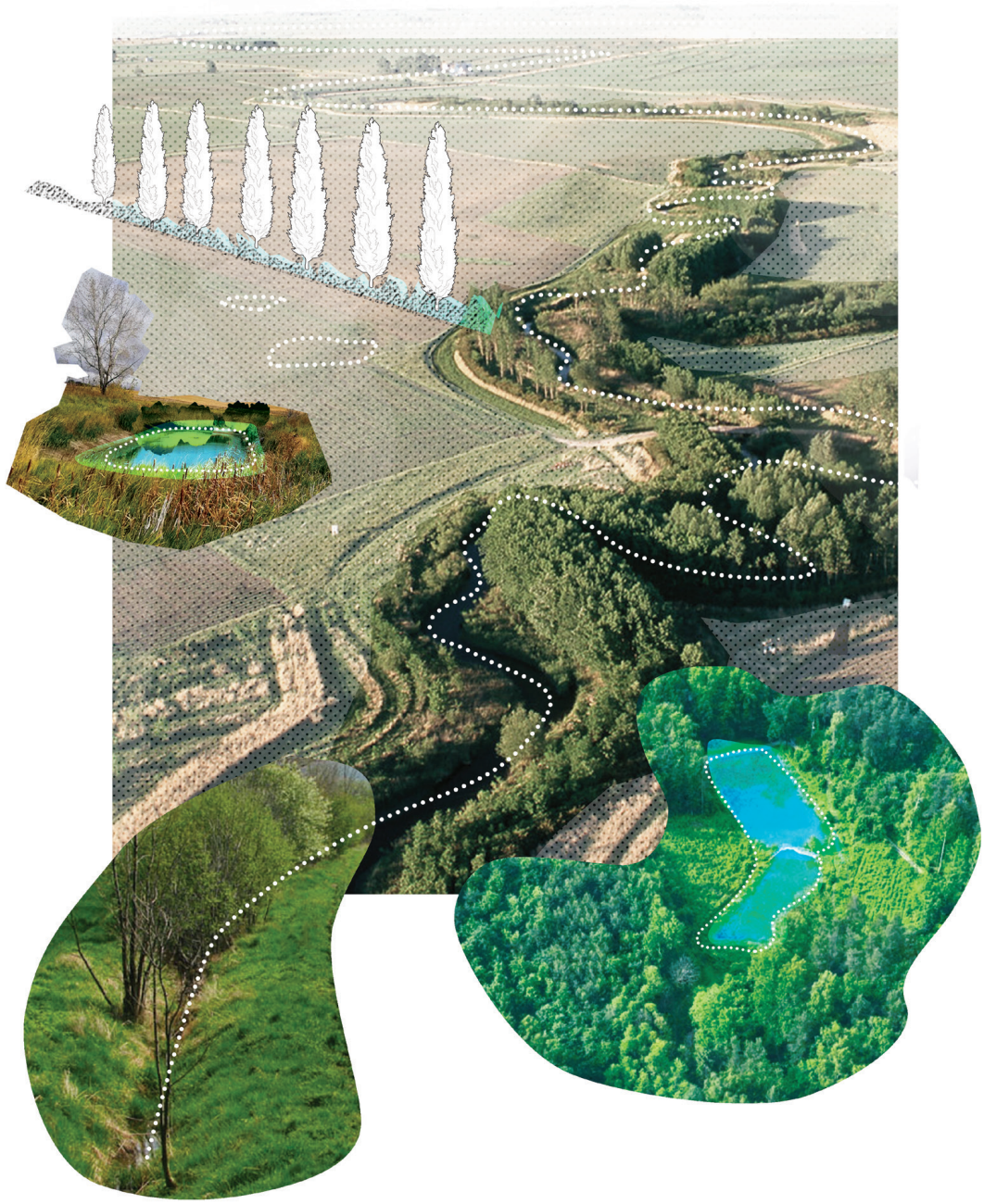
1. Water security
2. Zero eutrophication
5. Naturalzed lakes and streamflows
6. Good quality ground water
7. Thriving wetlands

Actions:

3.1. Renaturalization

3.2. Collecting

3.3. Protected (wet) land



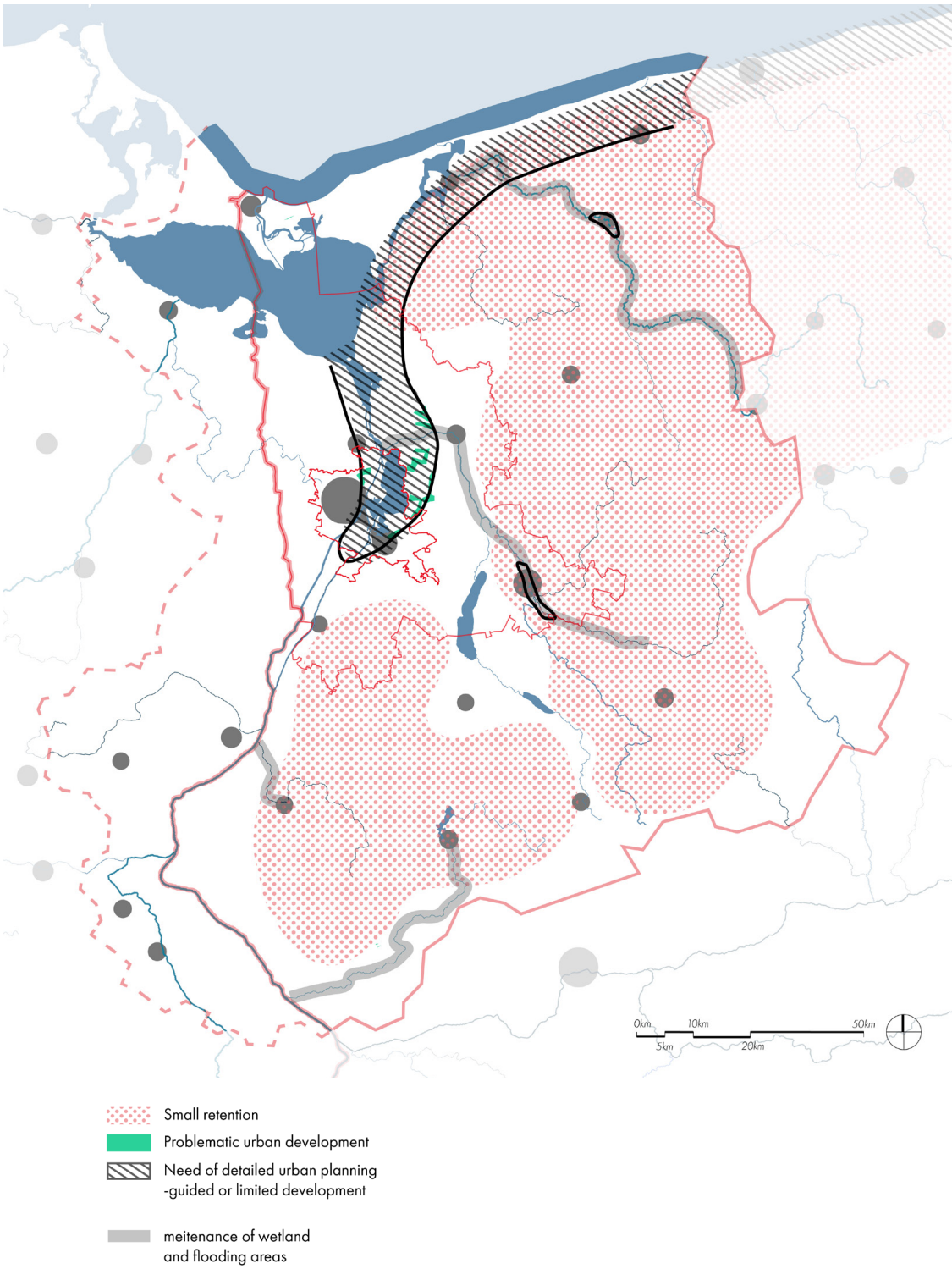
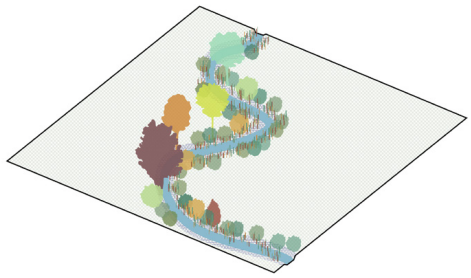
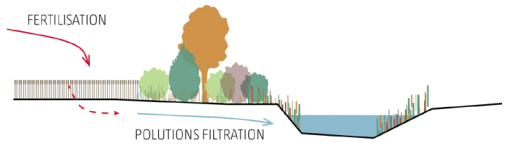


Figure 180. Design principle 3 - map pointing the areas prioritized for each type of action





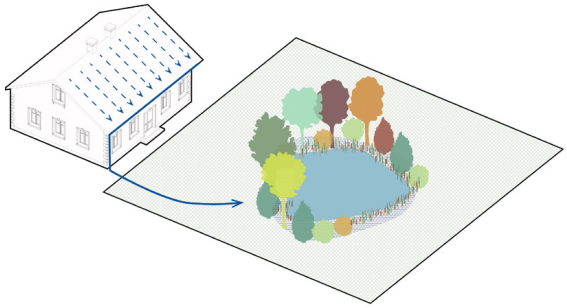
Renaturalization

Renaturalization is understood as the restoration of river shape, previously regulated, to the maximally natural condition. More than just revitalization, focusing on restoration of river ecological functions, renaturalization is understood as wide range of technical interventions. Because full naturalization is not possible, due to economic conditions, it is best compromise with ecological need. It is long, two-steps process, initiated by technical actions like: fortification eradication, introducing stone steps, reconstruction of riverbank, islands, headlands and meanders. Furthermore, planting proper greenery around, supporting also filtration of agricultural pollutions and creating habitats for local species. Second part is long independent, estimated between 10 to even 30 years, demanding also ongoing control for perfect balance between ecological and economical needs.

In practice:

Figure 181. Renaturalization work supporting salmon spawning ground, on Ina river, carried out by public profit organization: Society of the Friends of Ina and Gowienica River (source: Marcin Budniak, facebook.com/TPRIiG)

Figure 182. Above: Gowienica river with alluvial forest accumulating water surplus (source: Marcin Budniak, facebook.com/TPRIiG)
Figure 183. Below: Ina river with regulated channel (source: Marcin Budniak, facebook.com/TPRIiG)



Collecting

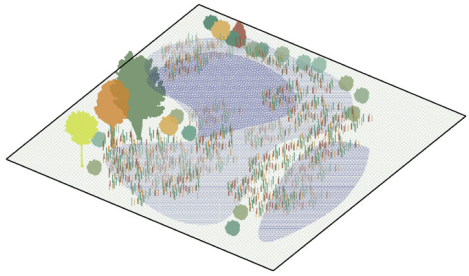
The region is localised in lower side of river catchment, what in terms of water flow, depended on higher part. Because of that in case of projected lower rainfalls and lower water level in the rivers itself, it is important to improve water harvesting. Original landscape is identify, as postglacial landscape, full of small pounds, pools and lakes. In order to introduce proper balance, in similar conditions as in case of renaturalized streams, careful desludging should go together with choice and maintenance of proper greenery and trees. There is also important to introduce support for creation of new water ponds supplied by rain waters, not only in landscape, but also urban conditions.

In practice:

Figure 184. Natural river stream in the centre of Promień village, that might be use as place for the rain water collecting (source: Google Street View)

Figure 185. Program introduced by Wrocław City 'Collect your rainwater' (source: www.radiowroclaw.pl)

Figure 186. Artificial water ponds in support of agriculture and forest industry (source: left: Jackie Webb / theconversation.com; right: www.grotniki.lodz.lasy.gov.pl)



Protected (wet) lands

Local water system is built not only by water streams and connected lakes. Together with infiltration qualities of special landscape bodies, like peat lands or swaps, make the whole water network space demanding. In order to control groundwater level swaps and peatlands, categorized as water space should be also protected. It should affect territorial management in a way prioritizing the use of space assigned for the collecting purpose. In effect for that special attention should be taken river belts, left for naturalized meandering river in the same time being floodplain, becoming non-urbanised terrain. *'Leaving the room for the water'* approach should guide maintenance of the water system for the future damage limitation.

In practice:

Figure 187. Biebrzskie swamps - Protected Natural Reservoir in Biebrza valley surrounded by peatlands, wetlands and swaps (source: www.wikipedia.pl)

Figure 188. Floodplain around Grudziądz town (source: www.polskiekrajobrazy.pl)

Figure 189. Good example of German-Polish cooperation on Oder river maintenance 'giving river a space' (source: www.zielonagora.wyborcza.pl)

4. (RE)Creating Protected Areas

Regional (biological) identity

Forest, as second major type of use of the area typically associated with natural areas. There is an important, in order to strengthen the biodiversity, to make a division between productive type of landscape and left 'truly' natural. From economical point of view the most profitable wood production or other land maintenance is not aligned with ecological profits. Because the majority of the forest is indeed industrial monocultural type, the maintenance is focus on best possible profitable production, what makes the ecosystem qualities less important. Important paradigm shift should appear in the way protected areas are maintained, because those areas are the most important part of remain biological identity.

The identity builds by characteristic species, plants and trees of the bioregion is also the answer for demanded climate adaptation. Considering introduction of greenery in any kind of environment: urban or rural, should follow unique code of its own bioregion. Programs and plans of maintenance of those areas should be also open and transparent, while big amount of local organizations is eager to help in high cost work.

Another important paradigm shift should appear in accessibility, and the way in which the landscape is used. Valuable and unique forest, meadows, peatlands, should be open, educating and creating regional identity. It may be developed by expansion of small scale, recreational infrastructure, making it possible.

Objectives:

3. Diverse non-productive greenery

7. Thriving wetlands

8. Sustainable forests

10. Guided urban development

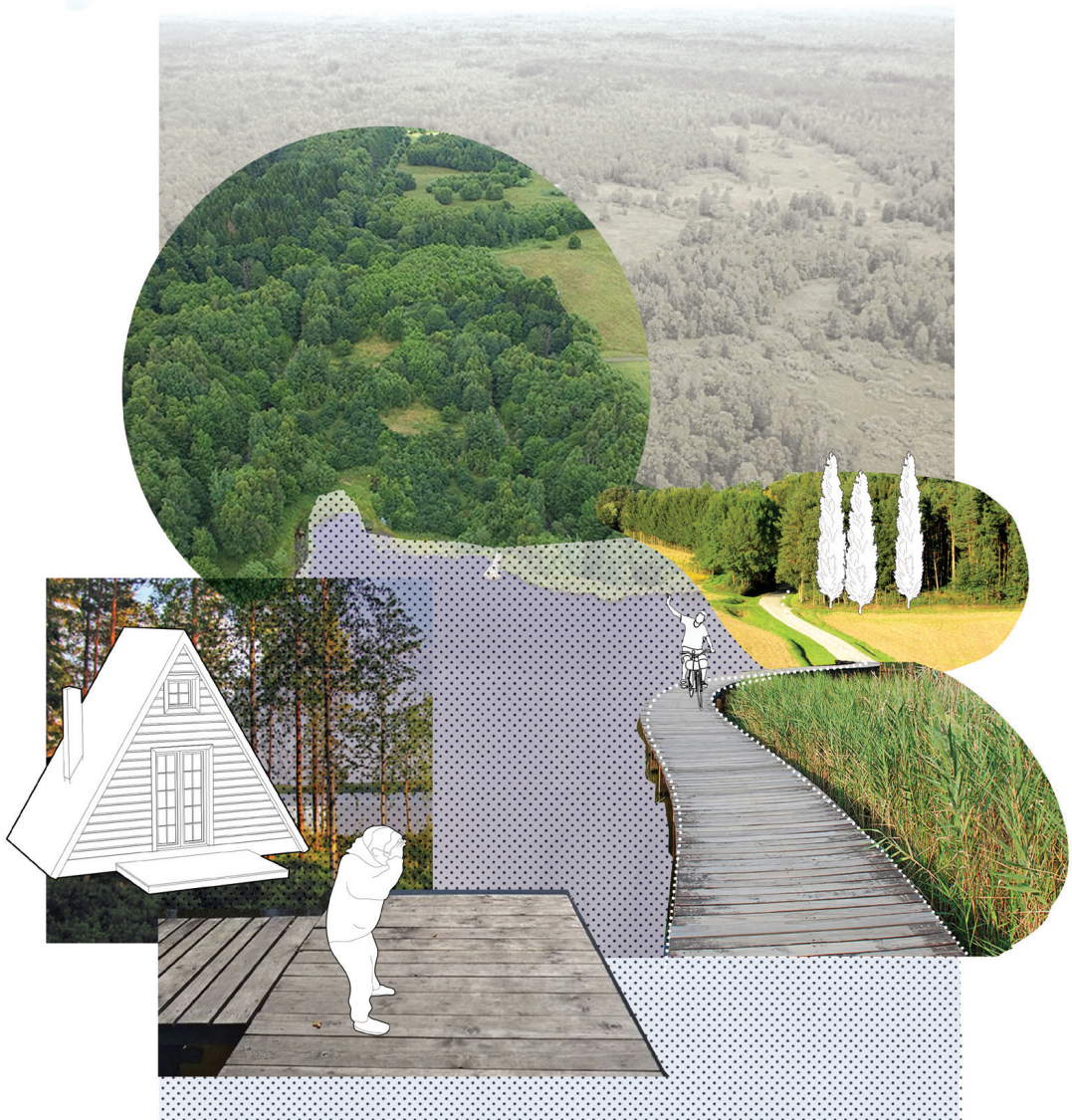
11. Reuse of vacancy

13. Environmental compensation

Actions:

4.1. Forest renewal and new afforestation

4.2. Small infrastructure



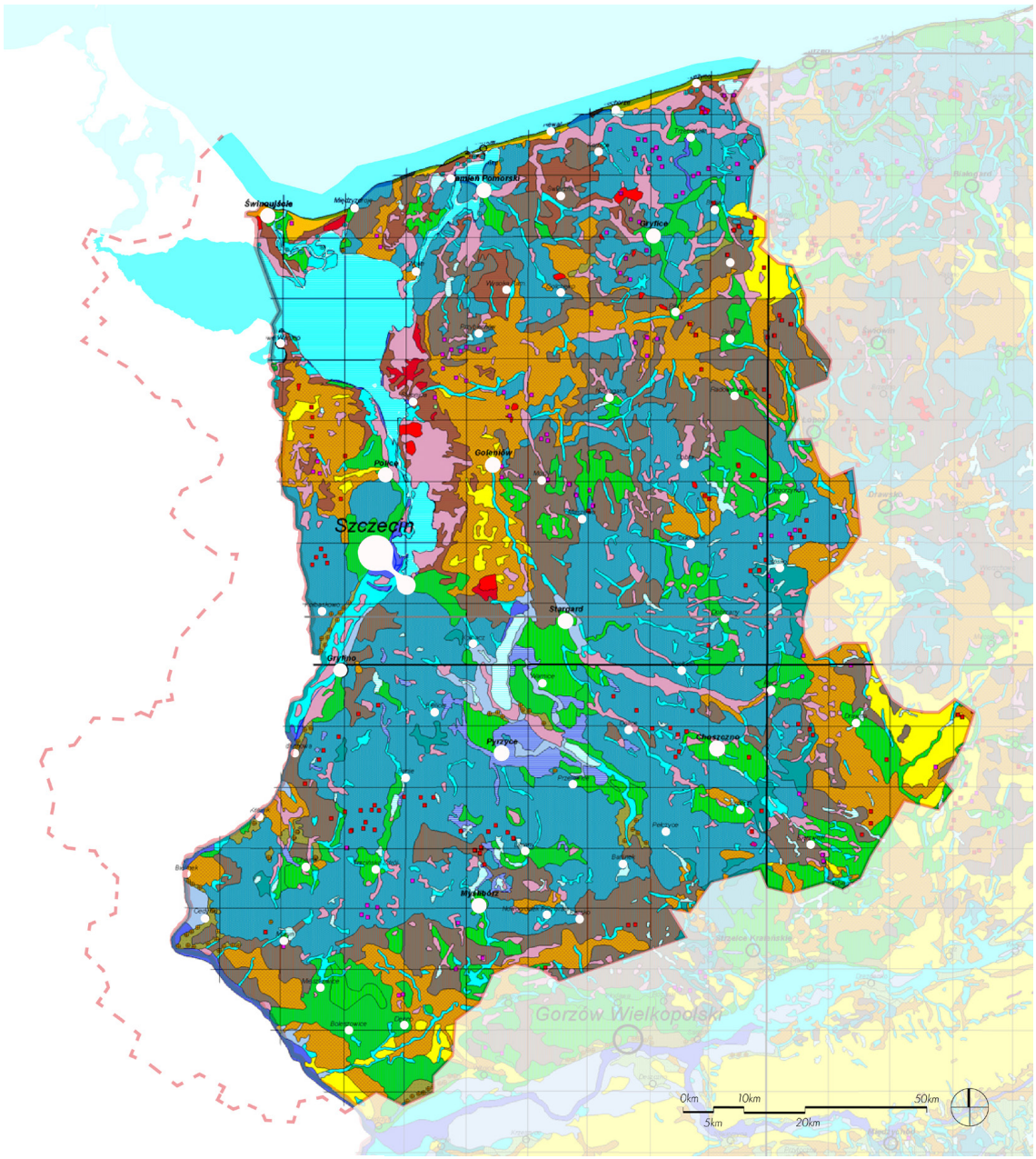


Figure 190. Potential natural vegetation of Poland (source: Jan Marek Matuszkiewicz, IGiPZ PAN, Warszawa, 2008)

Figure 191. 03 - Alder carr (Carici elongatae-Alnetum) (source: wikipedia.org)

Figure 192. 04 - Alder-ash carr (Fraxino-Alnetum) (source: Orczewska, 2011)

Figure 193. 06 – Willow-populus riparian woodland (Salici-Populetum) (source: wikipedia.org)

Figure 194. 07,08 – Elm-ash riparian woodland (Ficario-Ulmetum) (source: atlas-roslin.pl)

Figure 195. 05 – Silver fir forests (Galio - Albietenion) (source: inpn.mnhn.fr)

Figure 196. 09 – Birch-oak forest (Betulo – Quercetum) (source: wikipedia.org)

Figure 197. 10 – Beech-oak forest (Fago – Quercetum) (source: wikipedia.org)

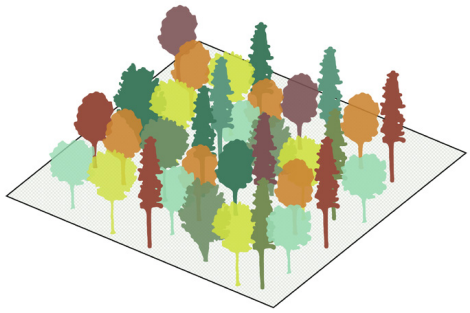
Figure 198. 13 – Continental fresh pine forest (Peucedano – Pinetum, subbor.) (source: wikipedia.org)

Figure 199. 15 –Spruce - Pine forest (Querco -Pinetum) (source: wikipedia.org)

Figure 200. 16 – Birch bog forest (Vaccinio uliginosi – Betuletum pub.) (source: wikipedia.org)

Figure 201. 17 – Pine bog forest (Vaccinio uliginosi – Pinetum) (source: wikipedia.org)

Figure 202. 18 – Raised bog (Sphagnetalia magellanici) (source: wikipedia.org)



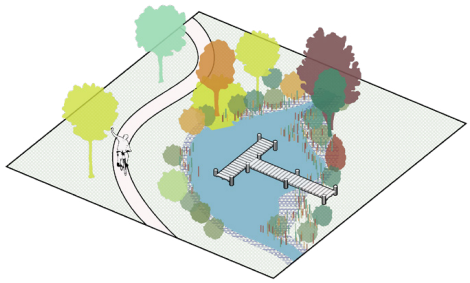
Forest renewal and new afforestation

Majority of the forested, on the project area, is based on monocultural pine or spruce wood. Historically afforested land (after Second World War) need adaptation due to upcoming climate changes having negative influence especially on pine trees. Limitation of water and higher temperatures demand diversification with type of trees that would adapt much better, for example: beech. Climate changes might influence wood production on high level, because of that its necessary to take important steps. Gradual thinning, taking into account also other species safety, should be followed by strategic fillings. It is important to change here paradigm while forest is perceived just as wood production, but important element balancing global ecosystem.

In practice:

Figure 203. Diversifying ecotones for different type of shrubs and low trees not only supporting ecosystem but creating interesting landscape as well (source: rebnie.wl.sggw.pl)

Figure 204. Different practices of thinning and renewal should be planned and coordinated with ecological and social organizations (source: source: rebnie.wl.sggw.pl)



Small infrastructure

Building socio-ecological cohesion demand space where community can learn about the environment as first and as second use it for recreational purpose, or spiritual matter as can be called. To support this matter there is important to developed projects opening natural sites for the users. Low cost small infrastructure, that development might be support by local society, should be on the list of the municipal projects. Beside recreational infrastructure- transportation for the recreational purpose like bike lanes should be also support for inter-village areas.

In practice:

Figure 205. Lake deck build by the local municipality, Piwoj lake, Rozogi village (source: mragowo24.info/)

Figure 206. Network of voivodeship bike roads in development (source: www.m.infobike.pl)

Figure 207. Educational path, Kusowo Swamp Nature Reserve (source: www.szczecinek.szczecinek.lasy.gov.pl)

6. Spatial interventions

(…) cohesiveness in societal relations with the urban environment in terms of access to healthy environments and environmental decision-making structures, for instance, but socio-environmental inequalities are also a fundamental part of the urbanization process.
(Cook & Swyngedouw, 2012)

source: author's own

Introduction

The three design interventions are example of design in use of defined principles for different places. Figure 208explaining the use of principles and objectives in each intervention.

Each design intervention allowed for the reflection on different planning tools, revising it and proposing changes.

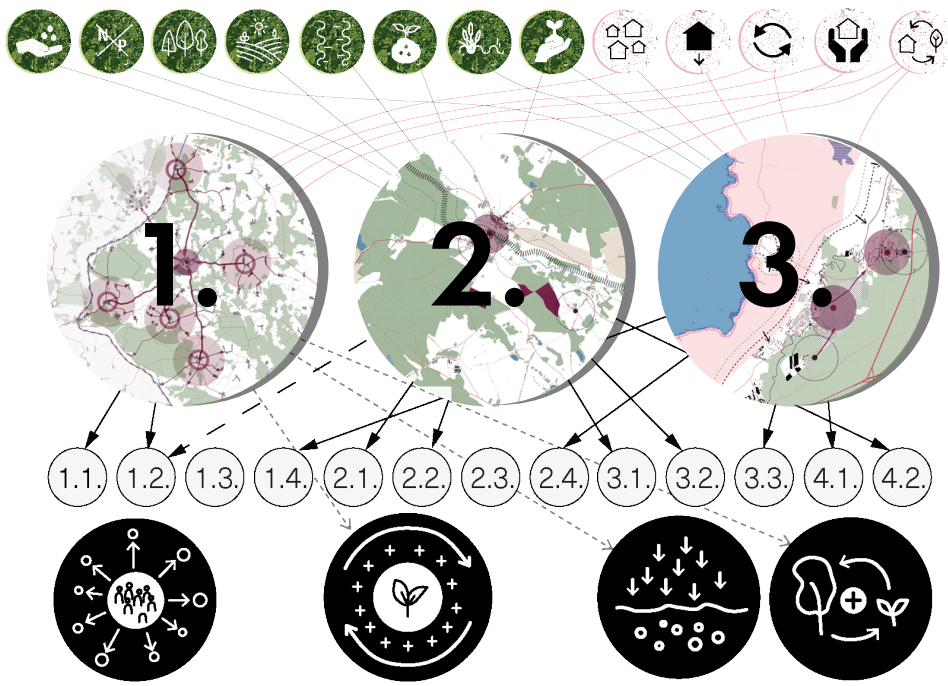


Figure 208. Design interventions as answers for (down) Design principles (top) Strategic objectives

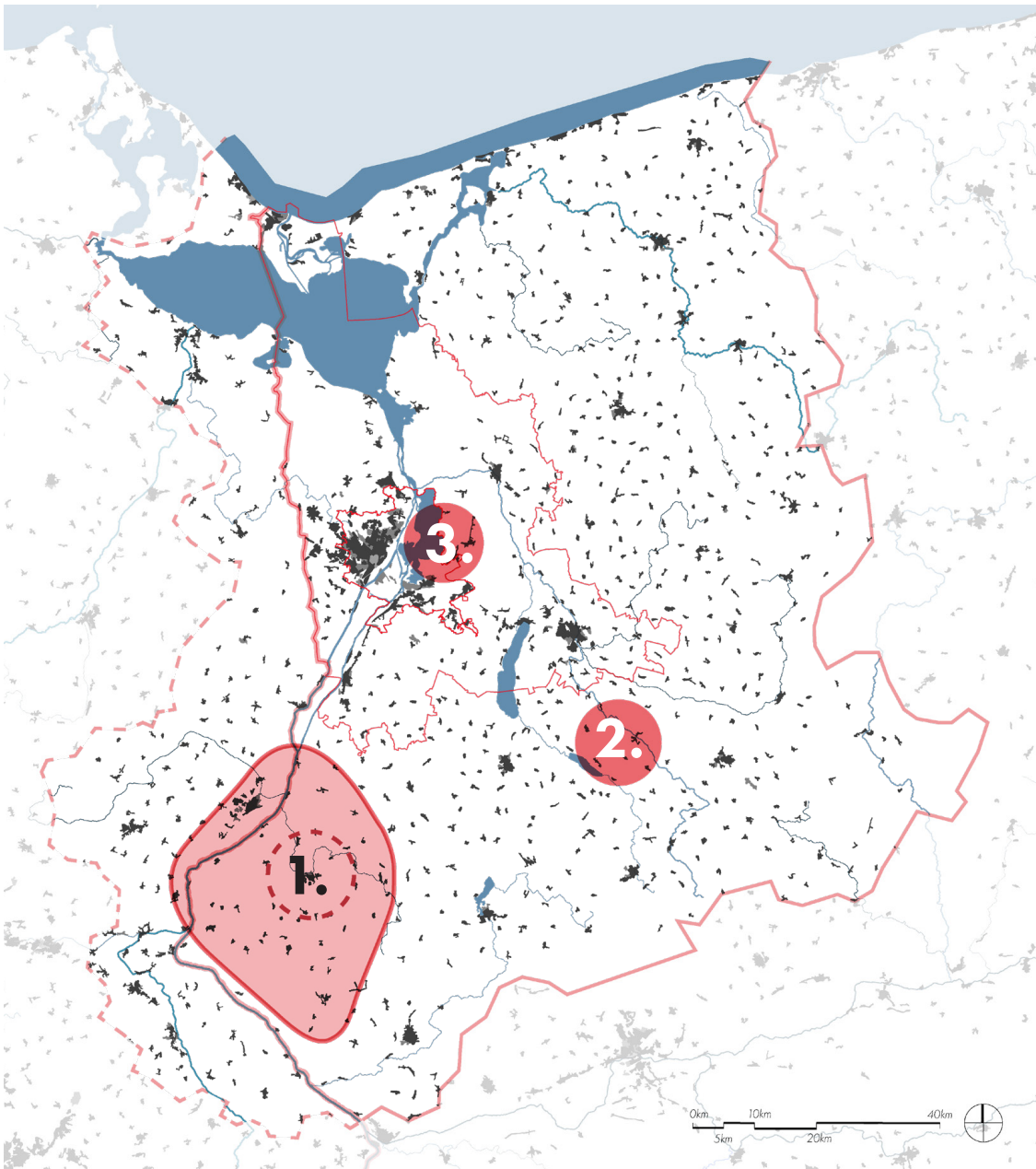


Figure 209. Location of spatial intervention in the region

1. Chojna sub-region (Town-village relation)

2. Dolice village and the surrounding (Village)

3. Szczecin- Załom (Suburb)

Chojna sub-region

Example 1

Local problematic:

- Local municipalities being described under Exclusion Zone: decreasing demography, lack of services, low income and high unemployment level.
- Surrounding agricultural land being under drought treat. Territory is full of State Agricultural Farms remains, existing agricultural farms highly manufactured.
- Surrounding villages have weak infrastructural connection. Existing infrastructure is highly car oriented, inefficient public transport, transit roads through villages.
- Lack of cultural centres, place of gathering, entertainment institution, resulting in high amount of traffic into Szczecin city.

