

Rosa Daamen

The identification of the multi-actor governance system in the sustainable housing policy

**A case study in the city of
Wroclaw: Poland**

Master thesis European Spatial
and Environmental Planning
(ESEP)
Faculty of Management
Radboud University Nijmegen

May 2016

An identification of the multi-actor governance system in the sustainable housing policy.

A case study in Wroclaw: Poland.

Rosa Daamen
(s4230213)

Master thesis European Spatial and Environmental Planning
Faculty of Management
Radboud University Nijmegen
May 2016

Supervisor: Peter Ache
Co-supervisor: Ary Samsura
Word count: 22.221

Preface

This thesis is the final product of the Master program European Spatial and Environmental Planning at the Radboud University in Nijmegen. I am fascinated by different spatial planning systems around the world and that is why I have chosen to do a graduation internship abroad: In Poland. I decided to write my Master thesis in Poland, because when I visited the country before starting my internship, the environmental problems were immediately visible. While the air plane landed it was impossible to get a view on the city, because of the thick layer of smog. The huge clouds of smoke from chimneys seemed to be a visible cause of this air pollution. After a few informal meetings it became clear coal is the main energy source of Poland, which causes a lot of pollution and is not environmental