Positive characteristic:

- Good infrastructural connection with Szczecin and Gorzów Wielkopolski.
- Functional cross-border connection with Schwedt (German city).
- Great amount of forest and protected Natural Parks (Unteres Odertal National Park, Cedyński Park Krajobrazowy).
- Great amount of non-developed land, vacancy and non-organised natural land use, what might be based for experimental transformations.
- High value, picturesque landscape of natural environment and human settlements.

Figure 210. Chojna - aerial picture (source: wikimedia.org)

Figure 211. Cedynia - aerial picture (source: wikimedia.org)

Figure 212. Mieszkowice - aerial picture (source: wikimedia.org)

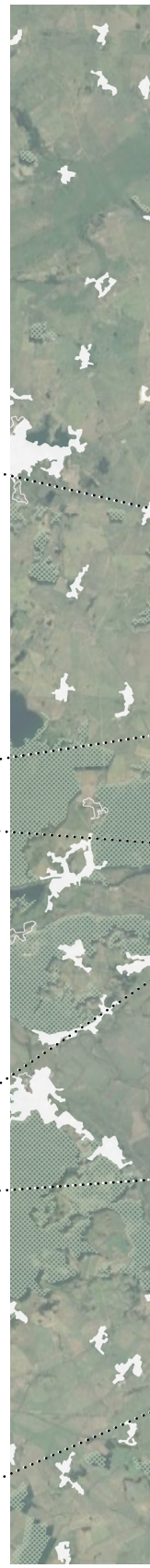
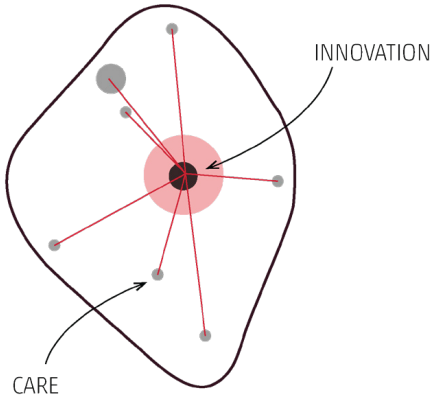


Figure 213. Situational map of Chojna and surrounding important towns with population description

Actions



In order to fight with exclusion and low social involvement on low density peripheral area, following the first principle of the strategy, there has been introduced innovation-care cluster. This example proposing localization of Innovation Centre in Chojna as step first. Following that development of connected care facilities in surround town/villages would create base for local communal network and knowledge support for innovative ecological initiatives. Innovation centre, being responsible for connecting social and entrepreneur initiatives, would support socio-ecological transformations, knowing problems on local scale.

Analysing proximities between location, following development of the first principle, following infrastructural transformation should appear. Location of the care facilities is characterised by the low proximity (biking distance) from surrounding villages it's supposed to support. Location of Innovation Centre demand development of more efficient public transport. Innovation centre, having support of public founding, have an aim to boost citizen involvement for creation of the care facilities, that should be based on community interaction, NGO's or CBO's (community based organizations).

Legend:

Location of Care Facilities

Location of Innovation Centre

Connection demanding redevelopment of public transport

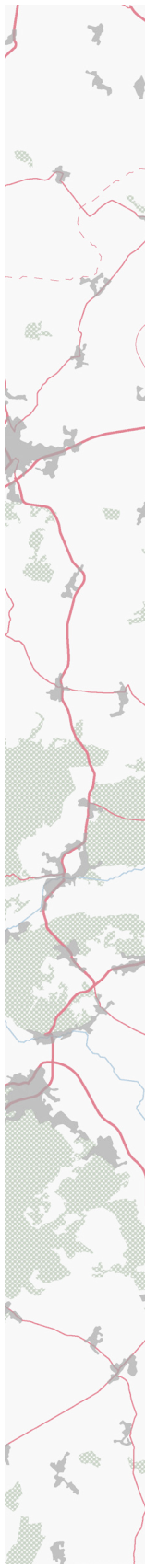
Connections demanding more bike-oriented infrastructure

Forests

Urban settlements

Polish-German state border

5 km radios to Care Facilities
(20 minutes bike ride from surrounding villages)



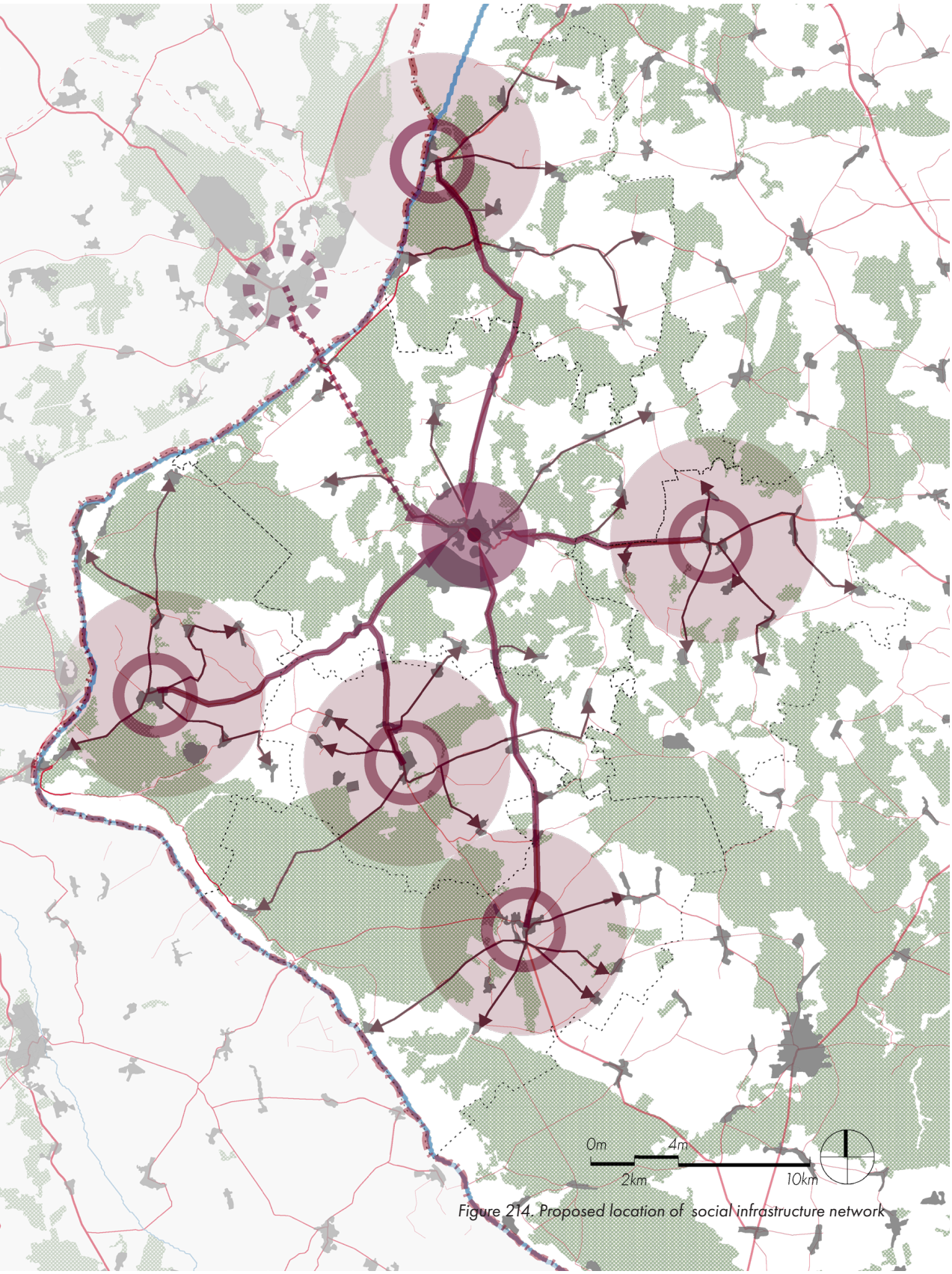


Figure 214. Proposed location of social infrastructure network

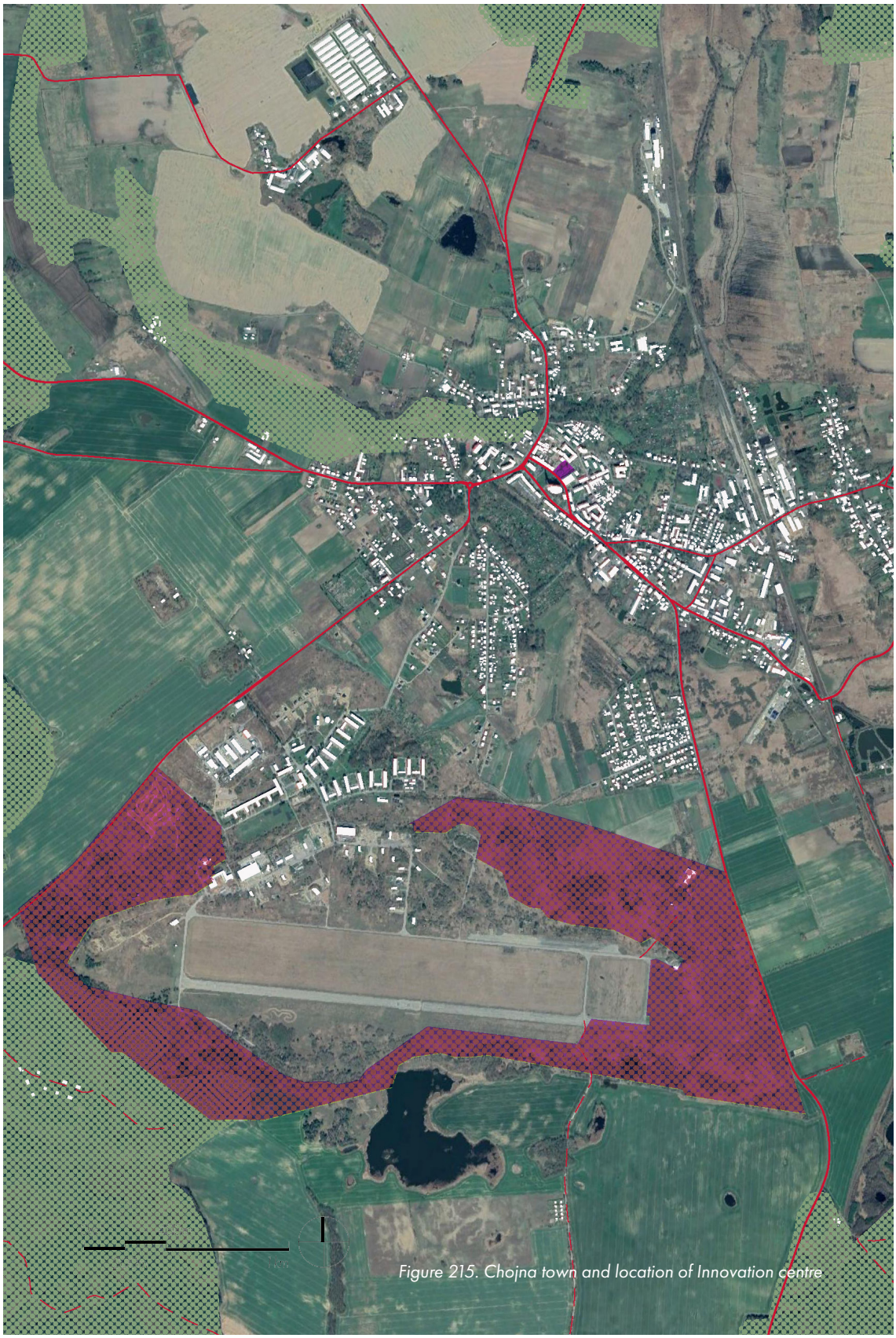


Figure 215. Chojna town and location of Innovation centre

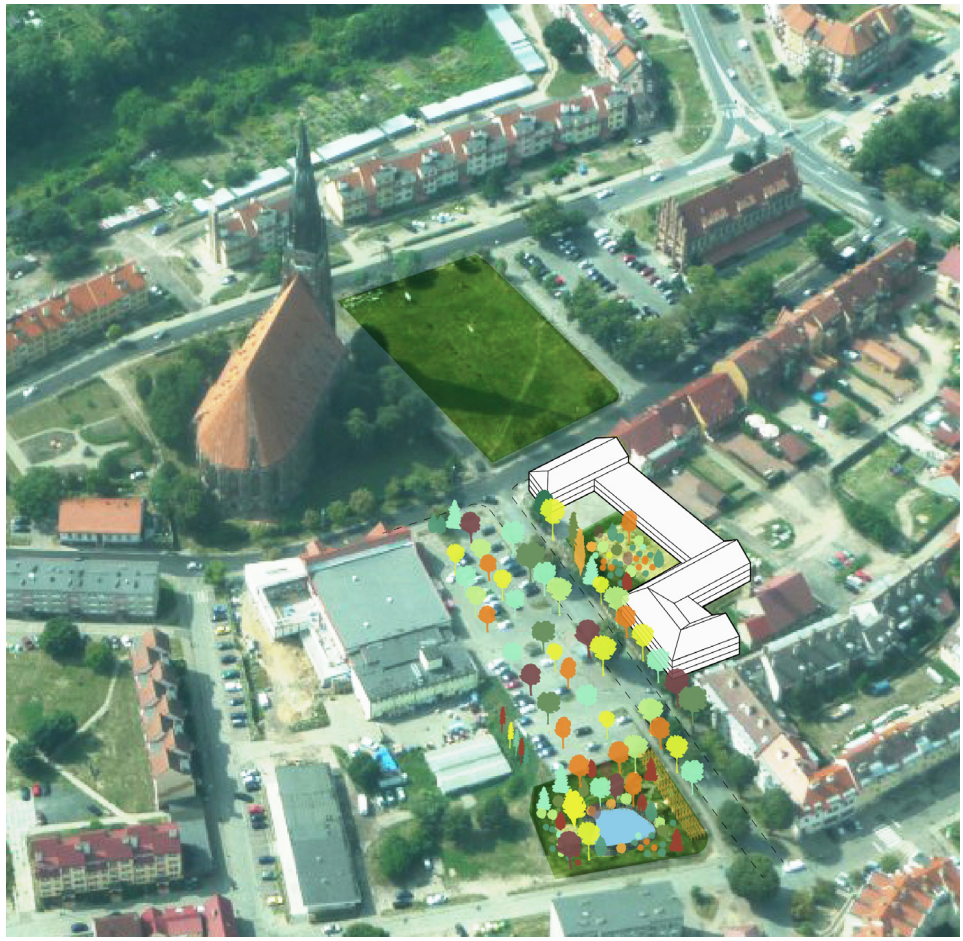


Figure 216. Impression of Innovation Centre localized in the Chojna town

Legend:

Localization of Innovation Centre on town vacant plot

Localization of nursery-garden coordinated by Innovation Centre, producing seedling for the cluster needs

The role of planning

Division into Clusters developing social infrastructure on the territory is based on connectivity. To introduce support on planning lever there is important to adjust it with administrative borders. Basic 3-degrees Polish division – voivodeship (*województwo*), country (*powiat*) and municipality (*gmina*) placing clusters on the country size level.

However, the best proximity between towns and villages is not overlapping with administrative division on the same scale. Because of that the strategy proposing different planning division, based on best connectivity. Proposition of adjustment aiming for equal distribution in the same time minimal amount of centres in the area. Culture-common central cluster is overlapped Szczecin metropolitan area that have already common vision.

Sub-regional plans prepared for each cluster (combining municipal administrative division) would have aim to point centres, connectivity with possible location of care facilities, but also point vacant plot and land. Such scale would help to prepare more local oriented spatial strategies for each area and introduce other principles described in the strategy.

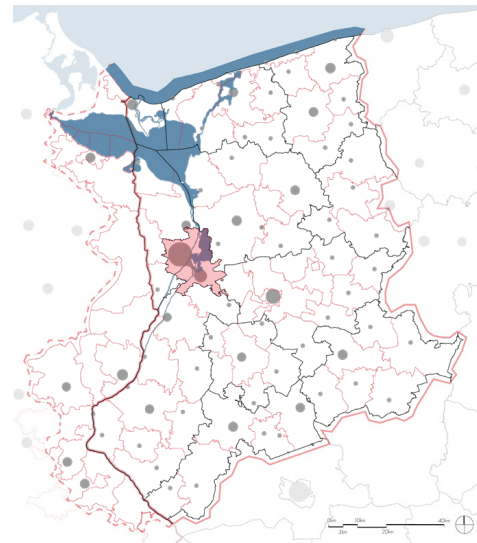


Figure 217. Existing division into counties (powiat) based on municipal division

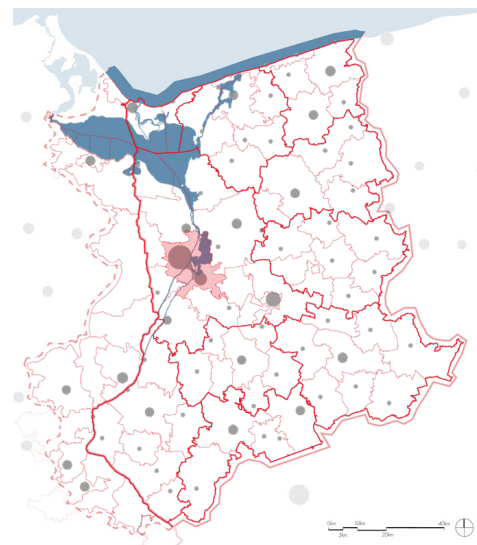


Figure 218. Proposed division for the country development plans based on municipal division

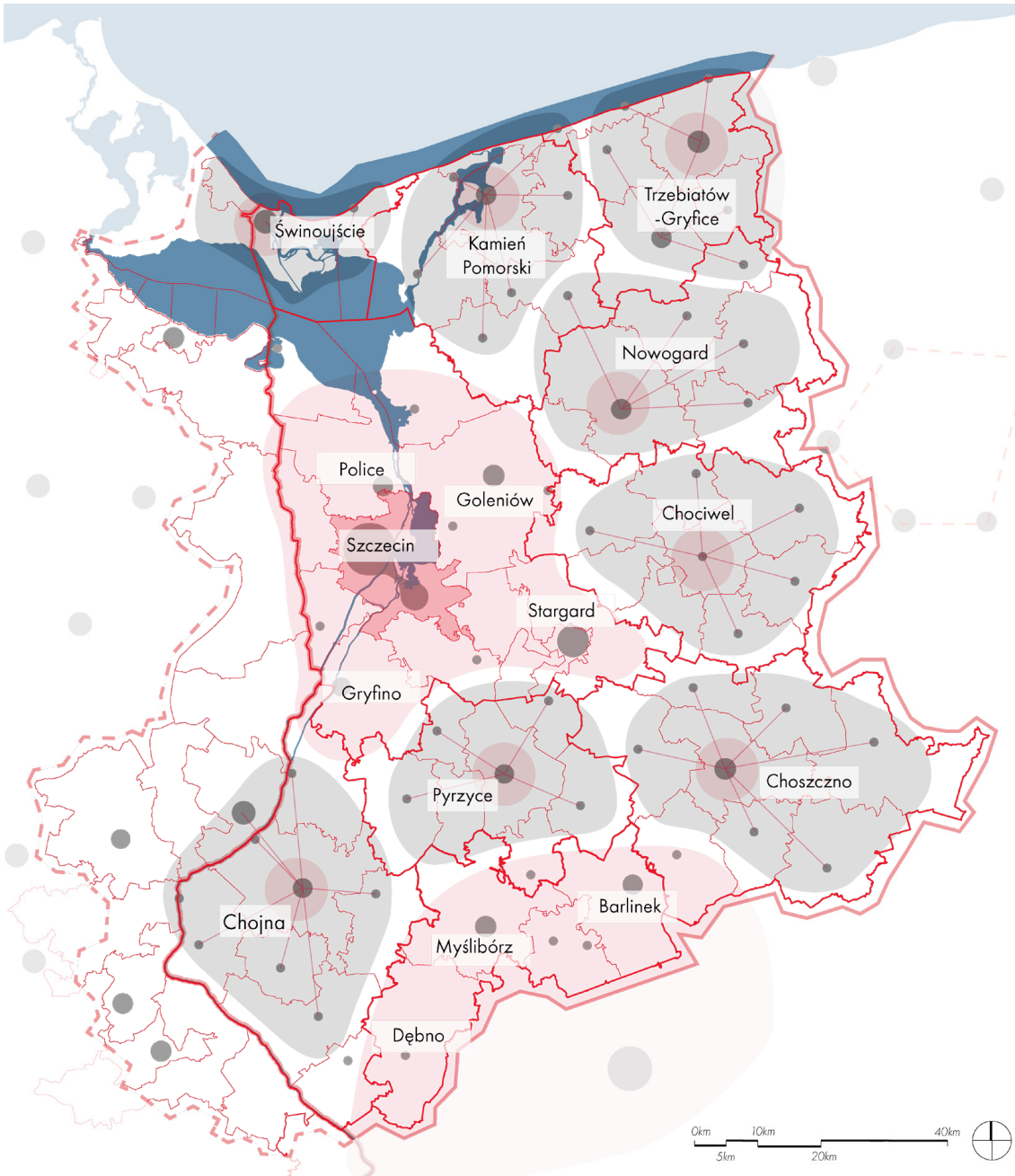


Figure 219. Proposed division for the country development plans with localization of innovation centres

Dolice village and surrounding

Example 2

Local problematic:

- Extensive monocultural agricultural land, with high exposure for soil erosion.
- Lack of small water infrastructure, high exposure to drought danger.
- Ina river with flooding seasons.

Positive characteristic:

- High quality soil type resulting reservation of the area for the agricultural purposes. Positive planning regulation forbidding urban expansions.
- Positive connectivity with other big cities - train station in Dolice village - possibilities for functional connections.
- Vacant buildings and shrinking population – possible transformation.

Figure 220. Agricultural landscape (source: author's own)

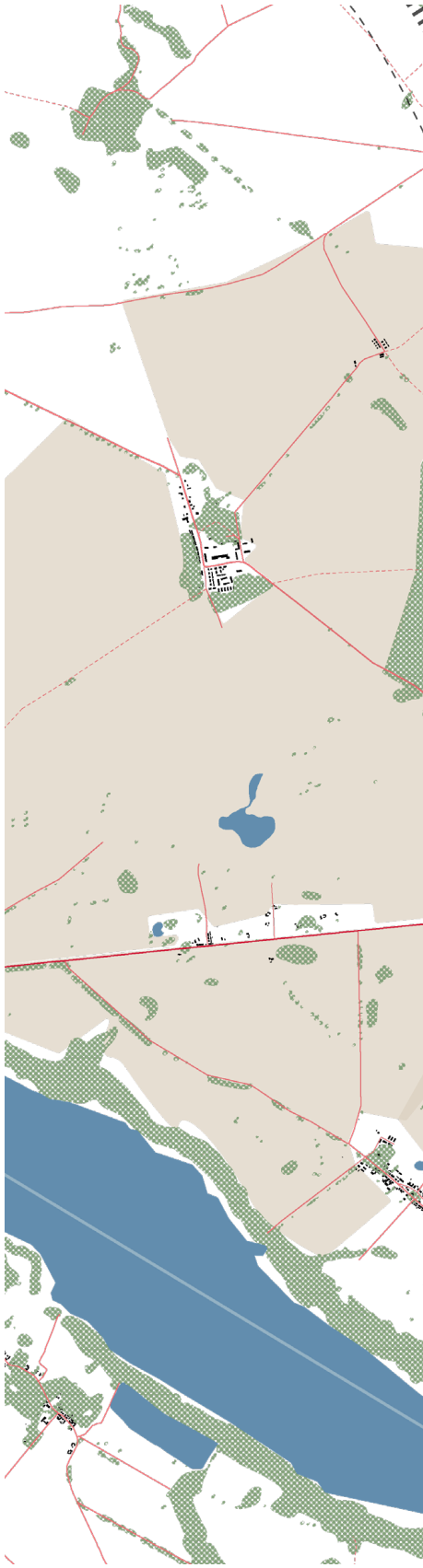
Figure 221. Dolice - main street (source: author's own)

Figure 222. Situational map of Dolice village and surrounding it agricultural land

Actions

Second example showing possible application of all 4 principles on the agricultural landscape. Regeneration is focused on introducing water collecting bodies, supporting agricultural production, but also more biodiverse ecological structure. Necessary introduction of buffer strips, new afforestation, but also other land use charges, especially along Ina river improve the function of ecosystem.

To improve not only ecological but also social resilience, proposition include also creation of Care centre in vacant distillery. Proximity to river park, make the introduction of educational-experimental garden between more necessary.



Legend:

- New afforestation
- Agricultural land demanding instructions of Buffer Strips and regeneration of water collecting ponds
- Existing forest with renewal indication
- Revitalization line of Ina river
- Borders of river park
- Care centre with 1 km radius
- Train station with 1 km radius

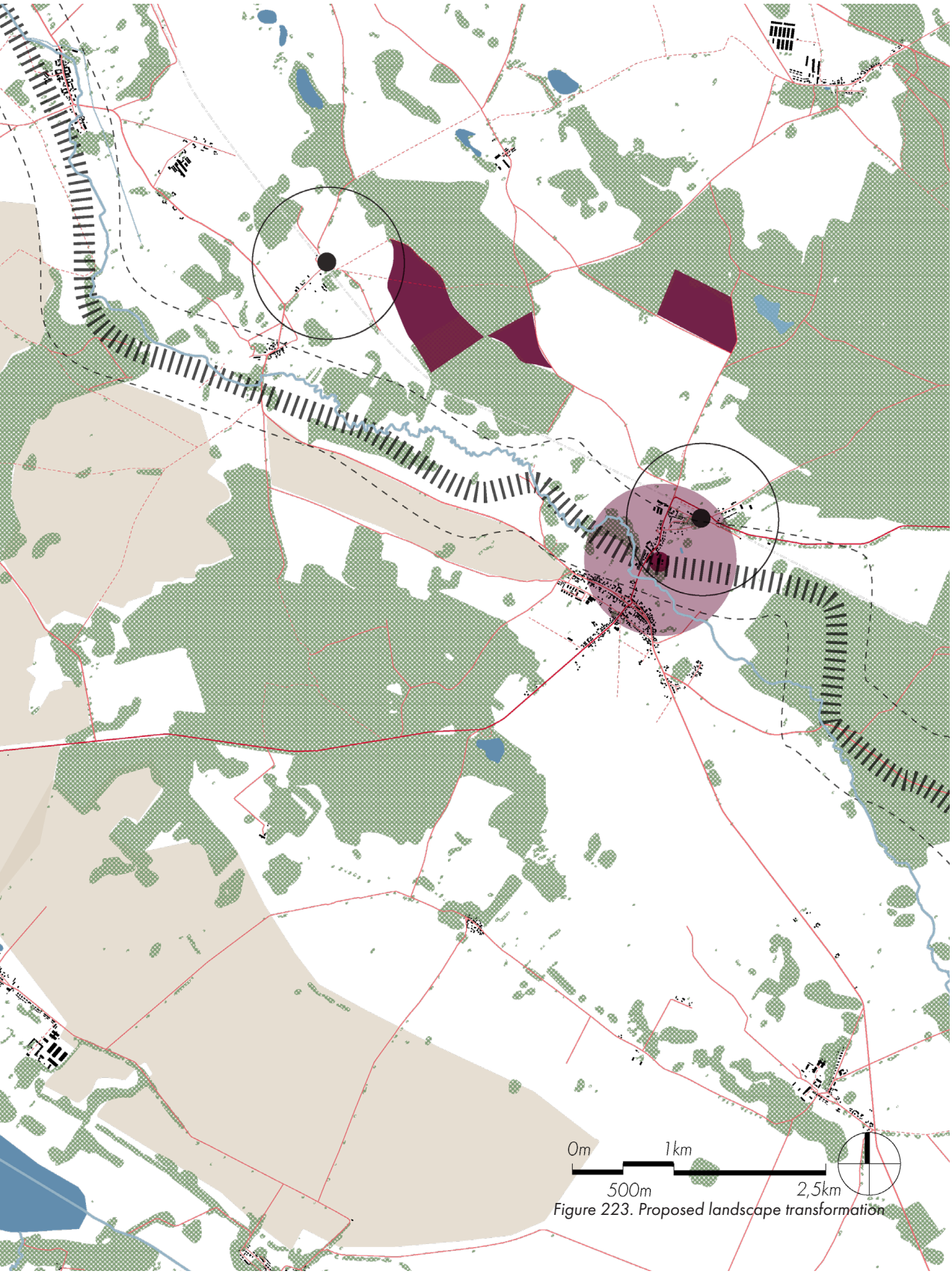


Figure 223. Proposed landscape transformation

Figure 225. Impression of Care Facility - local place for young and old with open garden until revitalised Ina river

Legend:

Land use change into energetic willow

New afforestation

Land use change into naturalized meadows

Deepened and cleaned water ponds

Maintain stream of Ina river

Buffer strips among field roads

Local park and experimental garden

Care centre localized in vacant plot

Figure 226. Proposed transformation in Dolice village on the smaller scale

Figure 227. Proposed landscape interventions on the smaller scale

Figure 228. Impression of landscape transformation

Legend:

Localization of organic farm

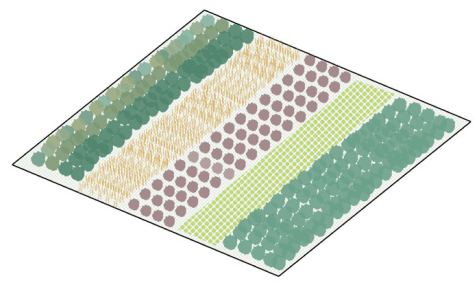
Buffer Strips

The role of planning

Because of intersectoral range of introduced changes, as well as because of extensive land that need transformation, there is necessary to pursuit changes through general policies. Such spatial planning tool would introduce changes in the most efficient way. Lack of ecological focus and industrialized of agricultural production demand tactical introduction. Starting with education, advisory and grants for transformation, policies are planned to evolved through time.

Introducing demanded changes by steps would allow omitting aggressive 'forcing' factor, making space for future negotiations, or adjustments according to ongoing findings.

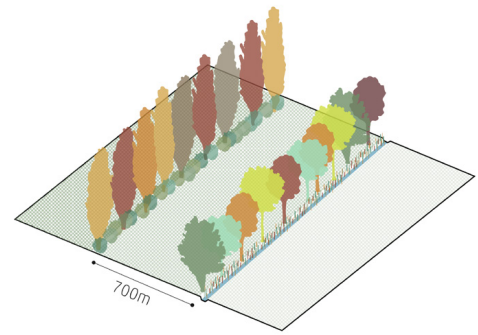
Principle 2.1. Organic Agriculture



policy time evolution

- Adaptation of national law of labelling organic products under European Union law, making adjustment clear and readable. (*Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91*).
- Subsidies supporting crop rotations not only for organic farms.
- Subsidizing and adapting regulation of animal stock supporting small scale farming.
- Regulating maximal amount of cycles of the same planting type in order to achieve forced crop rotation.
- Regulating maximal size of one-type planting, introducing diversification restrictions.

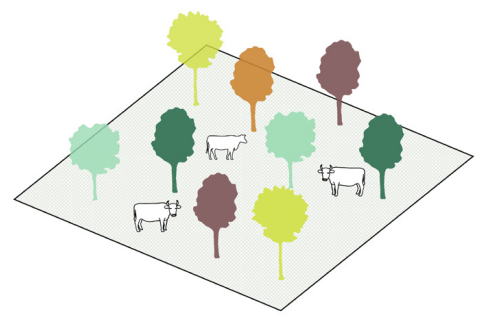
Principle 2.2. Buffer Strips



policy time evolution

- Subsidies for private land owners for planting according to list of type of trees characteristic for bioregion.
- Regulation for District Roads Administration introducing necessity of planting among local and municipal roads.
- Regulation for Agricultural Market Agency, managing state land rented under lease into agricultural purposes, introducing necessity of planting 1. along plot border and irrigation canals natural and introduced 2. on the plots bigger than 70 ha.
- Regulation, supported by subsidies, for private land owners for planting 1. along plot border and irrigation canals natural and introduced 2. on the plots bigger than 70 ha.
- Fines for private land owners, Agricultural Market Agency and District Roads Administration for logging without replacement of new planting in period of 1 year.

Principle 2.3. Agroforestry and Silvopasture

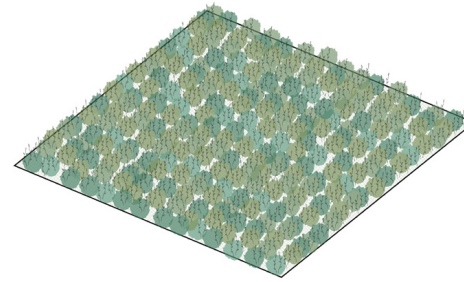


- Funding for experimental Agroforestry and Silvopasture lands, implementing also exception for description of agricultural / forest land use regulations.

Principle 2.4. Land Use Change

policy time evolution

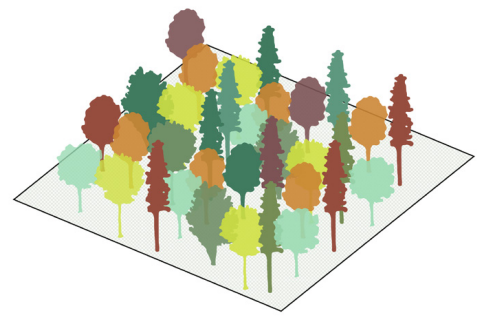
- Subsidies for introducing short-rotation forest and non-crop planting.
- Introducing greening elements first by subsidies of an Ecological Focus Area (EFA).
- Expanded subsidizing of greening elements - Ecological Focus Area (EFA), based on European Union Common Agricultural Policy.
- Regulating demand and subsidizes of land use change in case of soil quality below set conditions.



Principle 4.1 Forest Renewal

policy time evolution

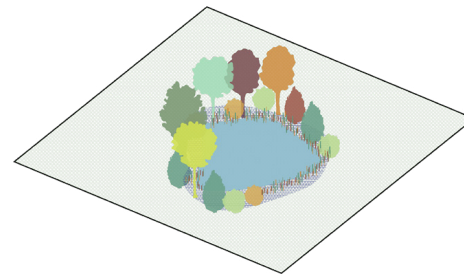
- Limiting subsidies supporting maintenance of wastelands, limiting subsidies for the grass mowing.
- Facilitate transformation of agricultural or wasteland into categorization into forest one. Removal of policy allowing for land transformation only after 20 years period of ongoing natural succession.
- Removing fines for temporal afforestation's for land with middle of low soil quality.
- Subsidies for private afforestation. Introducing possibility of knowledge and malignancy support form State Forest site.
- Regulating State Forest actions by limiting amount of logging. Introducing more strict 'compensating' regulation, forcing to plant more trees than logged ones.
- Regulation of Forest Management Plan, the State Forest document (*Plan Urządzenia Lasu*). Introducing demand of public consultation and acceptance of National Water Management Authority and The General Directorate for Environmental Protection representatives.



Principle 3.2 Water collecting

policy time evolution

- Removal of regulation making obligatory draining the rain water into public sewage system.
- Subsidizing revitalization of existing ponds, ditches, canals water damns, especially valuing actions introducing infiltrating types of greenery around those elements.
- Regulating with subsidies expansion of field ponds and ditches, in coordination with The Agency for Restructuring and Modernization of Agriculture, combining with prescription of infiltrating greenery.



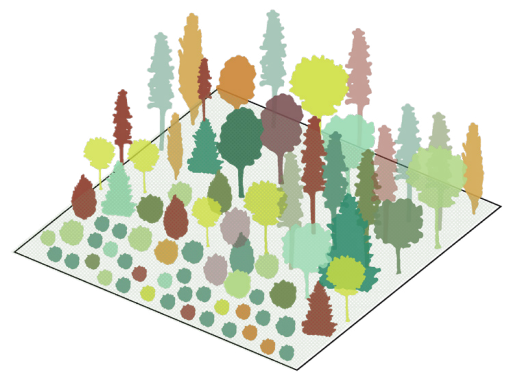
Other:

Horticultural production

In order to make high quality seedling more accessible readjustment of regulation talking nursery garden is necessary. Such regulation in Polish law have not been changes since 1957 (*Dz.U.57.31.138*) regulating the opening and quality of produced by National Nurserystock Association (*Związek Szkółkarzy Polskich*).

In such case highly influential would be:

- Cancelling taxation for nursery-garden production for list of trees, shrubs and herbs being original for each bioregion.
- In support of National Nurserystock Association making more accessible regulation for new entrepreneurs in order to open new production centres.



Szczecin - Załom

Example 3

Local problematics:

- Low land terrain, protected by maintained dykes, vulnerable in terms of influence of sea level rise – more hassling flooding.
- Low land, described as wasteland, are not used for agricultural purposes, controlled in terms of withholding natural succession.
- Uncontrolled single-family housing development (urban sprawl) on low land despite planning regulation banning it.
- Lack of services, efficient public transport and car infrastructure among already build structure, waging Szczecin city, as service provider.

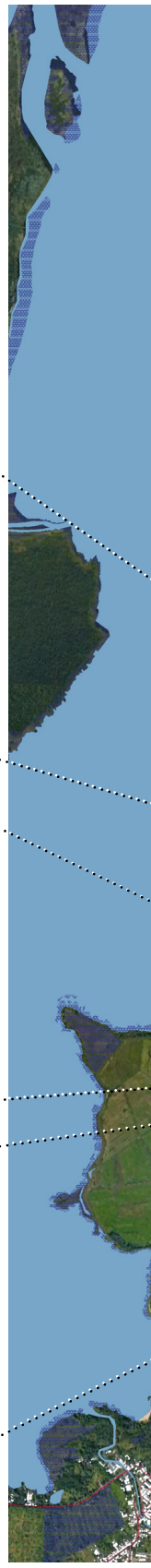
Positive characteristic:

- High ecological and picturesque landscape value, protected under, Birds Directive Sites (*Dolina Dolnej Odry*)
- Recently developed recreational bike roads along protecting dykes.
- Summer season recreational area for Szczecin City – beaches, fishing spots, recreational spots on meadows.
- Good train connection within Szczecin Metropolitan Area, especially with perspective of future, planned metropolitan railway development.

Figure 229. New single-family housing (source: author's own)

Figure 230. Szczecin's shipyard on the other river side (source: author's own)

Figure 231. Kasztanowe neighbourhood (source: author's own)



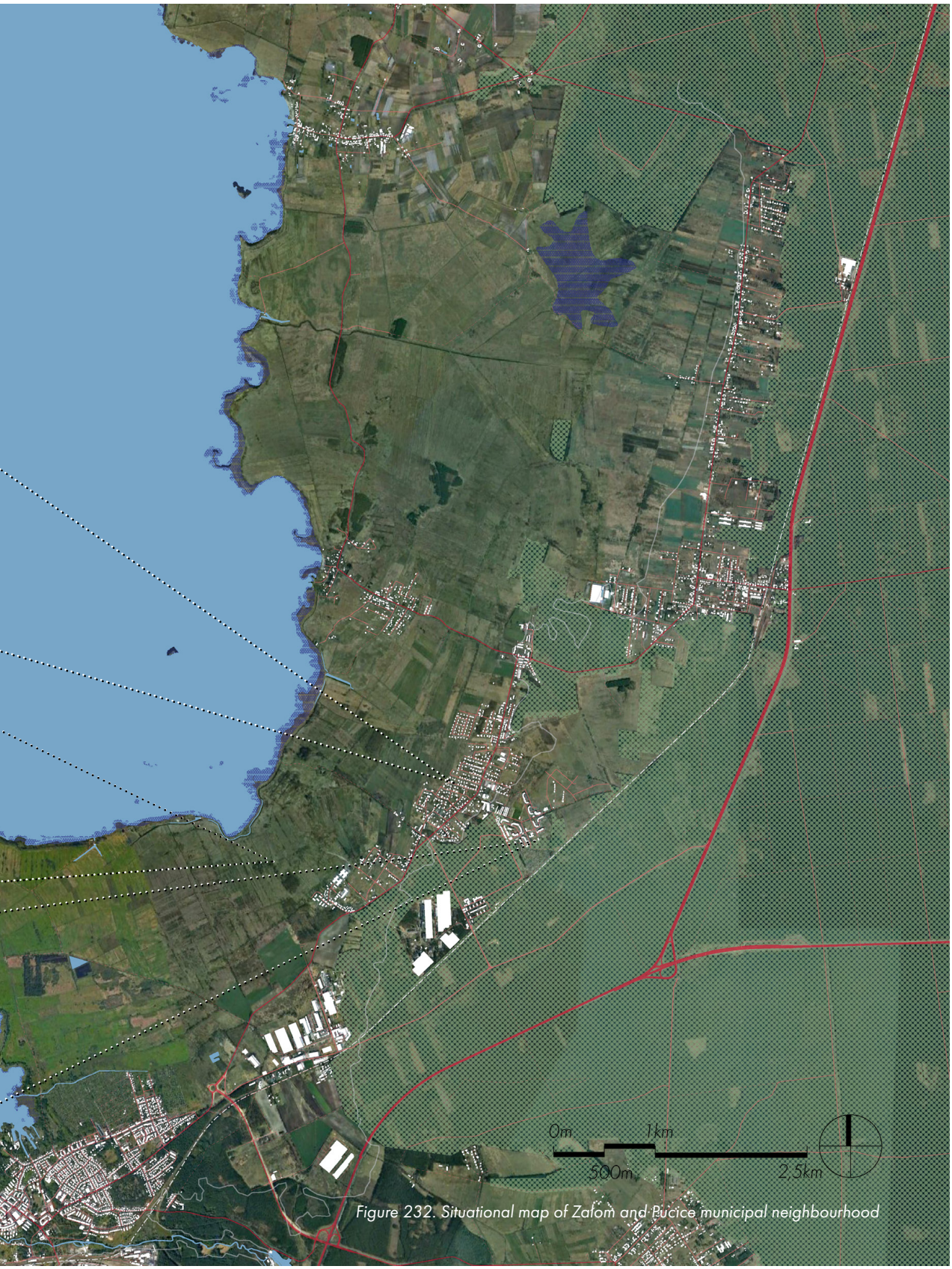


Figure 232. Situational map of Zalom and Pucice municipal neighbourhood

Actions

The third spatial intervention aiming for limitation of uncontrolled urban sprawl and revitalization of the wasteland. Nature 2000 directive pointing unique species on valuable green areas. In order to meet expectations of development needs and prevent expansion on flooding land, two major elements are proposed here. Introduction of Załom Park - spatially limiting development directed into low-land areas. Intervention for the balance proposing planned and controlled development in more safe areas, with better train-oriented connectivity.

Załom Park is the area design as patchwork of afforestation, on the waste land, with type of trees suitable for the local conditions, being based for further ecological adaptations. Afforestation's are design in way corresponding with landscape characteristic in the lower part (canal divisions) and soil type in higher. Firstly introduces planting could be also understood as testing elements for wet, low land, flood preventing.

Urban development at first pointing the infrastructural correction: creation of new road connected with demolishing of the old one to limit environmental impact. Land use plan contains also areas pointed in first principles and places for the common, areas pointed for services, and reserving land for buffer green zones along water canals.

Legend:

- Train station with 1 km radius
- Localization of Public Spaces - Commons with 1 km radius
- Proposed area for planned development
- Spatial limitation lines
- Existing dykes with touristic bike -lanes
- Redesign of existing municipal road supporting better connectivity
- Załom Park Area
- Existing forest
- 5m below sea level

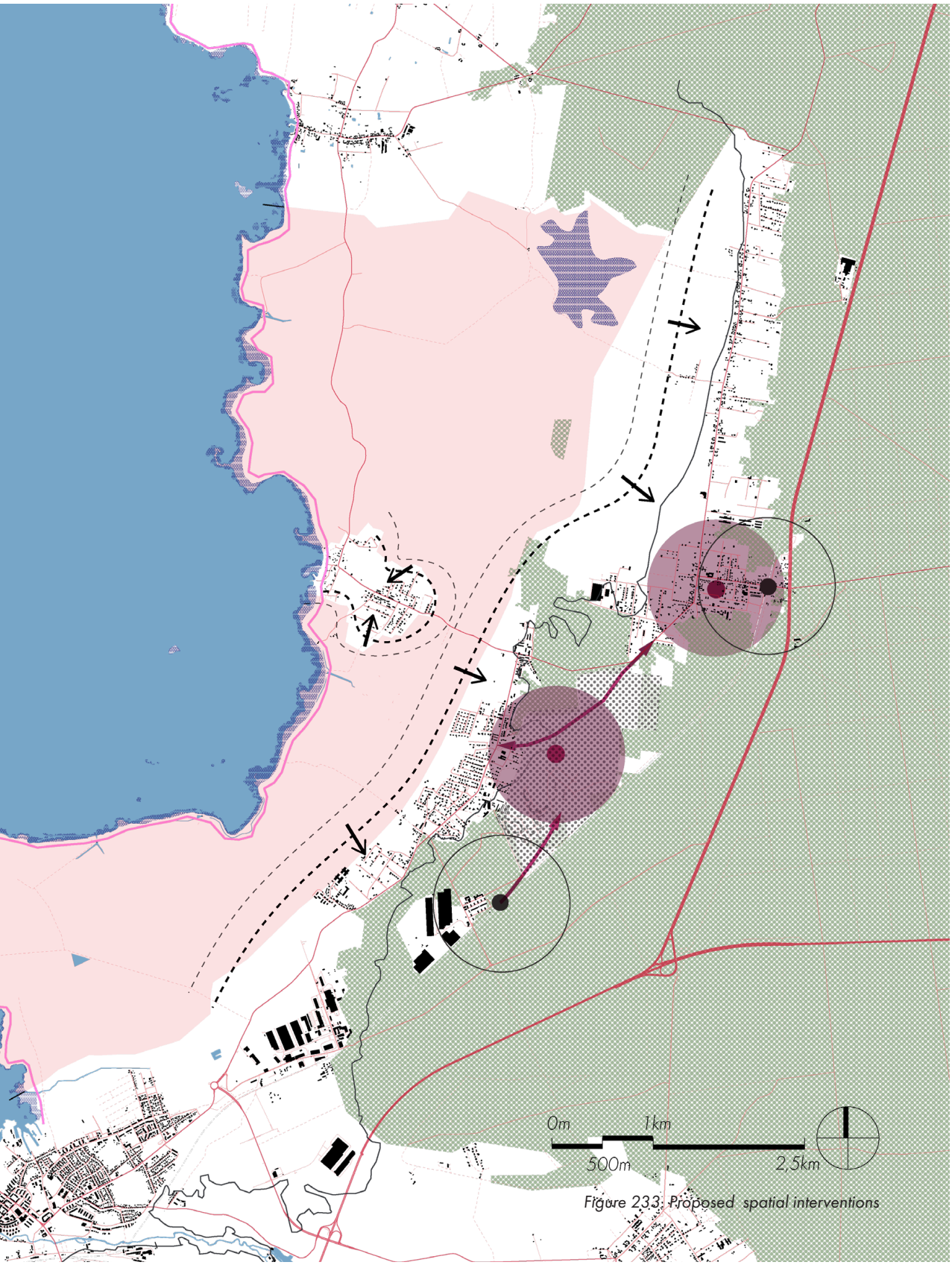


Figure 233. Proposed spatial interventions

Figure 234. Proposed landscape transformations

Figure 235. Impression of new afforestation creating park with view for Szczecin city

Legend:

Land use change into energetic willow

New afforestation

Land use change into naturalized meadows

Figure 236. Impression of planned development

Legend:

- Existing area design for the housing
- Proposed areas for the housing
- Proposed area for public facilities
- Proposed area for green buffer zones
- Proposed area for production facilities
- Demolished road
- Proposed new municipal road
- Example of housing types

Figure 237. Proposed zoning

The role of planning

Third design intervention bringing importance of spatial documents. Polish spatial planning law contain such documents, called Local Development Plans (*Miejscowy Plan Zagospodarowania Przestrzennego*). The authorities responsible for preparation of such plans are Local Planning Offices, submitting documents under acceptance of Mayors. Lack of these documents allowing land owners or developer for applying for exceptions, which are usually not coordinate with Municipal Development Strategies (as in case of Załom).

Because some areas are more vulnerable and characterised by bigger development pressure in order to control them, there is necessity of developing such document especially on those areas. Following that Regional Planning Office should define 1. which areas are the most prioritized in terms of creation of such documents and 2. basic regulation such plans should contain (land use, density, parking descriptions, infrastructure or biological active surface).

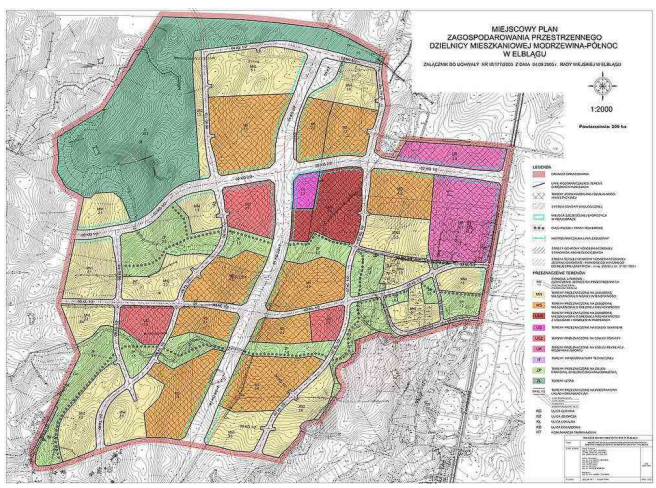


Figure 238. Example of Local Development Plan - Local Zoning / Land Use Plan, Elbląg (source: morizon.pl)

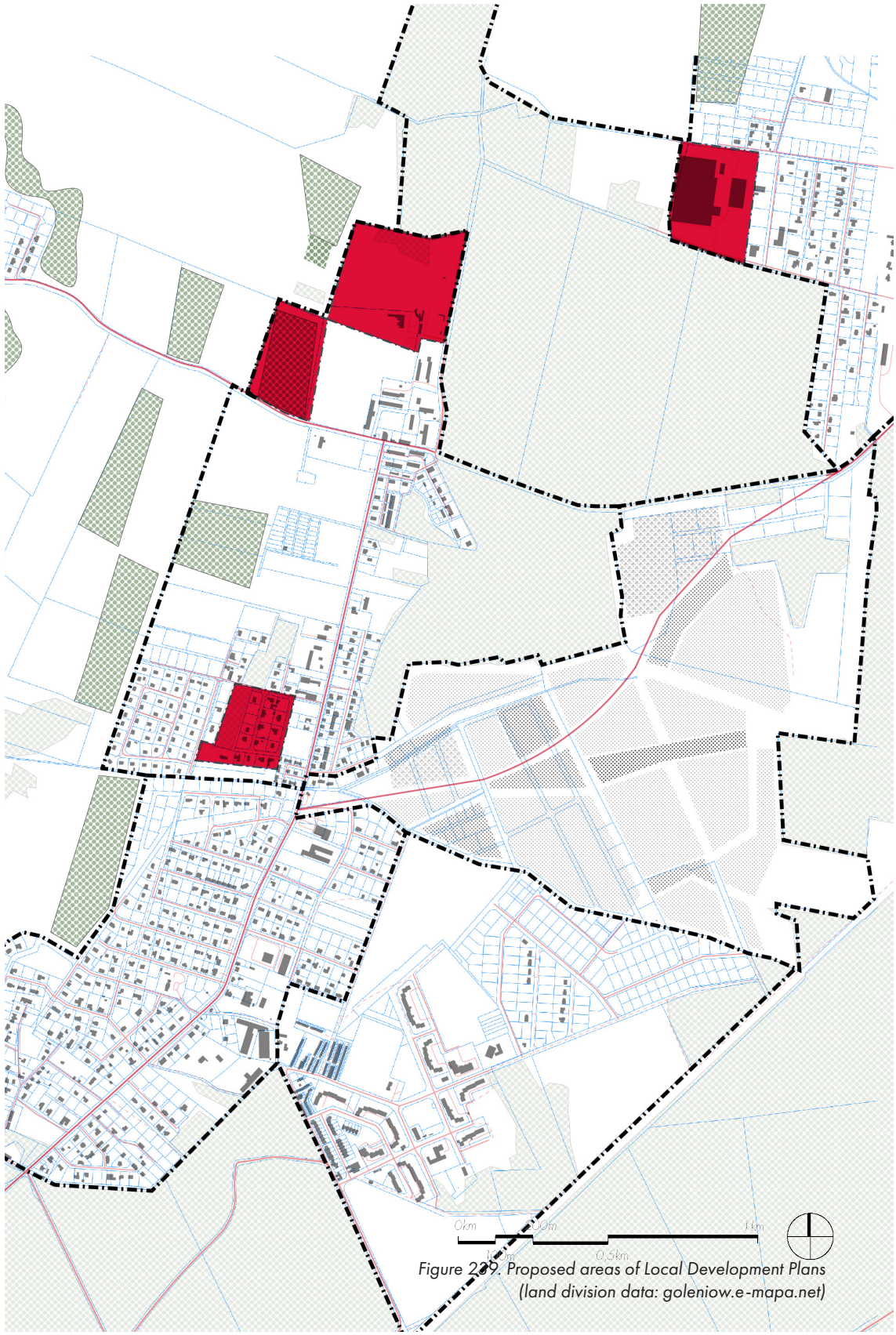
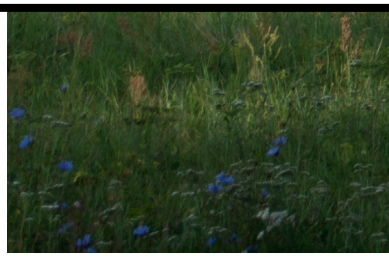


Figure 229. Proposed areas of Local Development Plans (land division data: goleniow.e-mapa.net)

7. Implementation



source: author's own

Polish spatial planning

Polish Spatial Planning is characterized by strong hierarchical structure in terms of special development strategies. Starting with The National Spatial Development Concept 2030 (NSDC 2030) following it Regional and Municipal documents are developing National vision in local level. National Concept defining objectives and spatial division for functional zones: urban, rural and external, special zones (coastal zone for example). Urban zones, localized mainly around metropolitan areas of big second or tier cities have their own sub-local strategies integrating municipal development around.

The most important element, giving real control on the land use, or possible development, is placed on the end of presented (Figure 241) hierarchy: local development plan (*Miejscowy Plan Zagospodarowania Przestrzennego*). It indicates, in the most in basic, local land use regulation. In the more developed version, worked as simple version of masterplan, including more complex elements like build up line, maximal cubature, material specification or restriction biologically active surface.

However, the biggest problem of the document is simply lack of it presence on the territory. Only 30,5% of Polish territory is covered with these documents. West Pomerania Voivodeship as working area is placed even much more beyond national average: 19,3%. Lack of this document making local investments or spatial development not coordinated with regional or national vision, when building permit, or land use change licensing are issue by local mayor, that might agree to change decisions of Municipal Development Strategy. Lack of sufficient coverage of local development plans is usually pointed as main reason of Polish spatial chaos.

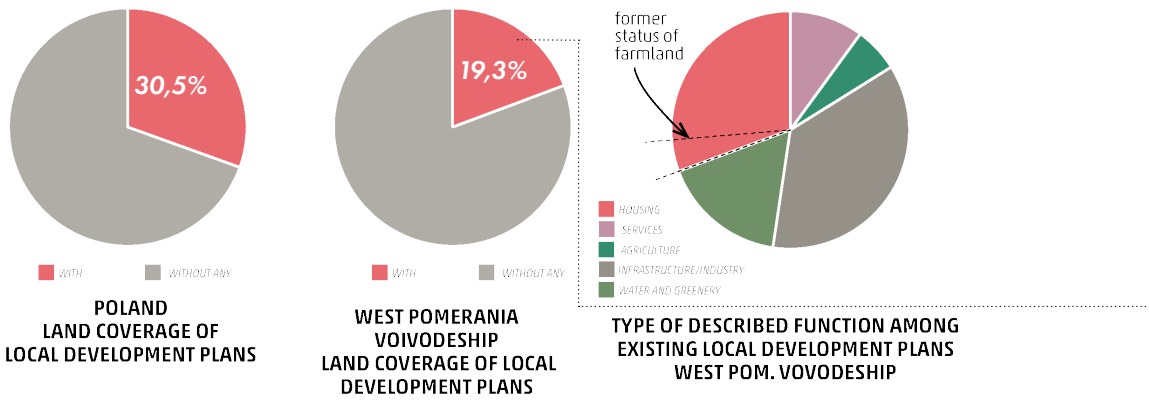


Figure 240. Local conditions of planning regulation (source: Śleszyński P., Deręgowska A., Kubiak Ł., Sudra P., Zielińska B., 2018, Analiza stanu uwarunkowań prac planistycznych w gminach w 2017 roku)

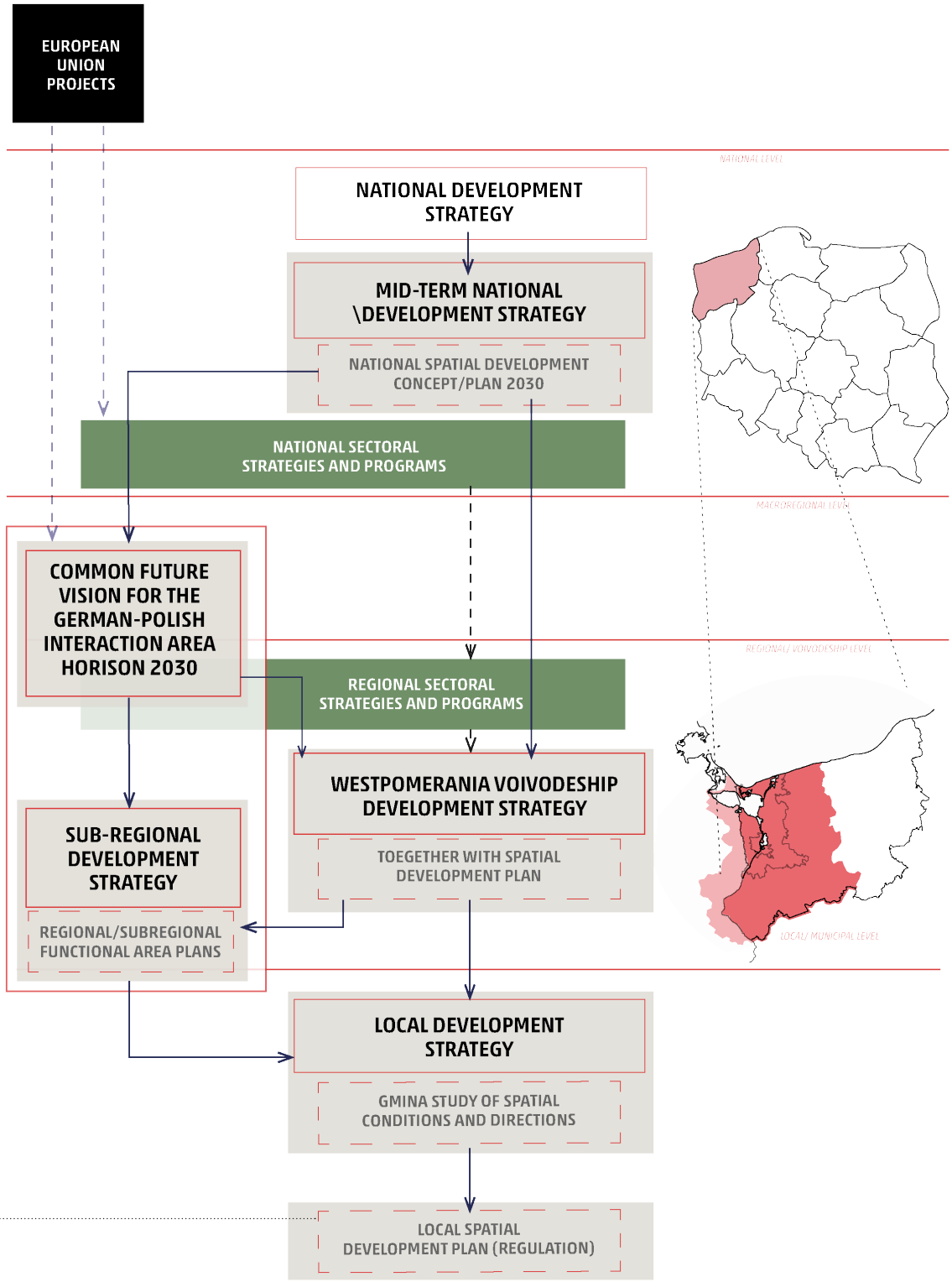


Figure 241. The hierarchic planning system in Poland
(source: own interpretation, based on National Spatial Development Concept 2030)

Proposition

Beyond national development concept, ongoing, temporary sectoral programs and strategies are directly not included or updated in development special strategies. Futhermore, are often not coordinated spatially among sectors on different administrative scales as well.

As an answer for the gaps in Polish Spatial Planning system presented in previous chapters strategy has an aim to work as cohesion policy, integrating sectors and its projects important for socio-ecological adaptation. Proposed Bioregional strategy is extended on the area beyond functional division pointed in NSDC, introducing objectives and principles demanding actions beyond this division. Because of not efficient, and long-lasting preparation time, strategy, introduce as a time buffer, helping in transition and multi-stakeholder coordination from regional into local.

Strategy introduced as testing co-ordination element, aiming for education, and cooperation platform. Main element of strategy, introducing local innovation centres, as based for sub-regional strategy is also used as 'testing planning regulation' building solution for not sufficient planning regulation.

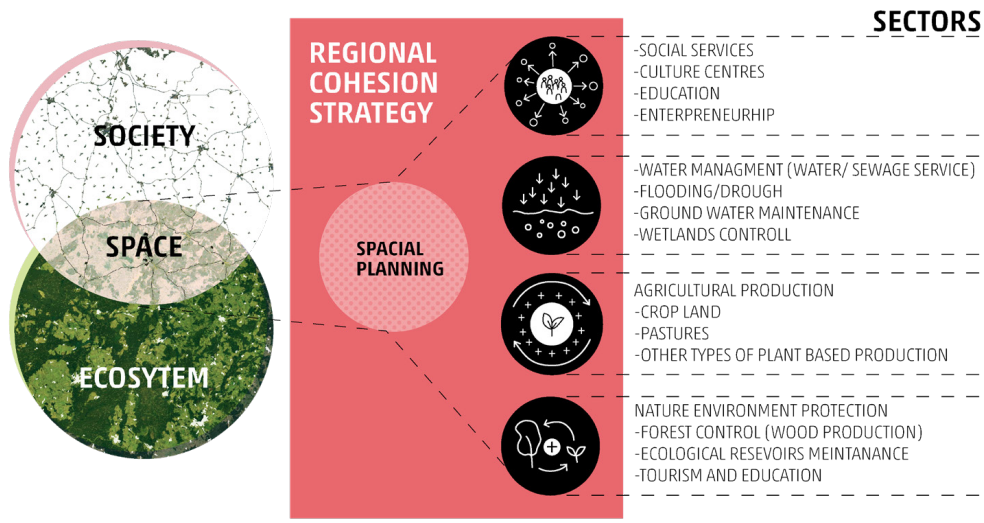


Figure 242. Design principles being the response for each sectoral management

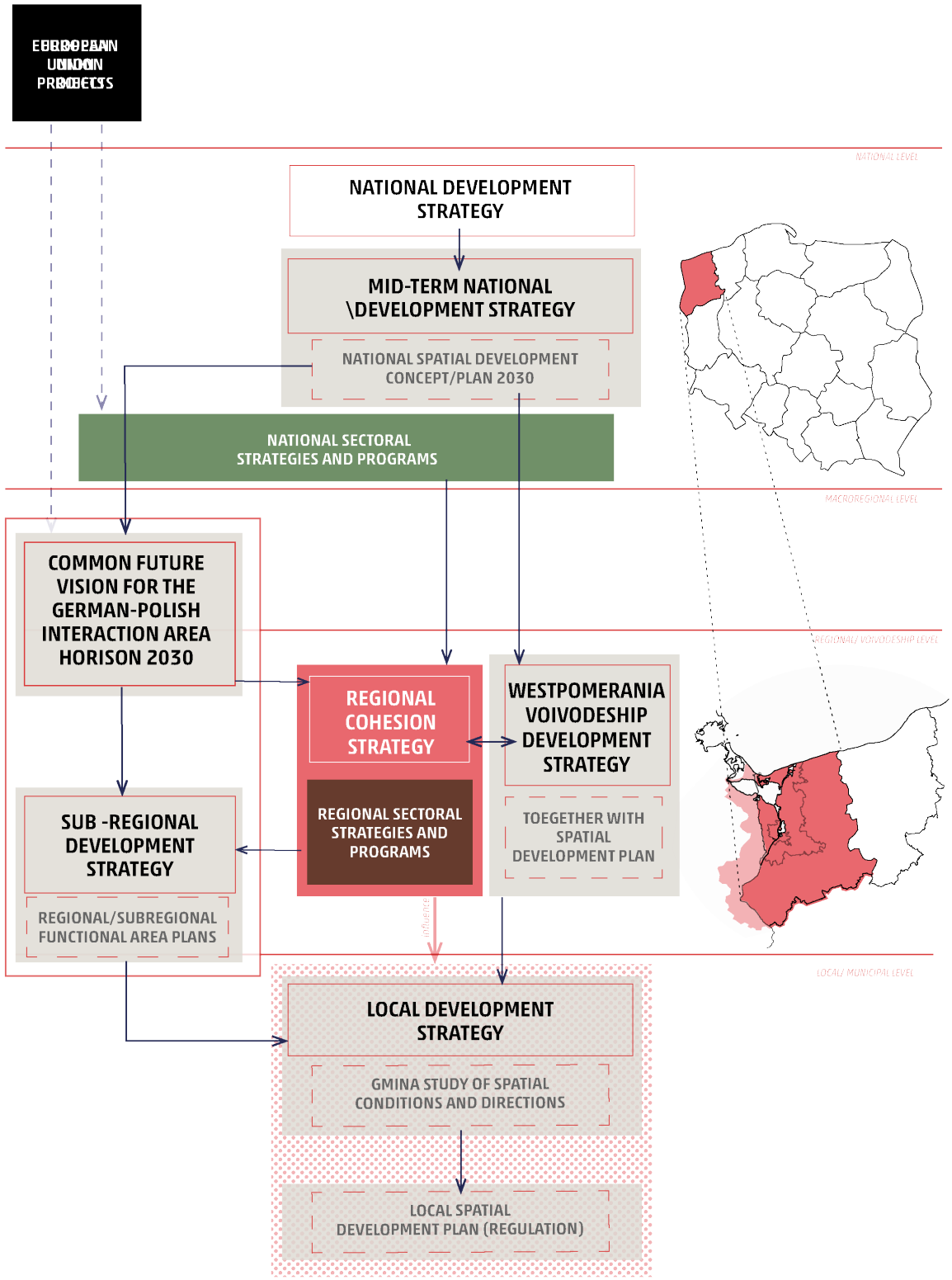
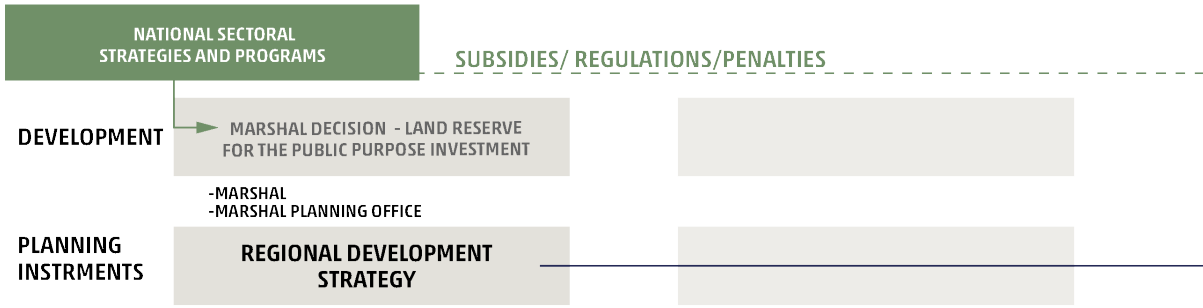
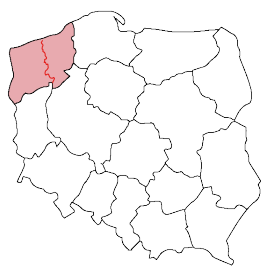
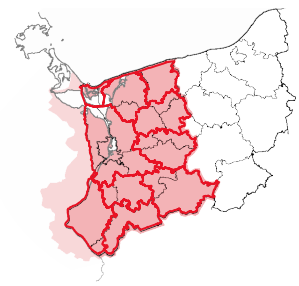


Figure 243. Placement of project strategy in general system overview. Number of the spatial intervention referred to need of spatial regulations







Regional level
(województwo/voivodeship)

- Defining regional objectives and development principles
- Coordinating sectoral programs and strategies

Sub-regional level
(powiat/country)

- Basing on design principles, developing sub-regional strategies, on pointed location for innovation centres and areas for must-have Local Development Plans
- Sub-regional strategy being communication and education platform
- Planned time frame for transition into more bottom-up management

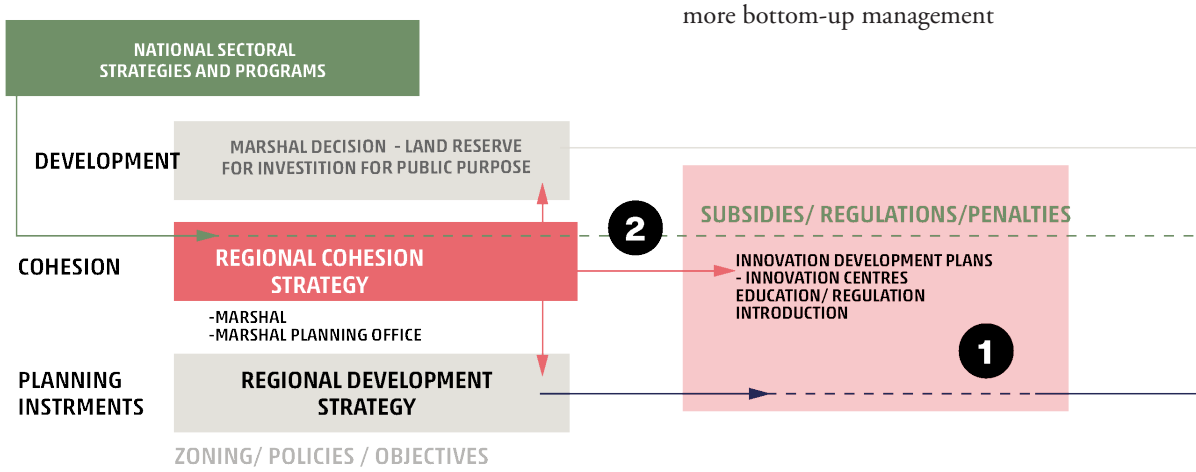
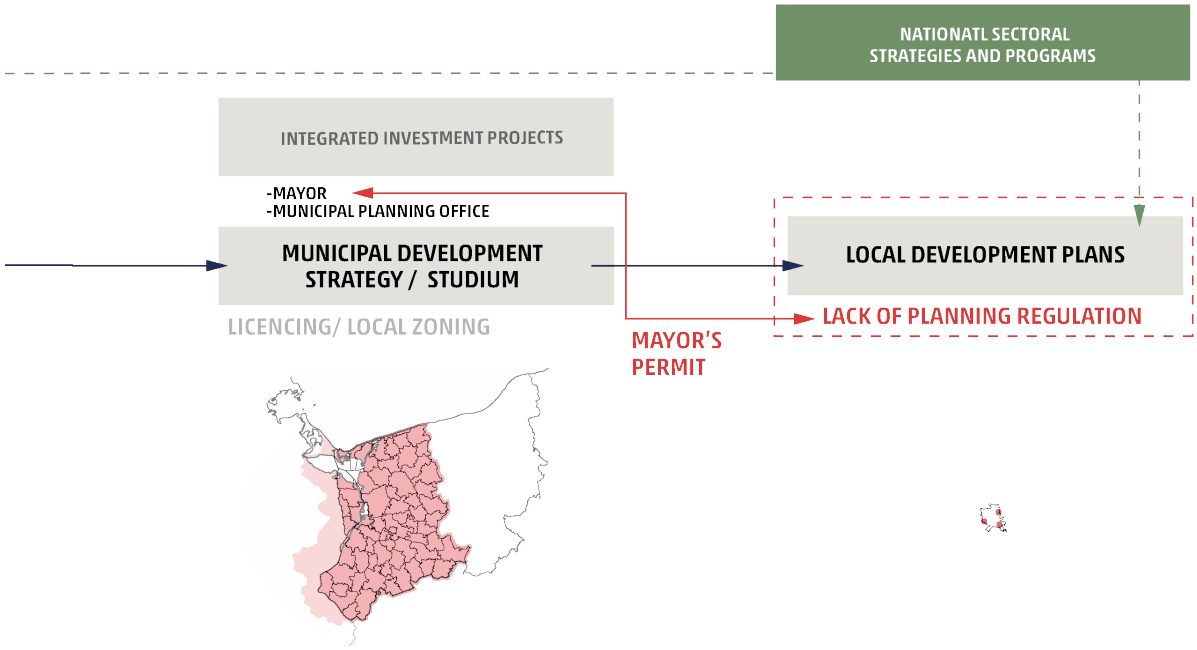


Figure 244. Existing schematic explanation of spatial procedures



Municipal level
(municipality / gmina)

- Preparing detailed Municipal Development Plans and must-have Local Development Plans
- Rising legal value of the Municipal Planning Office

Local level
(Site)

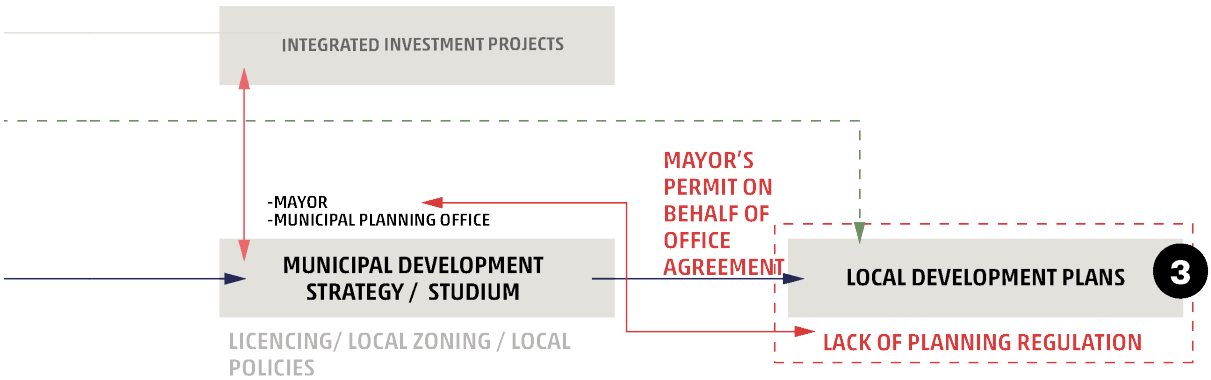


Figure 245. Proposed placement of procedures/ governmental bodies introducing cohesion (Numbers representing each example of spatial intervention form chapter 6)

Sectoral actors - different types of involvement

International

European Commusion

- i.1 European Environmental Agency (EEA)
- i.2 European Agricultural Fund for Rural Development (EAFRD) *(Europejski Fundusz Rolny)*
- i.3 European Regional Development Fund *(Europejski Fundusz Rozwojowy)*
- i.4 German-Polish Governmental Commission for Regional and Cross-Border Cooperation *(Polsko-Niemiecka Komisja Gospodarki Przestrzennej)*

National

- n.1 Agricultural Market Agency *(Krajowy Ośrodek Wsparcia Rolnictwa)*
- n.2 State Forest *(Lasy Państwowe)*
- n.3 National Water Management Authority *(Państwowe Gospodarstwo Wodne Wody Polskie)*

Ministry of Environment *(Ministerstwo Środowiska)*

- n.4 The General Directorate for Environmental Protection *(Generalna Dyrekcja Ochrony Środowiska)*
- n.5 National Fund for Environmental Protection and Water Management *(Narodowy Fundusz Ochrony Środowiska i Gospodarki Wodnej)*

Ministry of Agriculture and Rural Development *(Ministerstwo Rolnictwa i Rozwoju Wsi)*

- n.6 The Agency for Restructuring and Modernisation of Agriculture *(Agencja Restrukturyzacji i Modernizacji Rolnictwa)*

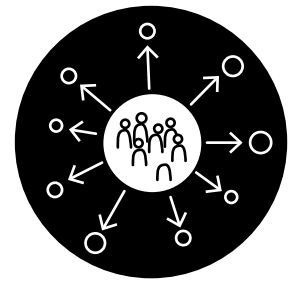
- n.7 Ministry of Family, Labour and Social Policy - Departament of Social Economics *(Ministerstwo Rodziny, Pracy i Polityki Społecznej - Departament Ekonomi Społecznej i Solidarnej)*

knowladge support / coordination with · *financing* · *implementation* · *inspection*

○ *planning authorities* ..... *body of*

Interest and power

Principle 1: Strengthening Social Infrastructure



First principle being responsible for strengthening social infrastructure combine involvement of various type of stakeholders from planning to governmental bodies. Introduced Regional Social Development Agency covered interests of Department of Social Economics (Ministry of Family, Labour and Social Policy), but also Marshal Office of the West Pomeranian due to Exclusion Zones. Agency, as testing body, being responsible for local networking, supporting education and networking would automatically have less power that national ones.

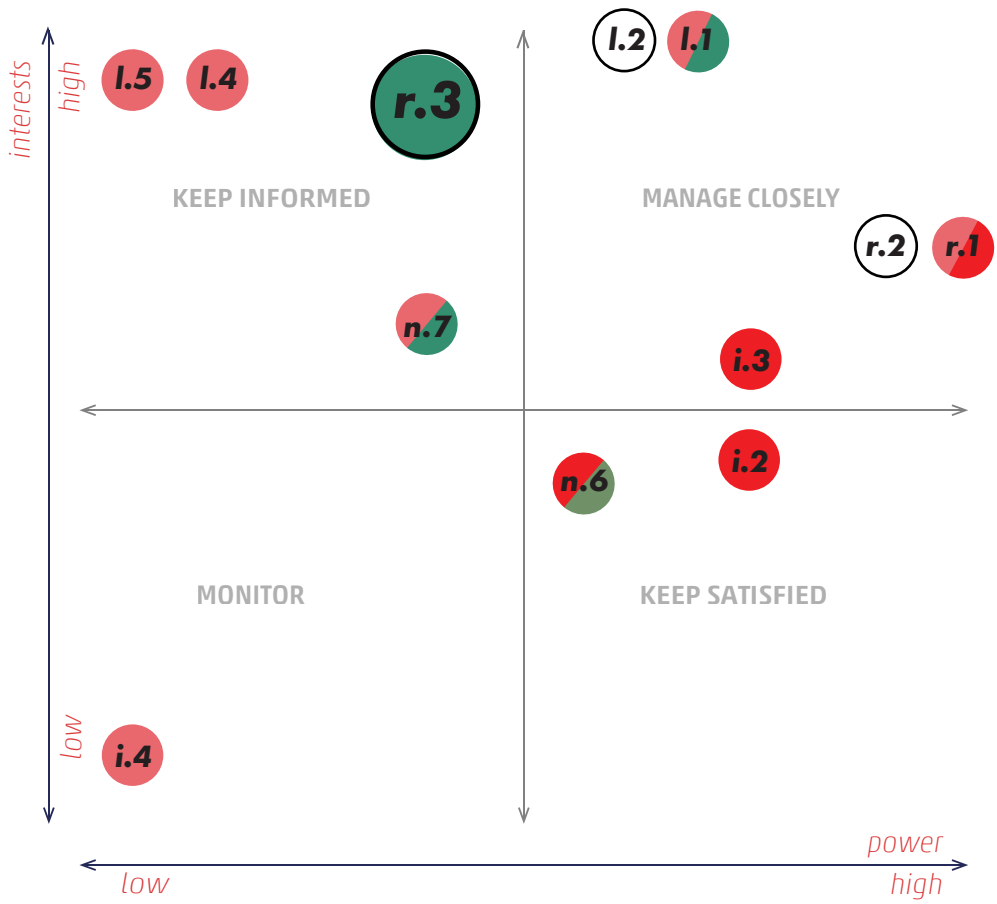
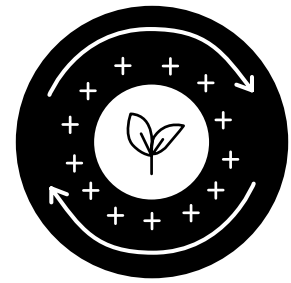


Figure 246. Interest and power chart - principle 1

Interest and power

Principle 2: Regenerating the Production

Second principle demand strict cooperation of Agricultural Market Agency and The Agency for Restructuring and Modernization of Agriculture (being Ministerial body). The most influential stakeholders are the ones responsible for founds, however organizations monitoring quality of implementation are also present as points of control.



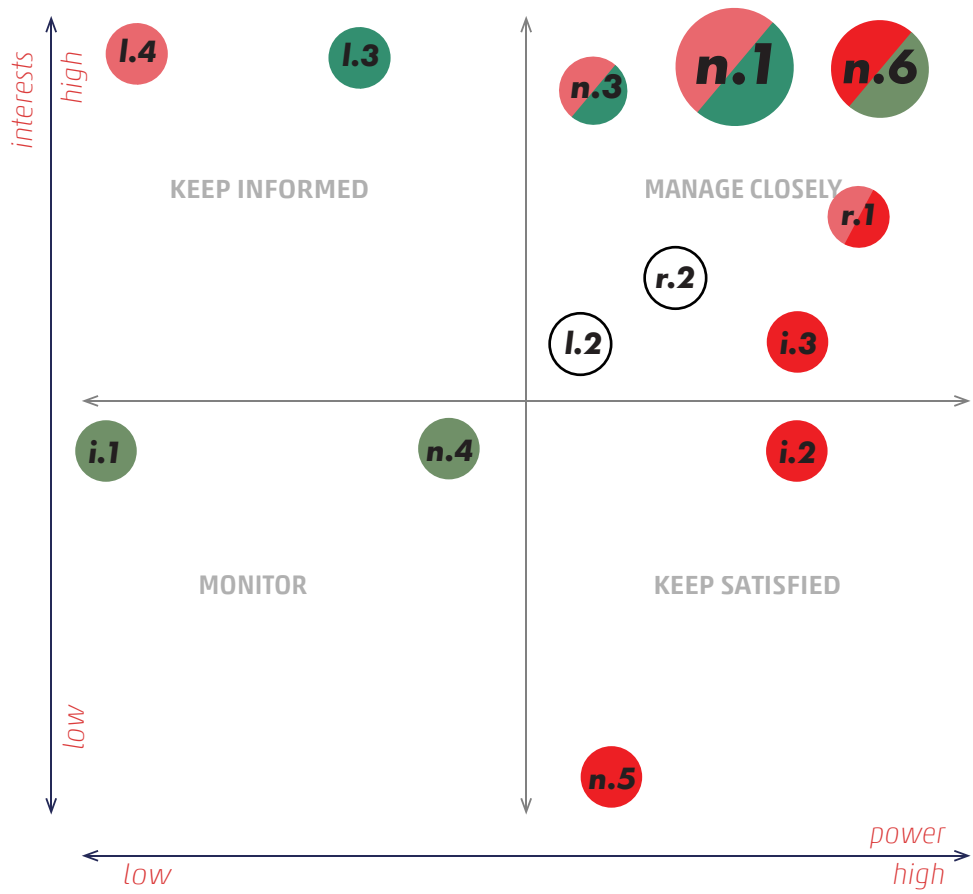
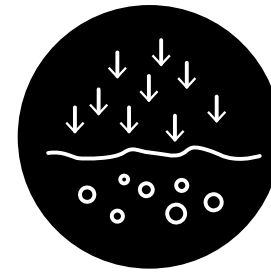


Figure 247. Interest and power chart - principle 2

Interest and power

Principle 3: Rising absorption capacity

In order to improve water collection capacity National Water Management Authority together with National Fund for Environmental Protection and Water Management would and should have the highest interest and power. Supporting interested organization are balanced by spatial planning offices on regional and local level coordination implementations.



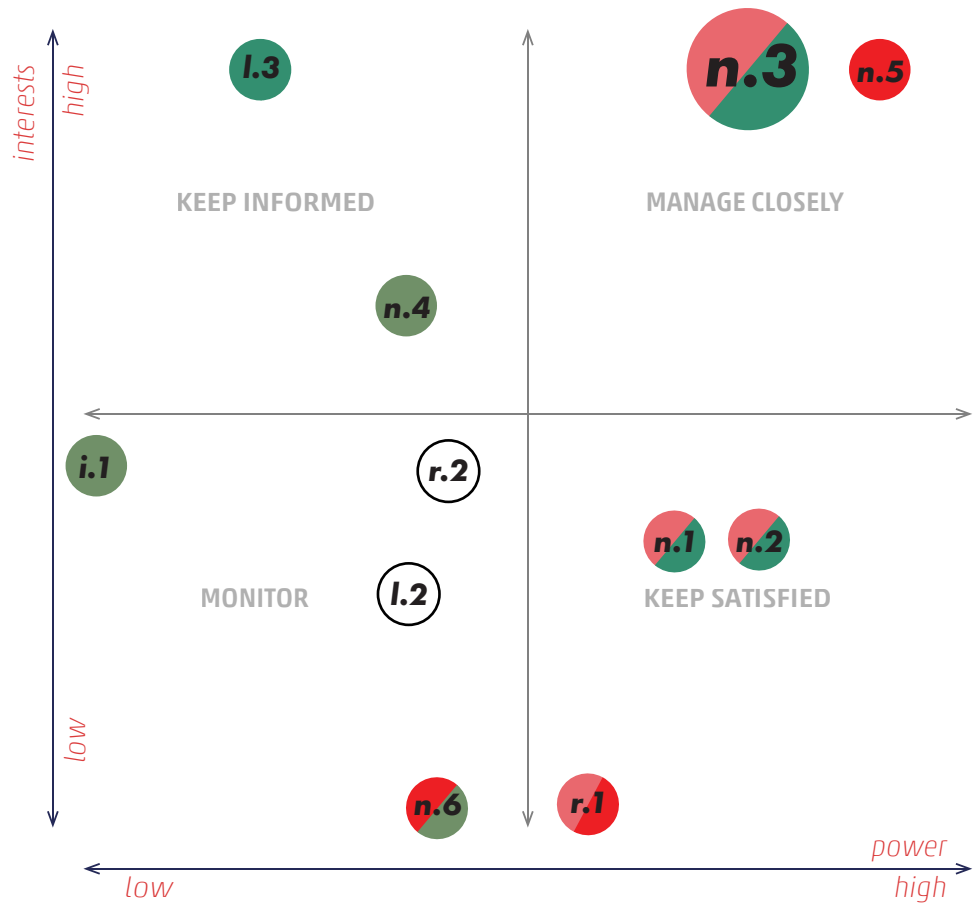
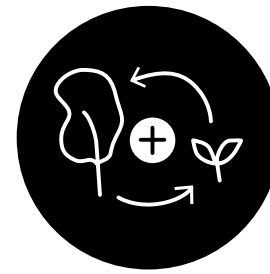


Figure 248. Interest and power chart - principle 3

Interest and power

Principle 4: (RE)Creating Protected Areas

The fourth principles, revitalizing and protecting natural land with industrialized forest will demand involvement National Forests at first. However, because National Forest are now on behalf of Polish State Treasury, not being controlled by any Environmental organization, important is to have more powerful element above: in this case National Fund for Environmental Protection and Water Management as part of Environmental Ministry. Present controlling organization have here also big interest in proper introduction of the principle.



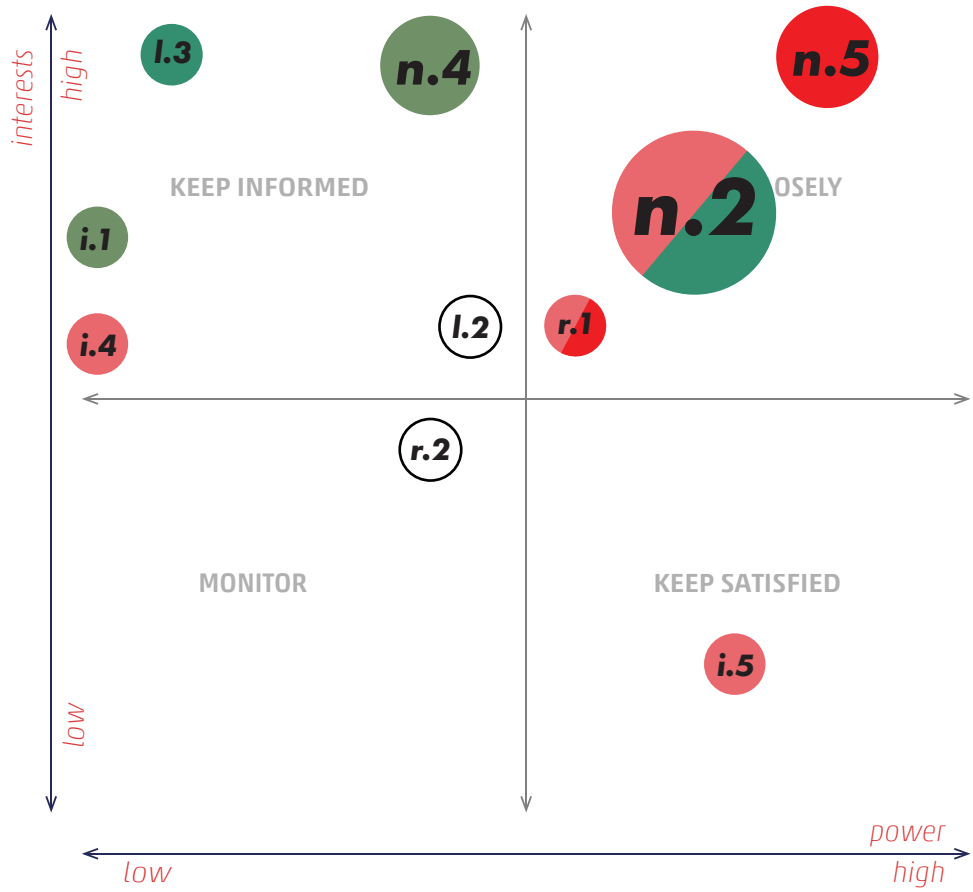


Figure 249. Interest and power chart - principle 4

Agenda and policy transformations

IIn order to achieve expected outcomes, supporting development of social capital, educating locally, coordinating changes on local level, there is need of introducing developed to that Regional Agency. Existing governmental bodies are dedicated its sectoral knowledge and its transformation would demand too time-consuming changes. From non-governmental side there is lack of strong NGO's or associations being able for now to handle co-ordination responsibilities and have legislation capacities. Because of that Regional Agency of Social Development, as interdisciplinary office would develop innovation centres, being able to distribute developments, coordinate and control on sub-regional level implementation of principles.

Also, the Agency would be responsible for monitoring and reporting need of policy adjustment having contact with local associations and communities. Supporting rise of communize and strengthen their capacity is 'experimental' transitional body into more citizen-oriented regulation body.

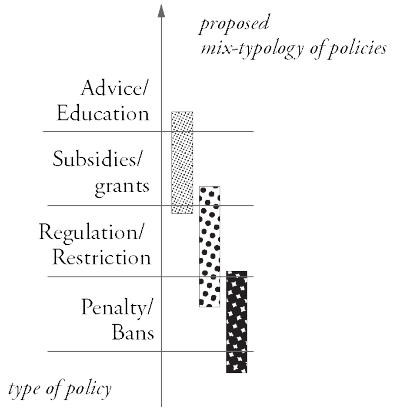
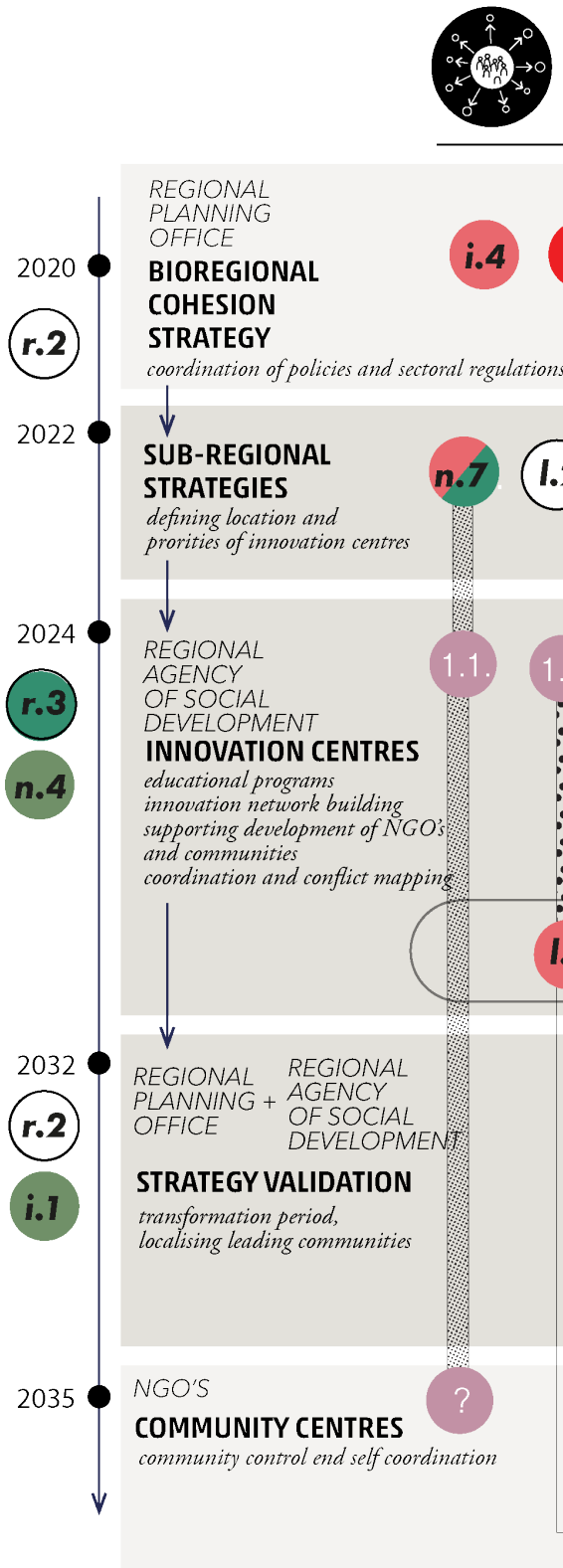


Figure 250. Proposed evolution of policies during project development



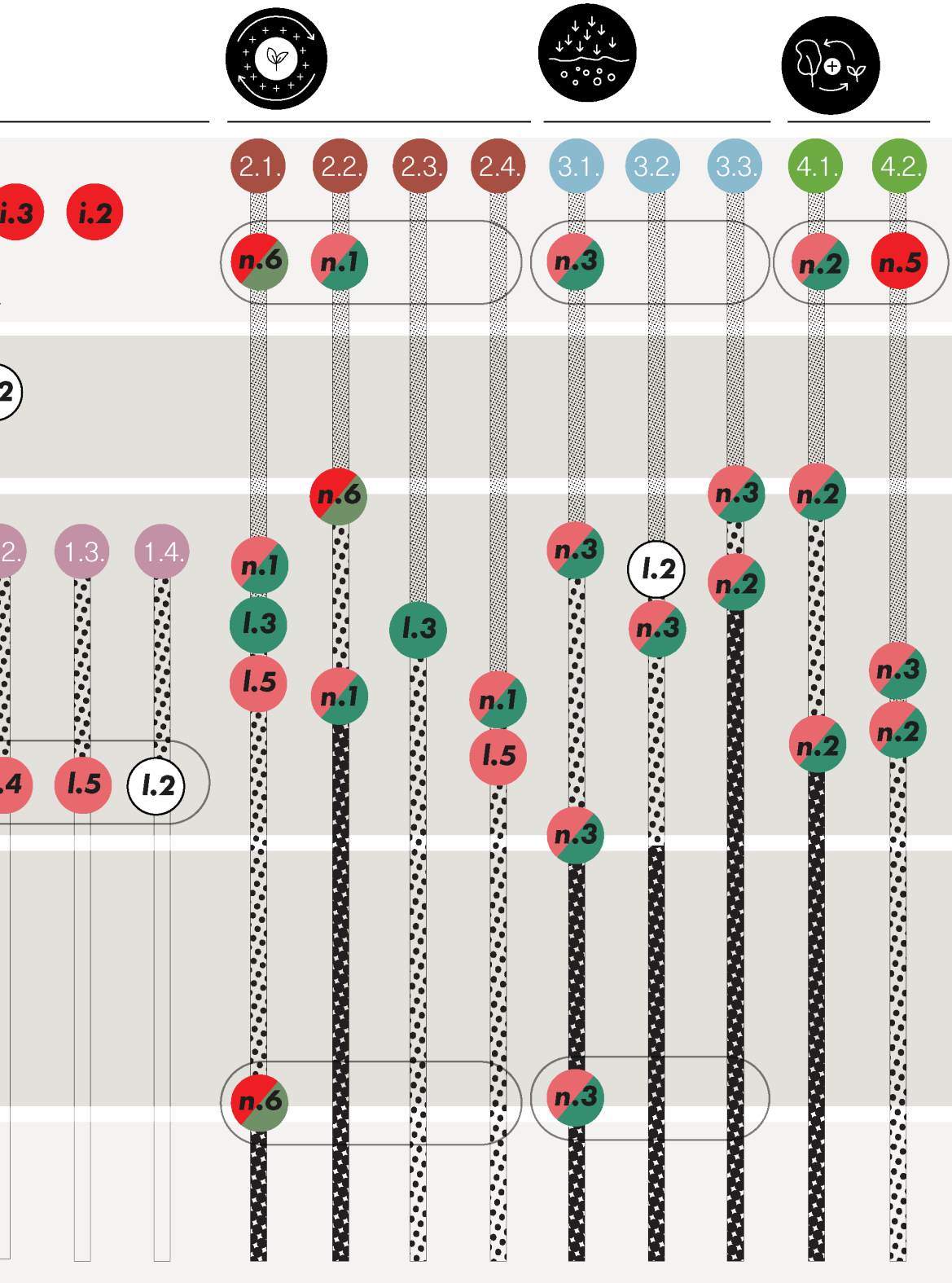


Figure 251. Stakeholders involvement -agenda

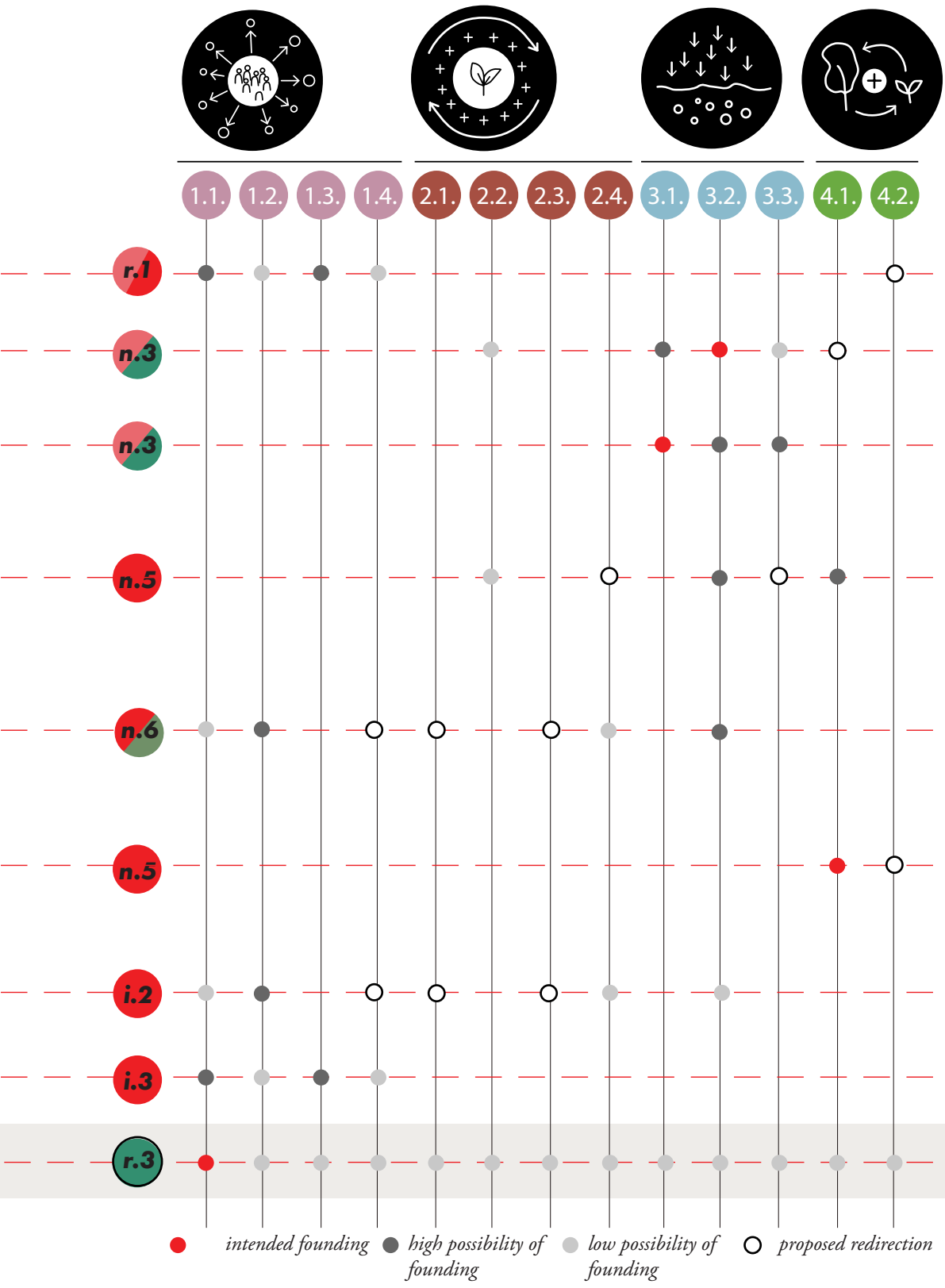
Existing funding programs

There is plenty of already existing, national and international cohesion policies, supporting sectors connected to the strategy. Programs, listed in the right, are characterized by short expiration date (2020 or 2030) what is a good argument towards introducing their extension through Cohesion Strategy. Some programs, are strictly dedicated to only one spatial element, while others are general funding based on national or international objectives.

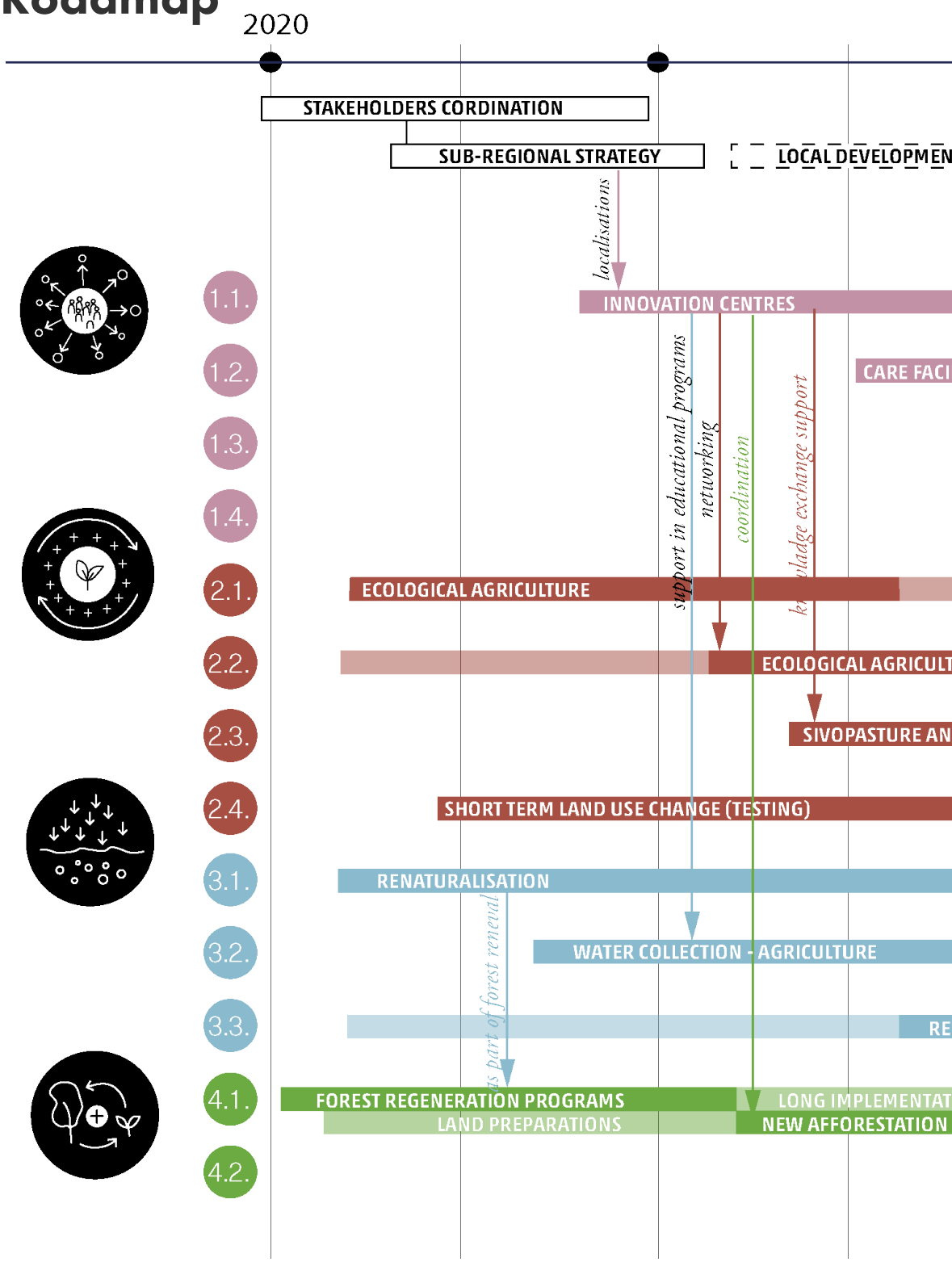
Table on the right (Figure 252) assigning existing programs/ funding, having high probability of future extension, to Design Principles described in this strategy. Thanks to that there have been localized funding gaps, might be coordinated by redirecting funding in programs with similar objectives.

Taking into account planned Innovation Centres, its co-ordinational and functional purpose, created temporal Regional Agency of Social Development demand its founding background as well. Because of that, on the end of the list, new founding program have been added, supporting at the first working conditions and possibilities of the Agency and at the second having supporting background for listed Design Principles.

Figure 252. Sectoral founding programs with assignment to design principles proposed in strategy


1.1.
1.2.
1.3.
1.4.
2.1.
2.2.
2.3.
2.4.
3.1.
3.2.
3.3.
4.1.
4.2.
r.1
n.3
n.3
n.5
n.6
n.5
i.2
i.3
r.3
intended founding
high possibility of founding
low possibility of founding
proposed redirection

Roadmap


2020
STAKEHOLDERS CORDINATION
SUB-REGIONAL STRATEGY
LOCAL DEVELOPMEN
localisations
1.1.
INNOVATION CENTRES
1.2.
CARE FACI
1.3.
1.4.
support in educational programs
networking
coordination
knowledge exchange support
2.1.
ECOLOGICAL AGRICULTURE
2.2.
ECOLOGICAL AGRICULT
2.3.
SIVOPASTURE AN
2.4.
SHORT TERM LAND USE CHANGE (TESTING)
3.1.
RENATURALISATION
3.2.
WATER COLLECTION - AGRICULTURE
3.3.
RE
as part of forest renewal
4.1.
FOREST REGENERATION PROGRAMS
LONG IMPLEMENTAT
LAND PREPARATIONS
NEW AFFORESTATION
4.2.

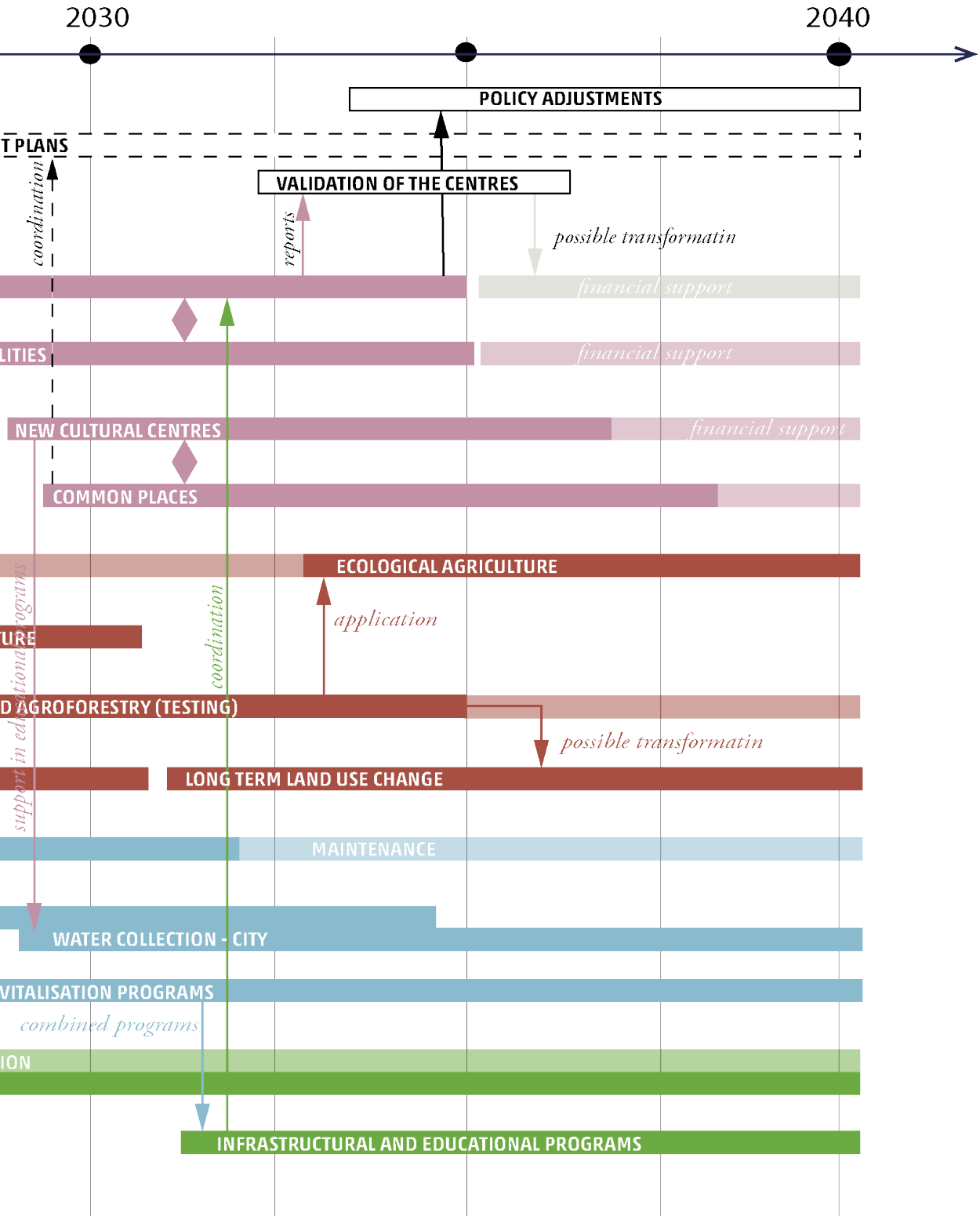
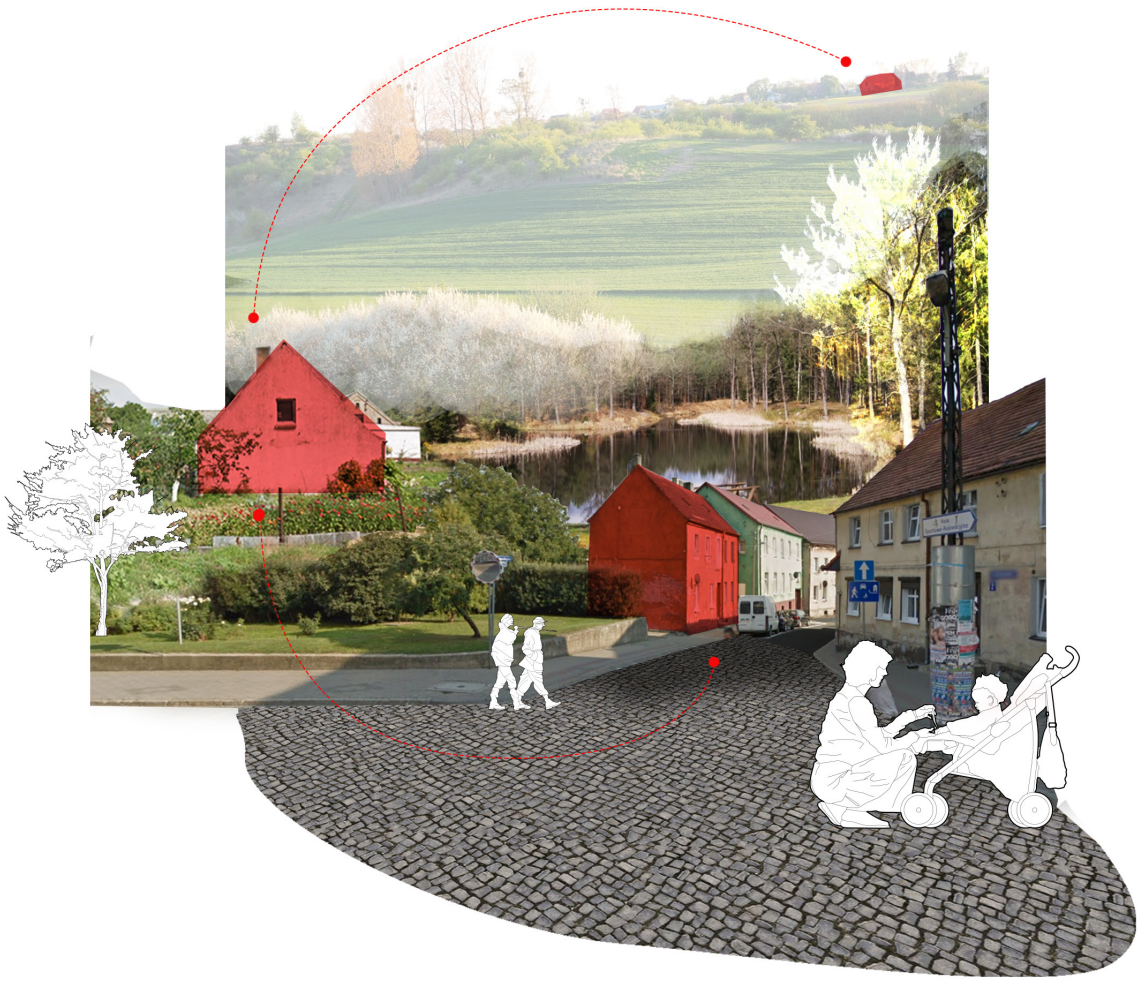


Figure 253. Project roadmap

8. Conclusions and reflections

"What is dark ecology? It is ecological awareness, dark-depressing. (…) No one likes having their unconscious pointed out, and ecological awareness is all about pointing out."
Dark Ecology: For a Logic of Future Coexistence
Morthon (2016)

Monocultural industrial forests (villiage Strumiany and Ina river), source: Google Earth



Conclusions

Answer for the research question

Until what extent bioregional spatial planning, by answering the local social problems and ecological challenges, can give the alternative framework for strategy beyond growth for the peripheral region, Szczecin functional area, Poland?

Growth paradigm, and believe in infinite economic growth with the neglect of development for other factors, is clearly visible in all aspects of spatial management on the area. Visible in regional management: agricultural production, bigger and more efficient, beyond the care of environment; wood production, treating forests just as production place; social development, taking care of employment and GDP production rate. This, probably controversial conclusion, was personally overwhelming, through time making clear that bioregional strategy build in this project has no possibility to cross this thinking.

Theoretical background help rather to create transitional strategy, with better environmental recommendation, connecting it frailly with social infrastructure. Created strategy answer the most urgent ecological challenges in the area, what make it focus mostly on one problem, while social network, give the support to landscape transformation. Complexity of growth paradigm demand more developed strategy, taking into account much more layers (economy, infrastructure, care facilities, education systems, health system, housing system) than elaborated in this project. The complexity demand complex approach with connections between those layers. Thus, bioregional approach might build strategy beyond growth until extent of environmental policies, in the proper way including the society. This reflection has been also expressed among interviewed stakeholders.

Also, the interviews bring the impressions, that local environmental understanding is far away of awareness of socio-ecological connections. The approach, where humans are part of ecosystem and relay on it is remoulded on approach, where humans can exploit as much environment they can. This philosophical consideration on the meta background of the land management should not be treated negatively. Reflecting on the whole projects and theories, economic growth should not be treated as negative in itself. The elements that are really missing in the economic strategies, are oscillating on the management and equal distribution, taking care of surrounding ecosystems. What might help is the long term thinking in terms of profit, and planning including the benefits of all, where spatial planning have crucial role in terms of regulations.

1st Sub-research question

What are the main spatial characteristic of the bioregion and society on the local and regional level? How does it correspond with the ecological structure of the region?

The region can be described as low density patchwork of villages and towns with central Szczecin city, developing itself in the metropolitan borders. Urban structures of the majority of the towns and villages have not changed since centuries, occasionally spreading among its borders with detached housing. The urban settlements are the answer of determined geographical conditions transforming surrounding landscape full of small streams and lakes, characteristic for post-glacial land form. Bioregion, characterized by various forests, meadows, wetlands, have been transforming for the agricultural purposes, but also afforested in unsuitable areas for the purpose of wood production.

2nd Sub-research question

What are the major problems and challenges on social and ecological level on different scales?

Szczecin and its functional area, has been under national development pressure, in the same time with its own peripheral character repeating problematic vision of centralised one big city and vulnerable region. The biggest problems that the region is facing are concentrated in Social Inclusion Zone, areas struggling with range of problems: low unemployment level, lack of access to services, lack of public transport, social exclusion, low income and high level of families living in poverty. Reflected from the planetary scale, problematic of upcoming climate changes is visible problematic water collection, periodic flooding, overexploit soil and monocultural greenery, making the region less resilient.

3rd Sub-research question

What kind of spatial interventions would answer defined problems and challenges, allowing for future adaptation? How should them be introduced in the strategic way?

Strategy has been built on four major design principles, with listed type of exact spatial elements. First one building the network of different social functions among the region: 1. Strengthening social infrastructure, aiming for creating the space for common improvement. Next three of them focused on landscape transformation, helpful in future climate adaptation: 2. Regenerating the production (Diversifying local bio production, enhancing local distribution); 3. Rising absorption capacity (introducing the responsive water management to prevent the water shortage) and 4. (RE)Creating Protected Areas (changing approach to protected sites and building regional, biological identity). The strategic factor, where first one is helping to introduce rest three principles is helping to build the cohesion, by education, changing approach and building ecological awareness.

4th Sub-research question

What are local actors and stakeholders needed to be involved? In witch way and how they can benefit?

Sectoral bodies responsible for land management have been considered as the actors in designed strategy. Coming from national level, having the regional offices, have been nationally controlled by Polish ministries (Agricultural Market Agency, State Forest, National Water Management Authority, National Fund for Environmental Protection and Water Management and The Agency for Restructuring and Modernisation of Agriculture) Regional Planning Office has been assigned as major stakeholder, responsible for introduction of the strategy. Beneficial for all is definitely coordinative point of their actions, now not distributed equally.

5th Sub-research question

What kind of improvement in Polish spatial planning could be made for more successful governmental cooperation and social involvement? Until what extend those improvements are possible to introduce?

The strategy include recommendations in terms of national spatial planning system, with the overall reflections, that system needs more division: proper policies for landscape management and strict planning for urban areas. Proposed regional cohesion strategy supposed to review and combined sectoral policies having influence on the socio-ecological structure of the region. Together with the proposition of the funds' distribution on more decentralized way, have been evaluates as negatively by all the stakeholders. With negative attitude into any new policy changes, they argue that already functioning, often changing regulations took hectic, long time to be implemented. According to their words *one generation still need to pass, so we can learn how to cooperate in efficient way.*

Transferability

Reflection of the possible transferability of defined strategy should be divided into two parts. First part reflecting design principles as set of actions, second part, implementation model as guidelines for the planning system.

Design Principles

Design principles have been defined for the bioregion (green colour, Figure 254), described on the territory much more extended that the project area. Characteristic for the majority of the bioregion low density patchwork of rural and forest land use, allowing for the transfer of defined actions to the extent of bioregion characteristic.

The first design principle, aiming for strengthening social infrastructure has been answer for the local, peripheral relation under central Szczecin city. Because of that, transferability of this point can be relevant conditions, for example Social Exclusion Zones in other part of the voivodeship, as well as at other Polish territory closed in various circle of development.

Implementation model

The implementation model has been build based on Polish Spatial Planning system. Possible cohesion policy, combining sectoral works for the region can be applied in the other Polish regions with reflection to local administration habits. For this element, transferability of the concept seems possible on theoretical level, however after the stakeholders interview seems unwanted in any Polish municipality.

Concept

Conceptual framework, based on bioregional theory, helped to understand the conditions of local territory. Using it as conceptual framework can be helpful in basic introduction for analyses or projects with environmental focus on any kind of bioregion or land. However, seems as extremely helpful analytical tool for the peripheral territories, where due to activity on the environment, connection human-nature are still visible.

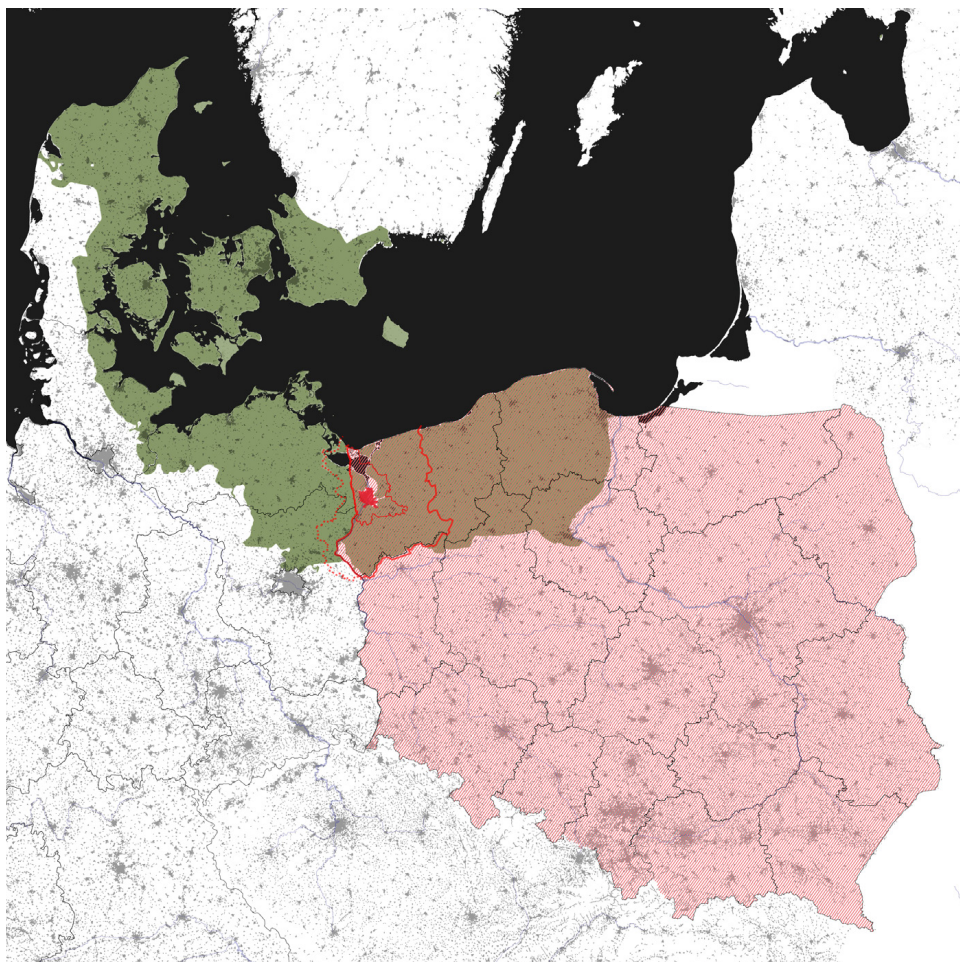


Figure 254. Possible territorial transferability

Relevance and ethics

Societal relevance

By aiming for socio-ecological cohesion on regional scale, the project is introduction not only way to build socio-ecological resilience but also generally understood spatial justice. Understanding of human-nature relation and following that action, especially protection laws, demand justification the rights among society but also nature.

For Polish context, the project is a reflection, emphasizing the importance of social action in spatial conditions. Poland, described by Jan Sowa following poet Witold Gąbrowicz, struggles with *the form* among its fundamental aspects, what reflecting on country management, law and governance. Reflecting on mentality and values, project proposing steps in order to strengthen social capital, citizenship involvement aiming for future coexistence in the light of self-reliance.

By stakeholders interviews, the project contributed as well for rising awareness about sustainability and needs for social adaptation, opening discussion for the problems and possible paths for solutions.

Scientific relevance

In September 2018 at European Parliament take place Post-Growth conference discussing set of ideas described at Degrowth Movement. One of the critics was its utopian character and lack of idea for spatial aspects of theories. Testing the possibilities of Bioregional spatial dimension is the trial of filling the knowledge gap, also answer the academical calls for strategies beyond growth for peripheral places (Ikerd, 2014; Leick & Lang, 2018).

Important element is also another scientific relevance for local, Polish spatial planning, that temporary brings escalating problems like fragmentation, unbalanced centralization, lack of resilience, exclusion and environmental harm. The answer for that problem is proposition for local conditions, including stakeholders cooperation and cohesion strategies showing alternative steps in spatial planning system.

Ethical considerations

Agreeing with environmentalists researchers I am aware that for succeeding, fundamental integrated systematic transformation but also cultural change is needed. That point of view tackling a lot of personal and cultural values, like competitiveness or aim for profit. Being against strong and major emphasis on economic development might be understood as of individual freedom. Almost philosophical is definition of natural environment and proper definition of the role of human beings in its transformation. I am aware that Degrowth theories and Bioregional strategies are controversial, mostly because of its different set of ethical values.

Polish mentality, with high respect for traditional values, in the same time contractionary struggling with social cooperation of respect for the commons, affected strategic decision. Prioritizing actions like education and network building should focus on showing support for traditional values do not neglect them.

Research limitations

Due to limited time and needed focus, there was necessary to narrowed range of actions, what influenced project through simplification. That, and also elements described below have an impact on the project development.

Language limitation

Language shape way we think (Boroditsky, 2001), how we do shape spatial laws or collect and organise information and data. Two major language barriers that are notice where based on different paradigms, what due to not develop bring language difficulties, especially during interviews. Starting on economic growth paradigm, using proper vocabulary for describing strategy aims seems highly problematic. Just the word *Degrowth* appear in human minds as ideology, bringing huge regress, what according to theoretical background is not about. *Development* as word could mean rapid spatial expansion, but also its simple *adaptation*.

Second difficulties is based on perception of urban-rural division. Following concept of planetary urbanisation (Brenner, 2016) describing constructed landscapes changing perception of social-nature relations aiming for coexistence and holistic actions, rejecting accepted division. Thinking about non-urban surrounding, specially present in polish nostalgic perception of *village area bringing human close to nature* should be replaced understanding that in reality its being constantly constructed and need adaptative future actions.

Data validation

Post-growth scholars pointing out incorrect approach of data validation focused on only economic measures that are hardly disconnected from real well being. Temporary GDP indicators, and other clearly economic factors are foundation of calculation human well-being, what is often disconnecting it form the reality.

I also run into problem of data validation, due to lack of representation but also continuity. Strategies, also spatial documents tend to miss maps or data representatio, using old statistical data, or not having the references.. Beside, Polish mentality tenting to polarise discussion what is also visible in academical and statistical work. Polarization justifying ongoing phenomena basically by two thinking schemes: comparison of being better than other post-soviet union countries or worse that developed western part of the Europe.

Chosen methodology and research approach

Starting with deductive reasoning, broad spectrum of theoretical consideration I did encounter problems with narrowing strategy focus. Broad, not fully introduce and accepted bioregional theories, together with political ecology inspiration, had been influencing my constant change of approach, making beginning fully exploratory. It might affected the presented project, by bring answers for not minor problematic, and bias in taken actions. However, planned method, described as design test bring necessary balance, being not only feedback loop for theoretical consideration, but also educational part of the thesis.

Personal reflections

I started project with simple and responsibility-driven understanding of climate adaptation need. Through discovering complexity of ecological challenges we are facing, and crossing different approaches for the future predictions, I realized how much emotional perception influence my reasoning. Denial, fear, proud, strong confidence, acceptation and ignorance — it was important for me, to me to be aware of emotional driven attitude, especially during the research process.

Learning the regional planning

I understood the position of the regional planning after realizing of the importance of different planning tools for each scale. For example: while trying to understand the landscape and necessary changes, I realized that any local plan are not able to cover the massive territory. Also, while comparing services in villages and towns I realized there is no need (and local possibilities) for the same access to the services provide by spatial planning. Thus, exploring cross-scale approach allowed me to understand the position of planning in expanding complexity, that I had difficulties to simplify. The necessity of simplification had been for me difficult and challenging, especially with theoretical background I started with. Second necessity I explored was the cross disciplinary approach, blurring focus and introducing factors or validation hard to compare. Those two factors influence my struggles on understanding what actually is the role of spatial planning, even more how the role is reflected on local conditions.

Imagining the future of the European regions

There is visible difference between 20th century positivism and 21st fear in the thinking about the future. However, in general it is difficult to build the future vision without utopian perception. Bioregionalism and the post growth approach in contemporary understanding, are the utopian visions, making emphasis on social and ecological layer, what brings need of systemic change. According to literature should be introduced on the voluntary basic. However, facing the theory with reality- Szczecin functional area in Poland, situation is much more complex, demanding different actions that trust for transition. European peripheral regions are trying to follow the development of the 'core ones', while local situation demanding different approach, the proposition including Polish mentality, what was taken into account in proposed strategy. I found it really positive to follow local-sensitive approach during research process.

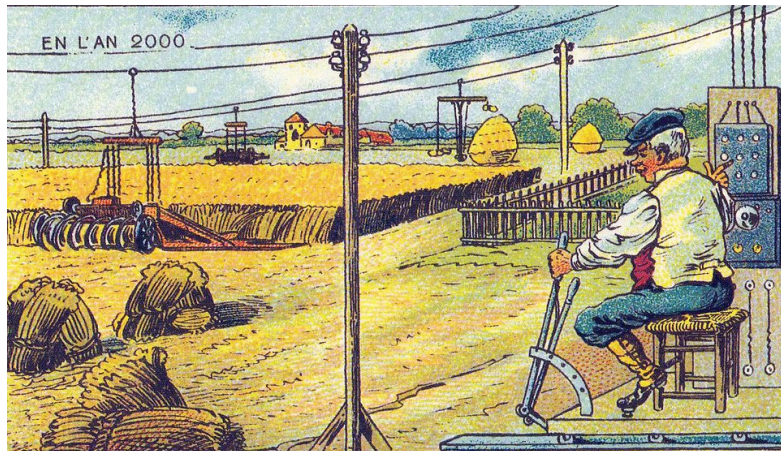
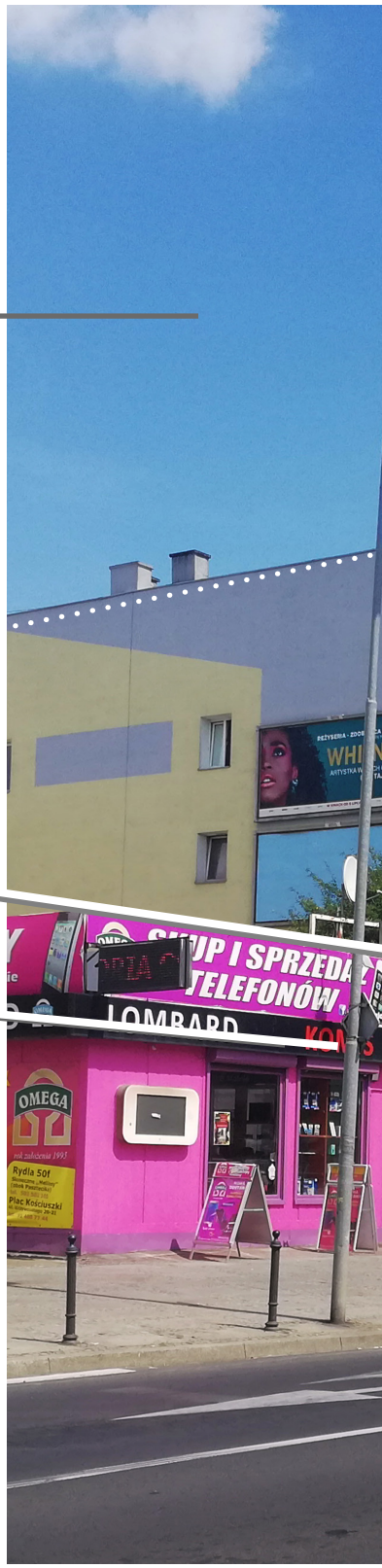


Figure 255. Imagining the future as full of high technical solution, however with similar social division - France in the year 2000 'A Very Busy Farmer', Jean-Marc Côté 1900 (source: independent.co.uk)

Figure 256. Present adaptation where technical solution are equally distributed - Solar panels subsidized by Kleszczów Municipality, appearing in every roof in the village. Investment was part of the program into green energy transition. Village localized next to coal mine Bełchatów, 2016 (source: www.tygodnikpowszechny.pl)

9. Appendix


SKUP I SPRZEDA
TELEFONÓW
LOMBARD
OMEGA
Rydla 50f
Plac Kosciuszki

source: author's own

Wojewódzki Fundusz Ochrony Środowiska I Gospodarki Wodnej w Szczecinie

Andrzej Grzana
Kierownik Zespołu ds. Obsługi Wniosków

Strategia 'beyond growht' i silny rozwój zrównoważony

To bardzo ważny punkt, który właśnie miałem Pani zasugerować. Możemy ostatnio zauważać u nas zmianę myślenia, takiego przejścia z Amerykańskiego modelu zrównoważonego rozwoju na bardziej Skandynawski, dający więcej praw samej naturze nie tylko prioryteryzujący ekonomię.

Temat i wybór terenu projektowego

Tereny przygraniczne po stronie sąsiedniej, które się wyludniają wcale nie zatrzymują projektów pro-środowiskowych, wręcz przeciwnie. W grupie projektów, gdzie działania obejmują zachowanie bioróżnorodności, zachowaniem walorów przyrodniczych, ochroną wód, działaniem przeciwpowodziowym, w momencie kiedy obszar traci swoje funkcje ekonomiczne, w naturalny sposób pojawia się na nie przestrzeń właśnie na projekty środowiskowe. Województwo Zachodniopomorskie posiada duży walor w kwestii obszaru buforowego, bardzo często wykorzystywanego właśnie w projektach około środowiskowych. Jest to przykładem tego, że projekty Interreg'owskie są powszechne w województwie i te samorządy, które chcą, aktywnie w nich uczestniczą. Oczywiście zależy to też od samych samorządów i ich zaangażowania. W ostatnich latach mamy przykład rozwoju takich projektów, weźmy na przykład: Police i ścieżki szlaków pieszo-rowerowych, uwspólniających ten obszar graniczny. Na pewno w tej warstwie społecznej jest też ważne, mamy też przykłady mieszkających po stronie granicznej, a pracujących po stronie polskiej. Obszar przygraniczny też się mocno rozlewa.

National Fund for Environmental Protection and Water Management (West Pomerania Regional Office in Szczecin)
The pillar of the Polish system of financing environmental protection in cooperation with voivodeship funds and the water management

Andrzej Grzana
Head of the Grant Applications Assessment Team

Strategy 'beyond growth' and strong sustainability

This is really important point. I just was about to suggest it for the project purposes. We can recently noticed change of thinking from American perception of sustainably into more Scandinavian one giving rights to nature itself, not only prioritising economy.

Project border

Depopulation (especially on the German side) does not stop the pro-environmental projects, quite the opposite. In the group of projects aiming for the preservation of biodiversity, preservation of natural values, water protection, flood protection, when the area loses its economic functions, there is a natural space for environmental projects. West Pomerania Voivodeship has a great value in terms of the Oder as a buffer area, which is very often used in environmental projects. Those projects are also an example of successful Interreg activity. Municipalities actively participate in cross-border projects, offering great founds. Of course, it also depends on local governments and their involvement. Let's take, for example: Police city that developed network of cycling and walking paths, in the cross border region. Presence of the border is visible in the society, let's take a look for the people living on the German side and working in Szczecin. And those people are often do not doing it because of economical purpose.

Analysis- Production landscape and natural environment analysis

West Pomeranian voivodeship is categorized as a highly green are. Not only because of the large number of protected sites, but also due to the level

Produkcyjny krajobraz i środowisko naturalne – analizy

Województwo zachodniopomorskie kategoryzuje się jako zielone województwo, nie tylko ze względu na ilość obszarów chronionych, ale też z poziomu obszarów leśnych. Proces wchodzenia rolnictwa na obszary leśne jest normalnym procesem, musimy coś jeść. Musimy mieć te pola uprawne, wytwarzać żywność. Mamy świetny bioklimat, w kilka bardzo dobrze zachowanymi puszczami, z jednej stronę ze względu na wysoką świadomość leśników niemieckich, z drugiej strony tereny nieodlesione są terenami trudnymi rolniczo. Dodatkowo zalesienia powojenne, były odpowiedzią na wojenną eksploatacje. Było to czysto techniczną odpowiedzią, powstrzymującą erozję wodną, erozję gruntów.

Struktura społeczna i kapitał społeczny

Ja nie do końca się zgodzę z tezą że interakcję pomiędzy wsiami są słabe, że są zalienowane. Lokalne grupy działania bardzo rozwinęły w ostatnich latach te interakcje. Wsie się połączyły, połączyły się sieciami: gazowymi, wodociągowymi, kanalizacją. Wspólne przedsięwzięcia, świetlice, aktywności. Więc to nie jest tak, że odległość naturalnie robi problem. Fundusze sołeckie są zbyt małe co naturalnie zmusza wioski do wspólnych działań na poziomie gmin. I fundusze regionalne tak naprawdę wspierają ten rozwój prospołeczny w regionie. Dodatkowo, kwestia wielkości osiedli rolniczych, charakteryzują się dużymi gospodarstwami, co dodatkowo wpiera interakcję. System wsparcia, dopłat do rolnictwa sprawił, że małe gospodarstwa zaczynają znikać z krajobrazu rolniczego. One będą jeszcze istniały, jednak gdzie jest możliwość łączenia, jest to mocno zauważalne. Nastawianie na przychodowe uprawy rzepaku i kukurydzy są charakterystyczne dla krajobrazu.

Oś prioritetowa 1
Wzmocnienie infrastruktury społecznej

Bardzo dobry element. Co jest tutaj istotne: silny sekretariat, który będzie to koordynował. I niezależnie czy mówimy o lokalnej grupie działania, stowarzyszeniach, klastrów, lokalnych inicjatywach czy spółdzielni socjalnych. One będą

of afforested areas. The process of agriculture entering forest is really normal process, we must eat something. We must using these fields, producing food. We have a great bioclimate, in a few spots very well preserved natural forests (On the one hand due to the high awareness of German foresters, on the other, non-forested areas are difficult to maintained in agriculture) In addition, post-war afforestation was a necessary response to war exploitation. It was a purely technical answer, stopping water erosion, soil erosion.

Social structure and social capital

I will not fully agree with the conclusion, that the interactions between the villages are really weak. Local action groups have developed these interactions in recent years. The villages joined together, connected by gas, water and sewage networks. Joint ventures, club rooms, activities. So, the geographical long distances between are not naturally a problem. Village funds are too small, which obviously forces them for the cooperation at the municipal level. And regional funds really support this type of development in the region. In addition, the size of agricultural settlements is characterized by large farms, which are element supporting integration. The support system, agricultural subsidies influencing disappearance of small farms from the agricultural landscape. Of course, they will still exist, but whenever it is possible to it is and will be very noticeable. Focus on profitable, large rapes and maize fields is typical characteristic of our landscape.

Design principle 1
Strengthening social infrastructure and introduction of clusters with innovation centres

That a really good point. What is important to take into account here: A strong secretariat that will coordinate taken actions. And it does not matter if we are talking about a local action group, associations, clusters, local initiatives or social cooperatives. They will work efficiently only, when the coordinator office has a solid and sustainable budget. Beside various activity of social groups: they exist actively when there is

sprawnie działały, kiedy koordynator będzie miał pewny i trwały budżet. Z uwagi na różną aktywność grup społecznych, one świetnie istnieją kiedy jest wsparcie, brak z automatu sprawia, że zaczynają się wygaszać, co jest widoczne na przykładzie np. ruchów klastrowych. Zbyt krótko żyją, żeby w perspektywie można było je uwzględniać w strategiach. Lokalne ośrodki wsparcia, aktywizujące i integrują pozostałe strefy sąsiadujące - jak najbardziej się z tym zgadzam, to jest bardzo dobry wątek. Szczególnie, element zakładający ewaluacje tego ośrodka jest pozytywny.

Oś priorytetowa 3
Podniesienie zdolność absorpcyjnych

Mała retencja – świetny pomysł. Brak tego wynika, głównie z braku wiedzy i zrozumienia z tego działania. Nie zrozumienia działania całego systemu. Dlatego edukacja jak najbardziej. Problemy podtopienia są rzadkością, mamy widoczną suszę hydrologiczną.

Oś priorytetowa 4
Rekreacja Terenów chronionych

Mała infrastruktura – bardzo ważne elementy, chętnie finansowane, ale również jest to element edukacyjny, bardzo rzutujący na zrozumienie społeczne. Mała infrastruktura jest często elementem dodanym do środowiskowej rewitalizacji, która bardzo pozytywnie wzmacnia odbiór. Rekreacja po terenach ochronnych wymaga też świadomości społecznej, i niestety na naszym terenie są częściej eksplorowane przez osoby zagraniczne niż lokalną społeczność. Dlatego jest to ogromnie istotne, aby przy tworzeniu takich projektów - obiektów zaangażować lokalną społeczność. (przykład: Dolina Miłości z zaangażowaniem społeczności lokalnej, dając możliwość zarobku, tworząc grupę inicjatywną).

System planistyczny

Plany miejscowe są kosztownym dokumentem, który obciąża budżet gminny, a te często czekają na projekty inwestorskie. Plany te się sprawdzają jednak głównie w przypadku jasno określającym kierunek działania. Większość obszarów dalej balansuje na poziomie transformacji, nie wiedząc

monetary support, which is visible on the example of e.g. cluster movements. They live too short to be included in long term strategies. However, local support centres, activating and integrating other neighbouring zones - I agree with that very much, this is a very good topic. Also, the element assuming the evaluation of this centres is here highly positive.

Design principles 3
Rising absorption capacity

Small retention – great idea. We need to point out, that lack of it is mainly the effect ot the of knowledge shortage and lack of understanding, especially for the rules of the system functioning as a whole. That is why the education factor is so important here. Flooding problems are rare and we have really visible hydrological drought in the region.

Design principle 4
Recreation of protected areas

I will agree that small infrastructure is a very important elements, financialised with big will through regional founds. It introducing also an educational element, affecting social understanding and consciousness. Small infrastructure, frequently, is an added value to environmental projects, which positively strengthen project perception itself. Recreation in protected areas also requires high social awareness, and unfortunately, areas in our territory are more often explored by foreigners than the local community. Therefore, it is extremely important to involve the local community while creating such projects – or even small infrastructure objects. (example: Valley of Love (2015), with the involvement of the local community, where we open earning opportunities for local community, resulted in creating an initiative group that is still active there).

Polish planning system

Local development plans are highly expensive document that weighting the municipal budget. However those municipalities are often waiting for investing possibilities. Local plans are effective in the moment, when municipality have the clear overview of future actions. Most areas are still balance at the transformation period, being undecided of theirs development direction.

w jaką stronę pójdą. Gminy bazują na tańszym studium, czekając na strategicznych inwestorów.

Strategia spójności

Czy taka redystrybucja ośrodków połączona z międzysektorową integracją była by możliwa do wprowadzenia? Czy usprawniło by to proces? Czy może istnieją już takie struktury?

Przy kryterium stricte ekonomicznym, gdzie redystrybuujemy środki pomiędzy ośrodki lokalne, zbytnie rozdrobnienie nie jest elementem pozytywnym. To się świetnie sprawdza w elemencie projektów miękkich, w mikro skali - obszar sołectwa, obszaru chronionego tak. Jednak efektywność środków o wiele lepiej się sprawdza z poziomu regionu, tak jak to się teraz dzieje w kwestii środków na ochronę przyrody. Ponadto rozdrobnienie bardzo ujednolica, a fundusze wsparcia pozwalają na budowanie różnorodności pomiędzy obszarami, dystrybuując środki pomiędzy różne funkcje. Dodatkowo dystrybucja odgórna pomaga w wypracowaniu elementu spajającego lokalne działania, lokalnej organizacji, która określa charakter regionu.

Jakie są programy planistyczne, które integrują, dbają o tereny nie tylko oznaczone prawnie jako chronione? Szczególnie w kwestii integrującej rolnictwo, las i systemy wodne.

Po akcesji do Unii Europejskiej pojawił się ogrom dodatkowych funduszy. Jest to wszystko koordynowane ze strategią rozwoju wojewódzką i rozwoju kraju. Dla regionu są o wiele ważniejsze regionalne programy operacyjne dzielone też na osie priorytetowe, gdzie bierzemy pod uwagę założenia strategii województwa ale też lokalnych gmin. Na niższym poziomie jest tak naprawdę o wiele większa możliwość uzyskania takich funduszy. Aktywność różnych beneficjentów jest zależna od tego co chcemy i z jakiś środków możemy korzystać. Trzeci sektor jest też bardzo zauważalny i uwzględniany w dystrybucji środków w kwestiach ekologicznych w naszym regionie.

Czy istniejący hierarchiczny system planistyczny, koordynowany, jak Pan wspomniał między sektorowe, będzie wystarczający, aby odpowiedzieć na przyszłe potrzeby ekologiczne (wzrost bioróżnorodności, zmiany klimatyczne,

Municipalities base on cheaper documents - studium, waiting for strategic investors.

Cohesion strategy vs national hierarchical spatial planning system

Would the found redistribution, through the innovation centres, combined with cross-sectoral integration, be possible to implement? Would it improve the planning process? Or maybe such cohesion strategies already exist?

According to the economic criteria, where we redistribute funds between local centres, excessive division is not a positive element. It works best in the soft projects, on the micro scale -on the area of the village council or the protected area -yes. However, the effectiveness of funds is much higher at the regional level, as is currently the case with regional founds for nature protection. In addition, fragmentation very unifies, and support funds should support diversity between areas, distributing funds between different functions. In addition, top-down distribution helps in development of elements binding local associations, a local organization that determines the character of the region.

What are the planning programs that integrate ecological protection or adaptation actions? Especially, are there any programs or tools integrating agriculture, forest and water systems?

After Polish accession to the European Union, a lot of additional funds appeared. All of them are coordinated with the Voivodeship Development Strategy and the National one as well. Regional operational programs are much more important at the region, divided into priority axes, strategic principles. At a lower level there is actually a much greater possibility of obtaining such funds. The success is depend on activity of the beneficiaries. The third sector is also very noticeable here among the found distribution, including environmental project in our region.

Will the existing hierarchical planning system, as you mentioned already coordinated with sectors, be sufficient enough in responding to future ecological needs (increase of the biodiversity, climate change, reduction of

ograniczenie intensywnego rolnictwa)?

Koordynacja ma charakter czasowy i rzeczowy. Zagadnienie zmian klimatycznych jest zagadnieniem dość nowym. W niektórych politykach sektorowych w ogóle nie poruszonym, albo traktującym hasło rozwoju zrównoważonego a muzo. Dokumenty o charakterze strategicznym są dokumentami długookresowymi, tylko intencyjnie wskazującymi co chcemy osiągnąć, one nie sprecyzują dokładnych działań, co precyzują branżowe polityki. Zgadzam się z Panią, że gdyby były by spójne ze sobą, wyznaczały wspólne cele, byłoby to bardziej zasadne. Działania podejmowane na różnych poziomach władzy łączą się ze sobą, natomiast na pewno nie możemy się spodziewać szybkich zmian, szczególnie w naszych warunkach: wypracowaliśmy system segregacji odpadów, ochrony przeciwpowodziowej, zmiana systemów ogrzewania ograniczająca stan powietrza. Zmiana jest potrzebna, niestety w Polsce ta zmiana musi odbywać się na poziomie rządowym i musi schodzić niżej i aby być akceptowana przez wszystkie poziomy na poziomie decyzyjnym a później wykonawczym. Inaczej tego nie osiągniemy, a niestety jest to długotrwały proces. Mówiąc o zmianach klimatu, tak naprawdę pierwszy raport pojawił się w latach 60 w konferencji w Rio. Jest to bardzo niedawno.

Ja byłam bardzo zdziwiona, kiedy się dowiedziałam, jak to było dawno temu, ale prawdopodobnie jest to kwestia perspektywy

To zdecydowanie kwestia perspektywy. Proszę spojrzeć z poziomu widzenia teorii ekonomii: gospodarka światowa wystartowała na poziomie XIX wieku, od tego czasu nabroiliśmy bardzo dużo. I już od 20 lat wprowadzamy programy naprawcze. Pozostaje pytanie jak jeszcze długo musimy je koordynować aby przyniosły zamierzone efekty.

Dziękuję serdecznie za Pana czas!

industrialised agriculture)?

Coordination here has two sides: time and content. The climate change is a fairly new phenomena. In some sectoral policies, not touched at all, or just treated as the slogan: sustainable development. Strategic documents are long-term documents, indicating only intentionally what we would like to achieve. They do not specify the exact type of actions, that take place in sectoral policies. I agree with you that if they were consistent with each other, they would set common goals, it would be more justified. Actions taken at various decision-making levels are combined, but certainly we cannot expect rapid changes, especially in our conditions (We already have developed a waste segregation system, flood protection systems, change in heating systems that reduces the air pollution level). The change is needed, but unfortunately in Poland this change must take place at the governmental level and must go down, being accepted by all levels at the decision-making and executive level. Otherwise we will not achieve it. Unfortunately it is a long process. Speaking of climate changes, the first report actually appeared at Rio conference in the 1960s. This is a very recent.

I was actually very surprised when I found out how old those reports are, but I guess it is probably a matter of perspective.

It is definitely a matter of perspective. Take a look at the theory of economics: the world economy started in the XIX century, since then we have messed up a lot. And we have been implementing recovery programs for over 20 years already. The only question that remains is how long do we have to coordinate them to achieve positive results.

Thank you very much for your time!

Lasy Państwowe (LP)
Dyrekcja Regionalna w Szczecinie

Jolanta Sojka
Naczelnik Wydziału Promocji i Mediów

Bartek Głowacki
Pion ds. Gospodarki Leśnej

Osie priorytetowe

JS: LP uczestniczą w szeregu działań planowania przestrzennego na poziomie gminnym. Stowarzyszenie na rzecz wybrzeża, wokół zalewy Szczecińskiego (Forum zalewu) Aktywacja lokalnego społeczeństwa, coś co Pani proponuje, żeby lepiej się poznawali, integrowali, ale próbują włączać w to różne inne instytucje, czy organizacje, które na tym terenie działają.

Jakie są narzędzia planistyczne koordynujące urządzanie/rewitalizacje lasów ze strategia regionalna i na poziomie gminnym? Czy są skoordynowane z innymi sektorami?

BG: Podstawowym dokumentem na którym bazujemy jest Plan urządzania lasu, na podstawie którego prowadzimy gospodarkę w nadleśnictwach. Stwarzając plan urządzania lasu, bierzemy pod uwagę gminne dokumenty, głownie studium i miejscowe plany zagospodarowania terenu. I tutaj jeżeli o przeciwdziałanie zmianom klimatu, ten plan w kwestii zmiany klimatu ma funkcje ochronną, oznaczając zakres lasu. My procedując plan współpracujemy z gminami i powiatami, zapraszając instytucje pozarządowe, jak i również zgłaszamy plan opinii publicznej (plany są tworzone co 10 lat). Niestety, mamy jednak problem z dojrzałością naszego społeczeństwa. Brakuje często tych uwag. Opisałbym to brakiem postawy obywatelskiej. Osoby prywatne zgłaszają się za to często, przy obiektach zapalnych np. Puszcza Białowieska. Ludzie się interesują kiedy prowadzimy wycinkę przy osiedlach mieszkalnych (przypomnę ze LP są udostępnione publicznie) i nagle jest to

State Forests (LP)
Regional Directorate in Szczecin
Polish governmental organization that manages state-owned Polish forests on behalf of the Polish State Treasury

Jolanta Sojka
Head of the Promotion and Media Department

Bartek Głowacki
Forest Management Division

4 design principles (comment to the strategy)

JS: LP participates in a number of spatial planning activities at the municipal level. We are helping association from the coast, around the Oder Lagoon (Lagoon Forum) Also we are activating the local society, something similar to what you proposed, to help them get to know each other better, integrate, but try to involve various other institutions or organizations that operate in this area.

What are the planning tools that coordinate forest management / revitalization with the regional strategy and at the municipal level? Are they coordinated with other sectors?

BG: The basic document on which we are relying on, is the Forest Management Plan. On the basis of it, we are conducting management in the forests districts. During creation of such Management Plan, we are taking into account municipal documents, mainly a study and the Local Development Plans. And here, thinking about climate change: this Forest Plan has a protective function, marking the extent of the forest. We are cooperating with municipalities and countries, inviting non-governmental institutions, and we are also publishing the documents publicly for the comments (Plans are created for 10 years). Unfortunately, we have a problem with the maturity of our society. Usually there are no public comments. I would describe it as a lack of civic attitude. Private individuals report us, but just in cases of tinder box, e.g. the Białowieża Forest. People are interested when we are logging close to housing estates (I would like

problemem, mimo wcześniejszych dokumentów i uzgodnień i zgodnie z przepisami.

Jeżeli chodzi o projekty adaptacyjne: mamy programy tworzenia lasów ochronnych, prowadzimy wielofunkcyjną gospodarkę leśna. Lasy ochronne, czyli strefy buforowe wokół miast, powyżej 100 tys. mieszkańców. Lasy wodochronne, glebochronne, funkcje się tu nakładają, limitowanie emisji przemysłowych. Mamy tego dużo. Jednak ten element, określony w planach urządzania lasu musi być zaakceptowany przez gminę (kwestie obszaru i zakresu ochrony). Gminy to z nami konsultują. Nie mamy już tu problemu z gminami (wcześniej, kiedy te lasy były objęte 50% podatkiem, był to problem. Od kiedy lasy muszą płacić całość, przestało to być problemem) Gminy chętnie to uchwalają.

Dodatkowo program mała retencja: Mamy dwa programy w LP: mała retencja górska i nizinna, Współpracujemy tu z gminami, zmieniamy stosunki wodne, także dostajemy pozwolenia przez gminy od Wód Polskich.

Czy w tym przykładowym przypadku jest to planowane przez zarządy wód polskich, czy planowane przez LP? Czy jest to wydajna procedura i koordynowana między sektorowo?

BG: Przy większej koordynacji faktycznie szybkość może i by się zmniejszyła. Ale te prawa, które teraz mamy: stawa o lasach, ustawa o gruntach rolnych i leśnych, one są skonstruowane pod względem szybkości działania, prowadzenia inwestycji. Obwarowania prawne i wydłużenie tej procedury sprawia, że lasy są bardzo mocno chronione i ciężko las zmienić na cos innego. I tego bym nie zmieniał. Jeżeli chodzi o współprace z gminami nie możemy narzekać. Mała retencja to program ogólnopolski i one działają miedzy gminami, miedzy granicznie. Na to potrzebujemy pozwolenia wodno-prawne, pozwolenie na budowę. I tutaj też nie mamy większych problemów. (Są prowadzone badania, ile wody zostaje zatrzymane, jest to monitorowany program) Wiec tu zmian prawnych, bym nie zmieniał, to dobrze funkcjonuje. Przyzwyczailiśmy się od lat, że są takie, a nie inne i wypracowaliśmy sobie ścieżki współpracy.

to remind you that LPs are fully open to public access) and suddenly this is a problem. Despite the previous documents and arrangements.

About adaptation projects: we have programs creating protective forests. We run multifunctional forest management. As protective forest I understood the buffer zones around cities over 100,000 residents. Water collecting and soil protecting forests, limiting industrial emissions - functions are overlapping here. We have a lot of it. However, this protective function, specified in the Forest Management Plan, must be accepted by the municipality (the size of the area and the scope of protection). We do not have a problem here anymore (earlier, when forests were subject of 50% tax, it was a problem. Since forests have to pay the whole amount the problem disappeared). Municipalities are willingly approving it.

In addition, the small retention program: We have two programs in LP: mountain and lowland retention. We do cooperate with municipalities here, we change water relations, we also get water permits from municipalities.

In this example case, is the program planned by Polish Water Management board or is it planned by LP? Is it an efficient procedure and coordinated between sectors?

BG: With greater coordination, the speed could be actually much better here. But policies and laws we have now: a Forest Act, the Act of Agricultural and Forest Land use, its constructed in favour of action speed, the investment speed. Legal restrictions mean, that the forests are properly protected: it is difficult to change the forest for something else. And I wouldn't change that. When it comes to the cooperation with municipalities, we can't complain neither. Small retention is a program on the national level, operated between municipalities, on cross border territories. For this, we need a water permit or a building permit. And here as well, we don't have any major problems. (The program is combined with research, monitoring, how much of the water is retained) So here there are good legal regulations, if I would not change, it is working properly. We got used for such during this years, and based on that we have developed our ways of cooperation.

Czas na wypracowanie nowej struktury, tak naprawdę jest bardziej problematyczny niż źle działające, obecne struktury?

BG: Z naszego doświadczenia, prawo nie nadąża za oczekiwaniami społecznymi. Weźmy przykład naszej działki: wprowadzanie jakichkolwiek innowacji, które na zachodzie są standardem np. bush craft / survival, (tam społeczeństwo dojrzało, jest porządek) Nasza ustawa o lasach, uchwalona w latach 90-tych, kiedy mieliśmy inne problemy, niż biwakowanie. Na tamtemu czas ustawa była nowoczesna. Obecnie zmieniają się oczekiwania społeczeństwa co od funkcji jakie pełni las i prawo nie nadarza jeżeli chodzi użytkowanie jak Pani zaprezentowała. My wprowadzamy obszary pilotażowe, mimo, że dalej o te lasy się obawiamy.

JS: Jest oczekiwanie używania tych lasów, a gdybyśmy czytali obecnie ustawy z lat 90-tych, nie moglibyśmy otwierać programów integrujących. W tym momencie wychodzimy naprzeciwko oczekiwaniom. Nie tylko dla środowisko osób aktywnych (bush craft / survival) ale też po prostu dla społecznej obecność. Społeczeństwo nasze tez nie urosło do pewnego rodzaju zachowań, jak kulturalne korzystanie z tych obszarów leśnych. W twardych projektach: budowle, które wpisują się w gospodarkę i ochronę przyrody, ścieżka działania jest w miarę utarta. Tu nie ma problemu w kwestii projektowania i wprowadzania tego. Natomiast w kwestii miękkich projektów mamy problem z obecnymi przepisami i musimy się mocno gimnastykować. I wkraczamy w nowy dla nas grunt, czego się od dawna baliśmy.

JS: Jesteśmy trochę fenomenem w skali Europy (my płacimy za ochronę przeciwpożarową) Ale też nie dostajemy żadnych środków z budżetu państwowego. LP są instytucja samosie finansująca.

BG: Stąd też projekty rozwojowe: musimy podchodzić do nich bardzo rozważnie. Ponieważ ludzie nie zdaja sobie sprawy jak szybko plonie las i jakie jest to zagrożenie.

Chciałabym jeszcze zapytać o zarzadzanie lasami, na które w tym momencie LP ma monopol. Jak to wygląda w przypadku lasów prywatnych czy wprowadzania nowych prywatnych zalesień, jak to się odbywa?

Can we then conclude that the time to develop a new structure, new laws, is more problematic than badly functioning current one?

BS: In our experience, the law cannot follow on the social expectation. Let's take the example: introducing any innovations that are standard in the west, e.g. bush craft / survival, (the society is mature there, not as here). Our Forest Act, were adopted in the 90s, while we had different problems, than camping. At that time, the law was really modern. Currently, the expectations of our society are changing, so do the functions. The law does not follow here. We are introducing pilot areas, although we are still concerned about these forests. (the Forest Act prohibits camping, opening fire and staying overnight inside the forest in not designated areas)

JS: There is an expectation to use these forests, and if we would read the 90s law literally, we would not be able to open any soft program. At this point we meet expectations. Not only for the active people (bush craft / survival) but simply for the social presence. Our society hasn't grown up yet, for the types of behaviour, for cultural way. In the harder projects (with buildings that are part of the environmental protection projects) the path of implementation is already paved. There is no problem in the design and implementation. On the other hand, when it comes to soft designs, we have a problem with current regulations and we are stretching hard for the implementations. It is a new ground for us. We have been afraid of it since long.

JS: We are a bit of a phenomenon on a European scale (For example we pay for fire protection of the sites) But we are also not receiving any funds from the state budget. LP are a self-financing institution.

BG: Because of that we have to approach the soft projects very carefully. People do not realize how quickly the forest burns and how big is the threat.

I would like to ask more about forest management, for which LP has a national monopoly at the moment. What does it look like in the case of private forests or the introduction of new private afforestation?

BG: To głównie LP wprowadzają zalesianie. Mamy prawo przejmować grunty rolne słabszych klas, z KOWR-u, mamy prawne pierwszeństwo zakupu. Musimy tylko posiadać zapis Planu Miejscowego bądź studium, że teren jest przeznaczony na tereny leśne. My je przejmujemy i zalesiamy. Dodatkowo pomagamy, prowadzimy nadzory nad lasami prywatnymi, w przypadku naszego województwa jest to jednak niewielki obszar. Rolnik w kwestii programów unijnych (PROF na przykład) może zalesić las: my przygotowujemy plan zalesiania, służymy rada i prowadzimy zabiegi. Program działam dobrze (w perspektywie do 2020).

JS: 77% lasów w Polsce jest zarządzanych przez LP. Prócz tego są też lasy występujące jako własności poszczególnych gmin, nie osób prywatnych np. Szczecin i lasy miejskie, podlegających prezydentowi miasta. Osobna kategoria: Parki Narodowe, posiadające własną administracje w ministerstwie (teraz to nie wiem nawet w którym, powiedzmy w szeroko rozumianym ministerstwie środowiska). Na naszym terenie lasy prywatne są w minimalnym procencie. To nie jest u nas tak, jak w województwie małopolskim, gdzie każdy rolnik przy swoim gospodarstwie posiada kilka hektarów własnego lasu.

BG: Weźmy krajowy program podnoszenia lesistości – od 1995 roku do obecnego dodatkowo 14,5 tys. ha w Polsce. Ostatnie lata mają tendencją malejącą, często brakuje nam terenów do przejęcia. Mamy szkółki, możliwości, ale brakuje gruntów. Dopłaty rolnicze sprawiają ze rolnicy nie oddają już słabych ziem.

Czyli rozumiem, że LP są trochę uzależnione od dokumentów planistycznych gmin wyznaczających jaki obszar powinien być zalesiony?

BG: Przez szereg lat grunty były nam przekazywane. Problemem obecnie jest również to że (słabe grunty) przechodzą często pod rozbudowę, mieszkaniówkę, inwestycję, wiec myślę ze zalesianie jeszcze bardziej spadną. Spodziewamy się również, że kiedy się skończą dopłaty unijne do zalesiania, będziemy nabywać dużo młodych lasów. Lasy na małym terenie nie są dochodowe, a bez dopłat będą jeszcze mniej. Weźmy zabiegi pielęgnacyjne, są to kosztowe

BG: It is mainly LP body that introduce afforestation in Poland. We have the rights to take over the low class arable land, we have the legal priority of purchase. What we need is the Local Development Plan or study mentioning, that the area is designated for the afforestation. In addition, we are offering the help and supervision on the private forests. In our region it is a really small area. Farmers with EU founds (PROF for example) can introduce afforestation: we are preparing a Forest Management Plans, providing advisory. The EU founding program works well (until 2020).

JS: 77% of all forests in Poland are managed by LP. In addition, there are also forests appearing as the property of the individual municipalities, e.g. Szczecin and its urban forests, reporting to the city's president. A separate category: National Parks with their own administration in the ministry (now I do not even know in which ministry, let's say in the broadly understood ministry of the environment). In our area, private forests are at a minimal percentage. It is not like in our province of Małopolska, where every farmer has several hectares of his own forest.

BG: Let's take a national program increasing the forest cover - from 1995 to the present. It is additional 14.5 thousand of ha in Poland. However, the recent years have a decreasing tendency, we are missing the areas to take over. We have the tree nurseries, opportunities, but no land. Agricultural subsidies influencing the fact, that farmers no longer hand over the low class land.

Does it mean that LP are a bit dependent on the planning documents of the municipalities pointing what area should be afforested?

BG: For several years, the land was passed to us. The problem now, is cause by the fact, that a lot of weak class lands often is sawed for the investment projects: housing, infrastructure. I'm expecting that afforestation will decrease even more. We also expect, that when the EU subsidies for afforestation will be over, we will acquire a lot of young forests. Forests on a small territory are not profitable, and even less without subsidies. Let's take the expensive management, and for

zabiegi, a pozyskiwanie surowca to jest 80-100 lat. Nam zależy żeby ogólnie tych lasów było więcej i w LP ale też ogółem lasów prywatnych.

Czy LP byłyby chętne, jako instytucja biorąca udział przy tworzeniu dokumentów planistycznych, wyznaczać nowe tereny z koordynacja innych sektorów?

BG: Myślę, że byłaby to zbyt duża zmiana legislacyjna. Bo jednak cały ciężar spoczywa na barkach samorządu, co prawda my opiniujemy (plany opiniujemy) co nie jest wiążące, ale brane pod uwagę. Mamy wypracowana dobrą współpracę. Dlatego dodawanie jakichkolwiek obowiązków na samorządy gminne jest złym pomysłem (przez niższe budżety, mniejsze obecne dotacje). Nie jest im w smak tworzenia gruntów leśnych. Na nas odpowiednie opiniowanie jest wystarczająca regulacją. Zwrócę uwagę ze mamy dalej problem z odpowiednim opisywanie gruntów- mamy ogromne połacie terenu i często zdarza się, że obszar opisany jako las nim nie jest. Także dalej borykamy się z dokładną inwentaryzacja naszych gruntów na skale kraju. Od momentu cyfryzacji pojawiło się dodatkowo 8000 ha. Więc jak bym się spodziewał, ze ilość tego lasu w Polsce będzie rosła.

JS: My mamy również swoje programy wewnętrzne. Jak np. samowystarczalność energetyczna naszych obiektów, czy leśne gospodarstwa węglowe jako programy eksperymentalne: dogęszczanie lasu, które mają pochłaniać więcej CO2. Mamy dużo działań wpierających, dużo się u nas dzieje. Zdajemy sobie sprawę ze klimat będzie się zmienia, jesteśmy po dwóch latach suszy pod rząd. Zdajemy obie sprawę, że bez pomocy człowieka lasy sobie nie poradzą. Mamy też problemy gdzie drzewostany nam zaczynają chorować i umierać. Jednak też mamy wiele przewidywań z przyszłości, które się nie sprawdziły, i gdzie drzewostany miały się nie przyjąć, a teraz rosną w najlepsze.

BG: Żyjemy w kulturze w której chcemy mieć wszystko na już. Las nie jest w zasięgu nawet jednego pokolenia. Dlatego niczym nie normalnym nie będzie wyginiecie jakiegoś gatunku u nas, bo przyjdą nowe. My się szykujemy

obtaining the raw material we need 80-100 years. We want to have more forest in general inside LP but also on the private land.

Would the LP be willing, as an institution involved in the creation of planning documents, to designate new areas with coordination of other sectors?

BG: I think it would be too big legislative change. The whole responsibility is on municipalities shoulders, we are just giving opinions for the plans. And there are taken into account. We have developed good cooperation. Therefore, adding any new responsibilities to municipal governments is a bad idea (due to lower budgets, lover subsidies). Besides, they don't like the creation of the forest cover. Giving opinions is sufficient regulation for us. I would like to point out, that we still have a problem with proper land delineation. We are still struggling with an accurate inventory of our land on national scale. An additional 8000 ha has appeared since the digitization process. So I would expect that the forest cover in Poland will grow.

JS: We also have our own internal programs. For example, the energetic self-sufficiency inside our facilities. Or the forest coal farms as the experimental programs (We are introducing thickening to the forest, second and third layer, which supposed to absorb more CO2) We have a lot of activities, a lot is going on here. We are aware that the climate will change. We are two years in a raw with big drought. Without human help forests cannot adapt. We also have problems: trees are sick more often. However, we also had future predictions that now we know were false.

BG: We live in a culture, where everyone want to have everything for now. The forest is not within the eye of even one generation. Therefore, extinction is normal for some species, because new ones will come. We have been preparing for this since a long time, introducing mixed afforestation. But we must prepare ourselves that the forests will change in the futures. Now, whether it is influenced by people and accelerated, or it would be introduces as natural process, some species will retreat anyhow.

do tego już od dłuższego czasu, wprowadzają dolesienia mieszane. Ale musimy się przygotować ze lasy się zmienią. Teraz czy na to wpływają na to ludzie, i to przyspieszają, czy byłoby to naturalnie, to i tak niektóre gatunki się wycofają i będziemy mieli więcej gatunków liściastych.

JS: Mu jesteśmy przyzwyczajeni do długiej perspektywy. Trochę działa to odwrotnie niż w przypadku rolnictwa. Nasze działania są rozpatrywane szeroko w układzie wielopokoleniowym. Ja widzę działania mojego dziadka (jestem trzecim pokoleniem leśników).

Dziękuję bardzo serdecznie!

JS: We're used to long perspective. With forest it works differently than in the case of agricultural planning. Our actions are considered in a multi-generational timing. I can freshly see my grandfather's activities (I am the third generation of foresters).

Thank you very much!

Regionalne Biuro Gospodarki Przestrzennej Województwa Zachodniopomorskiego
(pod Urzędem Marszałkowskim)

Leszek Jastrzębski
Dyrektor Biura

Justyna Strzyżewska
Główny Projektant

Magda Racinowska-Ratajska
Główny Projektant

Ewa Buszac-Piątkowska
Starszy Asystent

Regional Planning Office for West Pomerania Voivodeship
(on the behalf of Voivodeship Marshall Office)

Leszek Jastrzębski
Office Director

Justyna Strzyżewska
Chief Designer

Magda Racinowska-Ratajska
Chief Designer

Ewa Buszac-Piątkowska
Senior Assistant

Oś priorytetowa 1

EB: To takie partnerstwo miejsko-wiejskie. Przewinął się przez nasze biuro taki projekty (URMA) w obszarach metropolitarnych. Badaliśmy przypadek wsi Wączkowo (przyniesiemy Pani publikacje). Trudne było to do obronienia wcześniej jako hasło partnerstwa, z uwagi na opory z różnych stron.

JS: Ale obecnie to wraca. W Niemczech jest wiele przykładów, gdzie miasta, miasteczka zawiązują współpracę z okolicznymi wsiami np. w kwestii dystrybucji żywności danych granicach. Natomiast Pani projekt opiera się na regionie, jest szerszy.

Oś priorytetowa 4

JS: W kwestii takiej kiedy te lasy uzyskały status parków, takie inicjatywy w województwie się zdarzają. Mamy taki dobry przykład wprowadzenia takiego parku ekologicznego otwartego dla ludzi. Nie na typowy plac zabaw, ale po prostu mała infrastruktura.

Interwencja 1

ER: Myślę, że tutaj brakuje refleksji nad układem komunikacyjnym. Warto, żeby przeanalizowała, albo chociaż pokazała na mapie istniejące

Design Principle 1

EB: It's such an urban-rural partnership. It is similar to one of our project (URMA) that we have in our office for the metropolitan area. We have studied the case of the village of Wączkowo (we will bring your publications). It was really difficult to be implemented, due to resistance from various sides.

JS: But it's coming back now. In Germany, there are many examples where cities and town cooperate with surrounding villages, e.g. distributing food within the same territory. However, your project is based on the region, it is wider.

Design Principle 4

JS: Such initiatives occur in the voivodship, when the forest obtained the park status. We have such a good examples open ecological parks. Not as a typical playground, but just with small basic infrastructure.

Intervention 1

ER: I'm missing here the reflection on the communication system. It is worth of analyzing, or at least showing on the map the existing connections: railways, bicycle paths but also circular roads. For example, in village Widuchowa the station is located 5 km from the railway

połączenia: kolej, ścieżki rowerowe ale też drogi kołowe. Np w Widuchowej stacja znajduje się 5km od stacji kolejowej, a jest to daleko, dlatego też w kwestii takiego projektu trzeba by się zastanowić jak to rozwiązać. Mamy duży plus w przypadku kolei.

JS: Powinna pani nałożyć przynajmniej mapę komunikacji publicznej w takich studiach przypadku. Ponieważ brak tej mobilności jest dla nas największym problemem.

ER: W kwestii potrzeb społecznych byłoby istotne dotknąć ten temat i rozwinąć go bardziej

Interwencja 2

MR: Bardzo dobrze to wygląda w krajobrazie. To jest super, że Pani mówi o tych zadrzewieniach śródpolnych, takim banalnym elemencie. Tak zwana miedza, która zanika w naszym województwie. Jako baza dla tej bioróżnorodności.

Interwencja 3

JS: Czy wie pani kto jest właścicielem? Bo jeżeli, jest to teren prywatny może być to opisane jako użytkowanie rekreacyjne, które bardzo ciężko przekształcić.

MR: Ale to już tym Pani na kolejnym etapie się zajmie. Ale sama idea, jak najbardziej.

JS: Realizujemy takie mniejsze projekty: na przykład we wsi koło drawska pomorskiego zaprojektowano wspólnie w centrum: taka prosta otwarta wiatę, z rożnymi funkcjami. Gdzie organizują warsztaty włókiennicze, wypiekanie chlebów, wyplatanie z wikliny. To bardzo ciekawa inicjatywa społeczna, prowadzona dla przyjezdnych, bardzo ciekawa turystyka. Co ciekawe, jak Pani wspomniała o kooperacji, tam w tej wsi wiedzą, gdzie pojechać żeby wziąć udział w innych warsztatach, maja taka rozbudowana siatkę. Jeszcze z innych dobrych przykładów: mamy coroczny konkurs marszałka na najlepsza wieś. I tam tez są takie perełki, zgłaszane przestrzenie publiczne.

ER: Tam punktacja jest przyznawana czy np. jest ochotnicza straż pożarna, zespół muzyczny, sportowy, estetyka samej wsi. Wsie się bardzo starają (czasem wychodzi to zabawnie). Jest

station, what is far away, so in terms of such a project you should think about how to solve it.

JS: You should at least impose a map of public transport in such case studies. The lack of mobility is the biggest problem for us.

ER: In terms of social needs, it would be important to touch this topic and develop it further.

Intervention 2

MR: It looks very good in the landscape. It is great that you are thinking about these buffer stipes, such a banal element. The so-called balk, which is disappearing in our province. As a basis for this biodiversity.

Intervention 3

JS: Do you know who is the land owner? Because if it is a private area, it can be described as recreational use in the land use plan, which is very difficult to transform.

MR: But it's a problem for the next stage. But the idea itself is positive.

JS: We implement such smaller projects: for example, in the village near Drawsko Pomorskie. In were There have been design facility together with local community: such a simple open shelter, with various functions. They started organizing simple activities: textile workshops, baking bread, weaving from wicker. This is a very interesting social initiative, conducted for visitors, very interesting tourism. Following, as you mentioned cooperation, this centre started building a network: they know where recommend other workshops. Still other good examples: we have an annual marshal's competition for the best village. And there are also such gems, public spaces reported.

ER: The scores for the competitions are awarded through for example, volunteer fire brigade, music band, sports team, aesthetics of the village itself. The villages try very hard (sometimes it turns out really funny). It is extremely valuable, towns with 100 inhabitants, tried to do something with their own impute. Then, as you mentioned, it is building the social capital.

to ogromnie cenne, miejscowości mające po 100 mieszkańców, starały cos zrobić własnym nakładem pracy, to jak pani wspomniała jest to budowanie tego kapitału społecznego.

MR: Ale też budowanie tożsamości.

JS: Tego się nie wie, mieszkając w mieście. To się dopiero odkrywa, kiedy się zaczyna do tego dokopywać. Mamy koło 3100 wsi, są to jednostkowe przykłady niestety. Ale mamy potencjał do budowania.

Strategia spójności

JS: To mógłby być odpowiednik elementu planu województwa. My zabieramy w planie rekomendacje i starania. Dając Pani przykład ustaleń: możemy związać gminę do wykonania pewnego działania, ale są to bardzo wyjątkowe sytuacje. Pozostałe wskazania są powiązane z funduszami województwa. Jeżeli gminy je realizują, dostają punkty, dodatkowe rekomendacje.

My na co dzień pracując w tej materii niektórych rzeczy nie dostrzegamy, dlatego dla mnie bardzo refleksyjne jest Pani zauważenie o silnej wsi a słabych miasteczkach. Bardzo się przyzwyczailiśmy, że te miasta są obskurne. Wydaje mi się , że to tez powinna być refleksja dla nas z tego spotkania. Że powinniśmy aktywizować też pośrednie, pomniejsze punkty.

W kwestii elementów, infrastruktury społecznej: kilka lat temu mieliśmy dofinansowanie wspierające powstawanie świetlic wiejskich, ale same dofinansowanie nie zastąpi funkcjonowanie tej infrastruktury społecznej. Tutaj na przykład dobra pracę wykonał uniwersytet trzeciego wieku: angażując ludzi mających czas do ruszania otoczenia wokół. I teraz pomysł polaczenie tego na skale regionalna, przekształcenia tego w cos większego: myślę że by to dużo dało. I ciekawe rzeczywiście byłoby dodanie tego akcentu do strategii województwa.

MR: Myślę ze w Pani strategii trzeba o wiele mocniej podkreślić ten aspekt edukacyjny, ten element społeczny który miałby właśnie wpływać na adaptacje zmian klimatycznych. Bo to jest tutaj bardzo mocny i konieczny element.

MR: But also building the identity.

JS: The funniest thing is that you have no idea about those activities, while living in the city. It is becoming uncovered for people looking for it. We have around 3100 villages in the voivodeship. There is still great potential for improvement, those are only individual examples, not a heap.

Cohesion Strategy

JS: It could be equivalent to an element of the voivodship development strategy. We are usually attaching recommendations to the plan. Giving you an example of such recommendations: we can tie a municipality to perform a certain action. However, these are very unique situations. Other indications are related to voivodship funds. If the municipalities implement them, they get points and additional recommendations.

We are not noticing some things on a daily basis when working in this matter. That's why it is for me very reflective your opinion about a strong villages and weak towns. We are too used to these dingy cities. It seems for me right now, that this should be a major reflection for us from this meeting. We should also activate intermediate, minor settlements.

In terms of social infrastructure: a few years ago, we had funding supporting the creation of rural club rooms, but the funding itself cannot replace the functioning of it. Here a really good job has been done by a university of the third century: engaging people who have time for actions. And now I see the idea of combining it on a regional scale, transforming it into something bigger: I think it would help a lot. And it would indeed interesting as an accent to the regional strategy.

MR: I think that in your strategy you have to emphasize educational aspect much more, the social element that would have an impact on climate change adaptation. It is a very strong and necessary element here.

EB: I think it connects with most of our conclusions that have nothing to do with ecology: the awareness raising. It will be a great value to increase the public awareness, to help these people in some way, through what we can: by subsidizing spatial elements. But money is

EB: Myślé, że to się łączy z większościami naszych wniosków z projektów, nie mających tak naprawdę nic wspólnego z ekologia: zwiększanie świadomości. Jeżeli zwiększymy świadomość społeczną, pomożemy tym ludziom w jakiś sposób, przez to co możemy: dofinansowując elementy przestrzenne, będzie to dużą wartością. Ale też pieniądze to nie wszystko. Musi być ten lider, który w zacznie organizować te zajęcia w świetlicach.

Czy obecny, polski system planistyczny jest w stanie dość szybko odpowiedzieć na potrzeby adaptacji klimatycznej?

LJ: System nie jest wystarczający. My nie jesteśmy tak naprawdę w stanie dużo zrobić. System , który Pani opisała, tak naprawdę bazuje na planie zagospodarowania województwa, który to wiąże niższe plany, które mają uwiązanie finansowe. Ale bardziej miękkie ustalenia, typu mała retencja, czy działania w zakresie poprawy ładu przestrzennego, nie przekładają się wprost na dokumenty planistyczne. Wiec tutaj jest dużo do zmian i poprawy. Więcej by zależało w tym systemie który mamy, gdzie właściwie mamy przestrzeń na własne zasady wdrażania, na poprawie współpracy. Na przykładzie Województwa Pomorskiego to ciekawie działa, gdzie wprowadzili wewnętrzną politykę. Jednostka regionalna organizuje spotkania z gminami i tłumaczy co wynika z zapisów planu, które wprost nie są wymagane przepisami ustaw. Z zapisów, których po prostu nie da się przenieść jako wymogu prawnego. Ten aspekt edukacyjny, przekazywania informacji nie w formie wymogu a wzajemnej współpracy jest dla nas elementem nad którym musimy pracować i wprowadzić.

U nas na razie kierunki rozwoju są uwzględnione intencyjnie, nie są opisane wiążącymi, formalnymi aspektami w kwestii system prawnego: na przykład przy współpracy transgranicznej. Przenoszenie na poziom poszczególnych samorządów zależy od nich samych, ich zainteresowania.

EB: Teraz co tutaj pan dyrektor powiedział sprawiło, że cała rozmowa zatoczyła nam koło: podnoszenie świadomości społecznej. W tym przypadku na poziomie współpracy samorządowej. Ja bym jeszcze poleciła not everything. There must be the leader who will organize these classes in the common rooms.

Is the current Polish planning system responsive enough for the climate adaptation needs?

LJ: The system is not strict enough. And we can't really do much with it. The system that you described is actually based on the voivodship development plan, which involves lower plans that have financial attachment. But softer arrangements, such as small retention or actions improving spatial order, are not translated directly into planning documents. So, there is a lot to change and improve here. It would be more important in this system that we have, where we actually have space for our own implementation rules, to improve cooperation. It works interestingly on the example of the Pomeranian Voivodeship, where they introduced some internal policy. The regional unit organizes meetings with municipalities, explains what guldens of the plan, which are not explicitly required by law. From recommendations that simply cannot be transferred as a legal requirements. Providing information not in the form of a requirement, but mutual cooperation - this is an educational aspect that we must to follow.

At the moment, our development directions are taken into account only intentionally, they are not described as binding, formal aspects regarding the legal system: for example, in cross-border cooperation. Transfer of the directions into individual municipalities depends on their interest.

EB: Looking at what the Director just said here, we can see that the whole conversation came full circle: raising public awareness. In this case, just at the level of local government cooperation. I would recommend to get familiar with the Local Action Groups, a units that have been created as an assistance in the marshal's funds distribution. I think this is your point of attachment. It could add a soft contribution to your plan.

LJ: Such soft actions in longer period of time allow launching specific actions and projects: let us take the example of our Central Zone

Pani zapoznanie się z Lokalnymi Grupami Działania, jednostką która została stworzona do pomocy przy dystrybucji dofinansowania marszałkowskiego. Wydaje mi się, że mioglobiny to być Pani punktem zaczepienia. Mogłoby dodać to miękki wkład do planu i realną bazę.

LJ: Takie miękkie działania, czy zapisy w późniejszym okresie czasu pozwalają uruchomić konkretne działania i projekty: weźmy tu za przykład naszą strefę centralną (6 miast) i projekt URMA, czy inne projekty partnerskie. W tej strefie centralnej, wychodząc naprzeciw samorządom, poprzez spotkania, tłumaczenie, że nie mogą patrzeć na siebie: muszą patrzeć na działania w szerszym kontekście, korzystać z bogactwa potencjału. Po iluś latach udało się nam zaszczepić u nich ten sposób myślenia i powstała koncepcja Czarnego Bzu, który teraz nam pomaga z infrastruktura i transportem.

Czy uważają państwo ze współpraca międzysektorowa odbywa się w sposób skoordynowany? Czy w momencie budowania strategii wojewódzkiej uwzględnia się bardziej dokładne sektorowe projekty i zaangażowanie?

LJ: Faktem jest, że niektóre podmioty prowadzą zupełnie odrębna politykę. Na przykład Lasy Państwowe maja zbyt mocne podstawy prawne na nasza ingerencję, nawet gmina ingerencję. Tutaj mieliśmy trochę pracy przy na przykład przy naszej koncepcji rozbudowy regionalnych ścieżek rowerowych, które przebiegały po drogach leśnych. Wiadomo, każda instytucja ma tutaj swój interes.

Formalnie jesteśmy uwiązani współpraca i wymogiem posiadania pozwoleń czy opinii wiec tutaj to jest zawsze koordynowane na poziomie budowania strategii.

JS: Niestety dużo elementów jest decydowanych na poziomie ministerialnym, np. przy ochronie bioróżnorodności, które jest wprowadzane przez dodatkowa punktacje przy dofinansowaniach. Nie mamy zapisów, że plany powinny się odnosić i regulować na przykład małą retencję. W tym zakresie jest dalej duża skala dowolności. Ale niestety jakakolwiek zmiana w planie odbywają się bardzo, bardzo, bardzo mozolnie.

(6 towns) and the URMA project, or other partner projects. Through meetings with the municipalities, explaining that they cannot look at themselves separately: they must look for development in a broader context, use the wealth of potential. After some years, we managed to instil them this way of thinking. Then the concept of Black Lilac was created, which now is helping us with infrastructure and transport.

Do you think that cross-sectoral cooperation is coordinated? Have been the sectoral cooperation taken into account during building a voivodship strategy?

LJ: It is a fact that some entities have own separate policy. For example, the State Forests have too strong legal grounds for our interference, even the municipality's interference. Here, we had some work on, for example, in our concept of developing regional bicycle paths that ran along forest roads. It is known that every institution has its own interest here.

We are formally committed to cooperation while preparing a voivodeship strategy, actually while preparing any regional strategy, have permits or opinions. Here, it is always coordinated.

JS: Unfortunately, many elements have been decided at the ministerial level, e.g. in the protection of biodiversity. It is introduced by additional points in co-financing. We have no legal right, where plans have regulation in the matters mentioned in your strategy, for example, small retention. There is still a large freedom in this aspect. But unfortunately any changes in the planning system take huge amount of time.

Theory paper

Against Growth Oriented Planning

Bioregional Spatial Planning as the Complementation of the Degrowth Postulates

Abstract

With few exceptions, the economic growth paradigm has dominated our way of living and perception of a desirable future. The paradigm that assumes an unlimited world, where resource and pollution problems can be solved by moving resources or people in other parts (Meadows, Meadows, Randers, & Behrens, 2018; Meyer, Hvelplund, & Nørgård, 2011). As a result of desirable growth, following its spatial development (Harvey, 2013) has been bringing escalating environmental and social crises (Carr, 2005). Altering the cause of the problem not its effects, two theories deserve special attention: bioregionalism and the degrowth movement. Both of them are aiming for the future, ecological adaptation.

Degrowth movement, connecting different schools of thoughts, has been introducing new, social relations and building a vertical structure for transition into steady state economy (D'Alisa, Demaria, & Kallis, 2015). Lack of socio-spatial reflection is clearly visible in those theories and cannot be ignored in integral societal transformation (Vogel & Xue, 2014). Surprisingly, this spatial dimension can be provided by bioregionalism, focusing on horizontal efforts in civil society, building place-based communities and networks that respect ecological limits (Carr, 2005).

Based on those two movements, this paper would, firstly, introduce them and analyse their connections. Secondly, it would propose and revise crucial spatial elements for the transformation and development based on the two theories. Finally would recount conflicts and limitations.

Key words

Growth paradigm, bioregionalism, degrowth, sustainable settlements, community, spatial planning, ecology

1. Introduction

Future challenges like climate adaptations, sixth mass extinction, unbalanced distribution of prosperity or unstable economy, have been described and analysed by many. For some, those are only the technical problems humanity is facing, while others highly criticize systems we live in: free market economy and its growth paradigm. The main criticism pointing out, that biophysical world with limited resources cannot growth infinitely, thus can never be sustainable for longer period (Schneider, Kallis, & Martinez-Alier, 2010). Academically, ideas and alternative proposition have been developing together with first ecological activist movements, like bioregionalism. Since 70s and the publication '*The Limits to Growth*'[1] scholars highlighted environmental and societal limitation of current economic model. Steady State Economy occurred as further reflections, being main base for degrowth's thinkers, e.g. *'Farewell to Growth'* (Latouche, 2009).

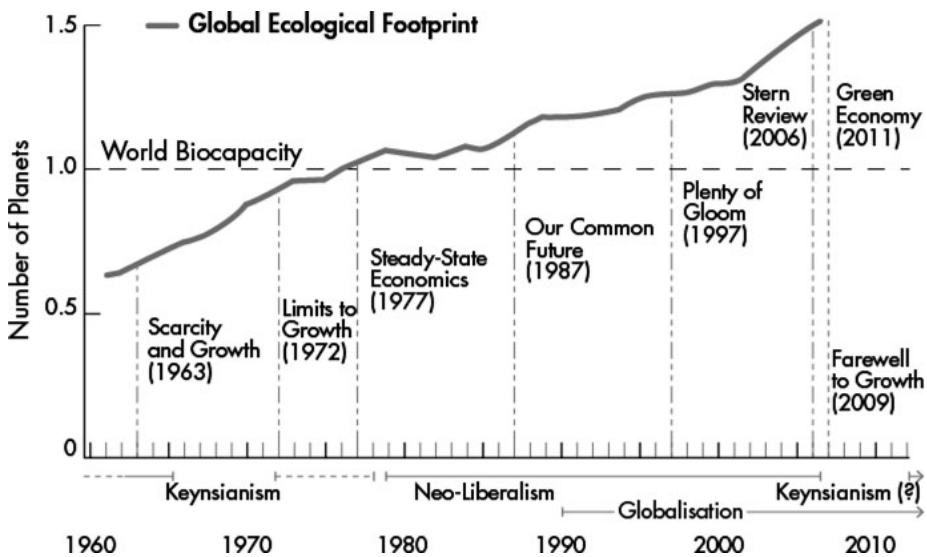


Figure 1. Global ecological footprint with theories and movements trough years. Source Ewing et al.2010, modified by Perez-Carmona (2013)

Since spatial planning has been responsible for structure and design of the landscape, directly and non-directly contributing for environmental impact, economic system that the planning exist for, have crucial role in transition process (Wächter, 2013). Sustainable use of land resources cannot be separate anymore from natural environment, society and economy and need to take into account its complexity. In the discussion about degrowth spatial factor is sometimes underestimated, what can be a reason its misunderstanding. Lack of spatial, tangible vision, gives utopian undertone and brings negative emotions. Bioregionalism, bringing also negative associations developed socio-spatial vision without holistic economic doctrine, and because of the same basic principles can be possible completion of degrowth.

1 The Limits to Growth is the report based on computer simulation. First edition has been publish in 1972 assuming that ongoing economic development would bring unknown pressures. Climate Changes were not consider as major threat on first edition, however in next editions (1974, 2004) authors reflected Climate Changes as syndrome of physical growth not as a problem itself. (Meadows, 2017)

2.'Décroissance' [2]– The Degrowth Movement

Degrowth movement combines different thinkers from different angles. It address a "*downscaling of production and consumption that will reduce societies' throughput of energy and raw materials*" (D'Alisa et al., 2015). Variety of different approach have been synthetize during International Degrowth Conference, that took place in Paris in April, 2008, where final conference declaration provided concise definition:

> *The objectives of degrowth are to meet basic human needs and ensure a high quality of life, while reducing the ecological impact of the global economy to a sustainable level, equitably distributed between nations (…) the aim should be to maintain a 'steady state economy' (SSE) with a relatively stable, mildly fluctuating level of consumption. (Research and Degrowth, 2010, p.524*

Degrowth researchers criticize also social impacts of growth economy and human well-being explaining, that not only environmental but also social limits of growth should start to be taking into account. Growth is associated with well-being, however following it competitiveness would never provide satisfaction and 'enough' for everyone (Skidelsky & Skidelsky, 2012). Produced wealth should not be goal itself, but good life utility. Social metabolism following economical degrowth cannot work on the same socio-spatial structure *"(…) not doing the less of the same"*(D'Alisa et al., 2015). That is why actions propose by degrowth are supporting first, dematerialisation, secondly, community building, social interactions, and non-monetary exchange. It has been also the answer for, highly criticized, growing consumption, constantly commodifying human relations, budgeting time and valuing individual profit higher than community one.

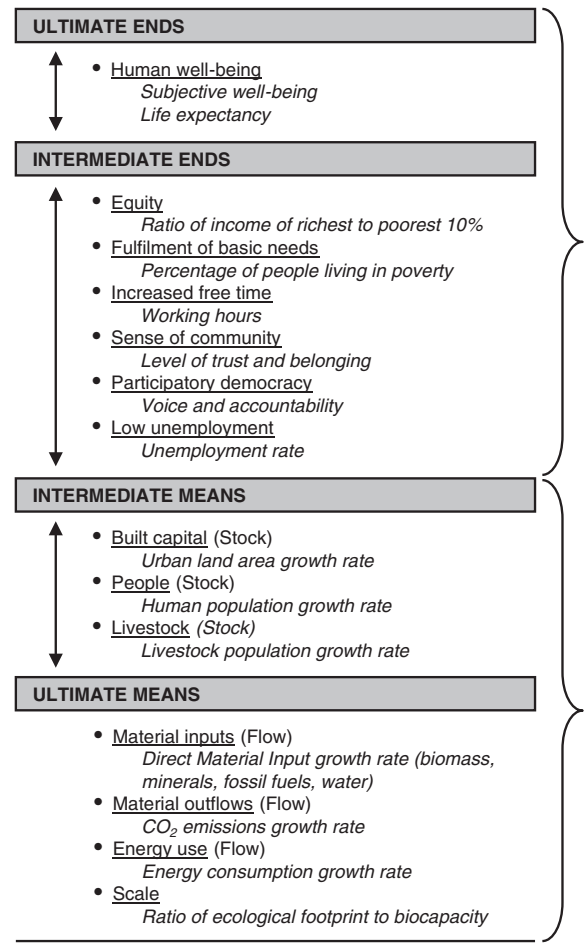


Figure 2. A potential set of indicators to measure progress in the degrowth transition to a steady state economy, prioritising quality of life: happiness, specify as human well-being.
Source: O'Neill (2012, p, 22).

2 The origin of the terms 'degrowth' came from French word 'décroisannce', trying to express transition path to sustainability, firstly used by André Gorz, precursor of political ecology. Because of unfavourable association of the word 'degrowth' has been also called 'post-growth' economy.

Based on assumptions, that healthy social metabolism, is the one prioritising human well-being directly, not trough economical profit, degrowth scholars developed for example alternative propositions of indicators that could settle priorities for market behaviour (Figure 2).

It is really important to mention, that globally equitable SSE, do not conclude all countries to degrowth. Countries, e.g. in the global South, need to continue growth, nonetheless decelerated one, in order to fulfil basic need of their citizens. However, countries being in Global Economic Core, called Developed Countries, that cross line of carrying capacity, should start limiting their consumption for aim of 'strong sustainability'[3].

Unfortunately, following theoretical amplification of degrowth theory on economic and social level started colliding with lack of specific spatial vision. It had been pointed out in debate as theory despatialisation that rises contradiction (Vogel & Xue, 2014).In degrowth literature, there had been defined some general principles stimulating the spatial transition process like: renewable energy sources, sustainable settlement or community based facilities (Wächter, 2013). Nonetheless those principles do not cover further complexity, especially relation with natural environment.

3. Bioregionalism – environment as the integral part

Bioregionalism is simply the idea of "*building place-based communities and networks that respect ecological limits*" (Carr, 2005). The movement, likewise degrowth, combine set of different approaches, mostly from ecological and anthropological perspectives. First coherent assumption of the movement, applies to territory, where the ecological regions are the unit for economical and administrative governance, above the existing political borders. Second one, applied for the shape of the society, understood as community, democratically participating in management of their region, respecting and coexisting with their natural environment. This point is entirely overlapping with degrowth political aims for justice, equality and self-determination by more direct locally oriented democracy. Bioregionalism in such case is helping to specify vague concept of locality giving exact geographical dimension, underling that community is decisive body of spatial changes in the area

Nonetheless how to define ecological limitation called bioregion? Originally 'bioregion' or so called 'ecoprovince' have been defined as biogeographical cluster containing habitats with strong affinities. The biogeographical theory, having already exactly specified unites, have been transformed by bioregionalists by additional layer of human population. Population that have common social or cultural ties, enabling for provisionalisation and strengthening the connection with local, geographical area. (Cato, 2011).

A precise definition has been provided by the World Resources Institute:

> *"(…) Such an area must be large enough to maintain the integrity of the region's biological communities, habitats, and ecosystems; to support important ecological processes, such as nutrient and waste cycling, migration, and stream flow; to meet the habitat requirements of keystone and indicator species; and to include the human communities involved in the management, use, and understanding of biological resources. It must be small enough for local residents to consider it home."*

Bioregionalism focusing on self-reliant economies, to be largely self-sufficient on the basic resources like food and water security (James & Cato, 2014). Because of that movement support food security including urban farming, what can be found as development of degrowth 'back-to-the-landers' statements.

Spatial planning, based on the understanding of regional, ecological characteristics, should proposed following elements: development in appropriate areas, sustainable use of resources and ecological processes, restoration of damaged ecosystems and depollution (Dedekorkut-Howes, 2014). Because of high complexity of the idea, there are only few examples of truly bioregional planning working also with social layer. Mostly ecological demands has been transformed for bioregional management of hydrological regions or unique ecological clusters.

	Bioregional Paradigm	*Degrowth Paradigm*	*Industrio-Scientific paradigm*
SCALE	Region	? locality	State
	Community		Nation/world
ECONOMY	Conservation	Degrowth	Exploitation
	Stability	Steady state economy	Change/ progress
	Self-sufficiency	Self-reliance	World economy
	Cooperation	Sharing	Competition
POLITY	Decentralisation	Decentralisation	Centralisation
	Complementatrity	Depoliticization	Hierachy
	Diversity	Autonomy	Uniformity
SOCIETY	Symbiosis	Common	Polarisation
	Evolution	Flourishing	Growth/ violence
	Division	Care	Monoculture

Figure 3. The comparison of bioregional, degrowth and industrio-scientific paradigm. Own source based on Cappuccio (2009, page Retrieved from Sale - Events in the story of bioregionalism (1985, page 50))

4. Spatial systems points of radical environmentalism

Both movements could be described as radical environmentalism. It creates possibility for complementation and amplification of both of them giving vision for future adaptation. What is specific to distinguish is general attitude: bioregionalism tend to give more right and space for the natural environment, while degrowth less right and space for human expansion. Also, both movements reflecting two scales: regional scale, demanded by bioregional management and neighbourhood scale, due to community building. Based on those two theories, movements or so called paradigms: degrowth and bioregionalism, following points would bring most important postulates for spatial planning aiming for stable, ecological, long term future adaptation.

4.1. Self-reliance: consumption and production patterns

One of bioregion characteristic is fact that there are the natural units from which resources are extracted, consumed, conserved, or preserved (Wächter, 2013). It means that bioregions could provide community self-sufficiency on the basic level like food or water. In such understanding building self-reliance of the region, supporting local food but also local production based on used of local resources, should be the major part of regional strategies. On the city scale self-reliance introduce food production inside urban structure, bringing call for diverse urban gardens or allotments.

Second important part of building self-reliance should be support of entrepreneurship and possible biggest independence from global companies employment. The entrepreneurial bottom-up perspective promotes local identity, introducing 'local heroes' or 'hidden champions' in network economy (Leick & Lang, 2018). Network economy or shared economy enhanced shared trust and innovation based action of commons spatially would stand for exchange places, markets combine with public places, creativity and repair point, closed to place of living, in opposition for large shopping malls localised outside cities forcing problematic fragmentation. Degrowth aiming for maximal self-sufficiency has been proposing socio-economic units like co-operatives or socio-eco-economic units like eco-communities where ideally consumption and production flows are closed inside those units (D'Alisa et al., 2015).

Consumption and production patterns, connected with self-reliance, include also circular economy proposition of regional materials cycles included in the pattern, understood as restorative and regenerative by design. Especially building materials should take into account its future life and recycling possibilities. Major remark or danger of circular economy is the rebound effect, the Jevon's Paradox[4]. (Schröder et al., 2019)

4.2. Biological restoration and Urban Ecology

The primal questions of natural environment conservation or restoration, stand about scale and boundaries of areas. Process of taking too large areas form human interference (for example national parks) facing social, political and economic challenges (Dedekorkut-Howes, 2014). *Thus, any (bioregional) urban consolidation process must be guided by principles of ecological restoration, such that urban areas provide their own ecosystem services.* (Birkeland, 2002). It brings also the question of values given for natural environment and artificial understanding of nature itself as element separate from standing above human beings. Bioregionalism underline that human system of living needs symbiotic relation with complex ecological systems.

Main element of biological restoration promote biodiversity and use of native species of plants. On the smallest decisive scale it emphases that trees planted in the city, type of shrubs, grasses or flowers should be the ones occurring originally in the region, not exotic, imported because of aesthetic reasons. This ecological celebration is bringing also visual identity, because of unique type vegetation. (Church, 2014). Vegetation restoration is making place for other species, like insects, birds and other wildlife, important for the whole ecosystem.

Spatial introduction of natural environment should go beyond biotope and including water or nutrient circulation. Systems like rainwater harvesting, waste water filtration, waste assimilation, and nutrient recycling, bioswales, urban tree canopy, daylighting creeks, should be integrated into local urban infrastructure (Church, 2014). Thinking about material imputes and outputs on city and neighbour scale should be based on comprehensive analysis of urban ecology, tending to supporting it not only as urban metabolism, but identifyied urban ecosystem.

4.3. Community: dematerialisation, care, commons

The term of community used in 'geographical dimensions' brings definite focus on neighbourhood oriented design, up to about 5,000 - 10,000 people "*small but still viable units through which individuals can traverse fairly easily by walking – yet is large enough to contain and support schools, playgrounds, various stores and services, public buildings, as well as private residence"*(Carr, 2005). Designing for those social units, according to degrowth, is one of major elements for dematerialisation: replacing consumption patterns by community based interactions, bringing concept of happiness in front of economical profit. Also introducing community as decisive unit, and civil society on regional level allowing for place based intervention, sustainable for users and their need. Strong communities are bringing so called strong social capital, necessary for example for protection of surrounding natural environment and responsible use of resources.

Community based services can include: child care and care of the elderly, car pools, repair workshops, food cooperatives or community gardening but also creative hubs or knowledge exchange spots. It is important to emphase, that those communal activities in terms of increasing self-reliance should work on non-monetary basis (Wächter, 2013). Scaling the principle on the city or regional level brining it also revision of planning: thinking not about zones, but networks of place based communities.

4.4. Settlements, mobility as service and limited space consumption

Degrowth initiatives are usually simplified to the low-carbon campaigns as reduction of environmental impacts (Lehtinen, 2018). With the main aim of decentralisation on regional level, urban core-periphery (urban-rural) divisions are highly criticize by introducing social inequalities, stigmatisation and critical concentration. Concentration that on individual level is disconnecting society from natural environment, escalates consumptive lifestyle, seems to exceed the possible reduction of transportation carbon emissions (Ottelin, Heinonen, & Junnila, 2015). Bioregionalism is pointing densification as important element for sustainable transformation, criticizing in the same time too dense urban settlement for lack of integration of nature on necessary scale (from rain gardens and street trees, to regional parks) (Church, 2014).

This integration is part of general bioregional green city proposal, aiming for reciprocity between urban and life-supporting ecosystems, where daily presence of nature in the city bring awareness and education. That is why low carbon urbanism should concentrate mostly on the renewal and mobility infrastructure, secondly on densification up to certain scale. Mobility as first should be based on pedestrian safety, then on extensive bicycle network and finally well-functioning public transportation. In order to prevent spatial overconsumption land-use planning should support qualitative maintenance than volume-orientation, treating indoor and outdoor spaces as public ones (Lehtinen, 2018).

4.5. Energy descent

Energy is placed as separate point for spatial recommendation. From bioregional perspective, energy acquisition and its consumption should be closed inside bioregion borders. Acquisition should be based on characteristic of resources in the area, underling primary concept of the bioregionalism: respecting ecological limits of the area (Birkeland, 2002). With temporary urgent need of decarbonisation and transition into renewable energy sources '*greater amount of land per unit of produced energy (…) especially the use of biomass but also solar or wind energy*' has to be taken into account (Wächter, 2013). Energy-conscious spatial planning calling for more intensified urban settlement, close to the supply points in terms of heat renewable, while in terms of electricity production distances can be much larger (transport losses s are much lower). However, degrowth scholars pointing out, that renewable energy would not be able to fulfil the needs of highly-consumptive, industrial society and to *"decarbonise economies, the equally important but neglected part of the equation involves a deep behavioural shift away from high consumption, energy-intensive ways of living"* (Alexander & Yacoumis, 2018). That is while degrowth is strongly supporting low-tech solutions and energy education.

5. Conclusions

5.1. Transition

Bioregional future vision are based on strong communities, respecting individual rights. Strong community is powerful unit to push requirements of its rights in order to be able to take decision around them. Degrowth and bioregionalism supporting direct, participatory democracy building proposition assuming need for strong social capital. That is while spatial planning should firstly focus on fostering active citizen participation and if its possible, concurrently retrofit urban structures via its integration with natural systems. Also, the knowledgeable, conscious community is the key aspect of complex spatial solution.

Cooperation is another strong aspect extremely important in transition process, helping to build strong communities. Bioregions and ecological management demand interdisciplinary approach beside existing political and administrative borders. Transparency, communication, group work and data exchange should be at primal basis of governmental actions the same as community actions.

5.2. Conflicts and limitations

Socio-economical proposals of degrowth like basic minimum income or different organisation of public services are, to a certain extent, connected with other postulates elaborated above. There is major concern if degrowth adaptation could be introduced just partly. Another, much stronger concern, lies in the basic principles: voluntary transition and direct democracy, that is most unpredictable factor and biggest limitation in terms of future planning. Also assumption of high quality living environment and fulfilling basic needs bring question about exact objective factor of it.

Conflicts appear on different levels of ethical and ideological consideration: between individualism or community, between global and local, between right to mobility and fostering local settlements. The biggest conflict appear in private property understanding that could be hard to prioritise less than community commitment. Substantial obstacle of both theories is also its utopian perception. Challenging common way of thinking, bringing aspects of complexity demand educated society.

5.3. Necessary knowledge exchange

Degrowth and bioregionalism aim for necessary switch from anthropocentrism to ecocentrism in supplemental way. It is doubtful that physical transformation should be introduced on the identical manners all over places, taking into account provincialization and aiming for cultural diversity of future world. However, similarities of both theories based of the same authors (David Harvey, Lewis Mumford, Dennis Meadows, references to ecofemist movements, radical environmentalist, permacultural movement, social and deep ecology) bring question of successful process of knowledge exhange among scholars and researchers. It is necessary for the degrowth movement to discover bioregions on level much advances than its biological definition, much more that have been described in this paper. From the second perspective bioregional movement could benefit on economic level advancing with governmental actions. Geographical lens for communities and taking into consideration local ecosystem with proposed future economy bringing another level of complexity but also allows for more detailed specified actions.

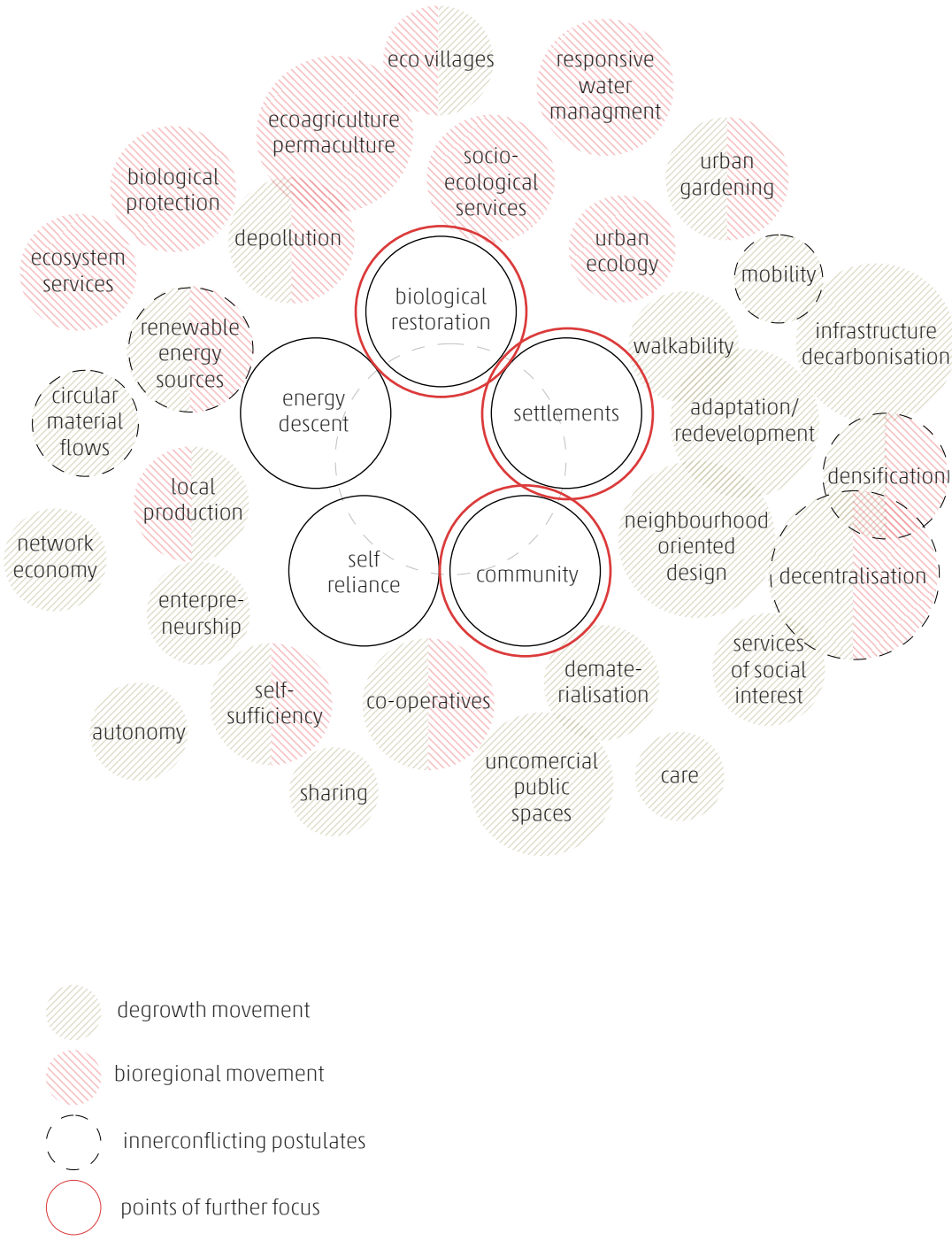


Figure 4. Summary of topics consider in theory paper with chosen further focus

10. Sources

source: author's own

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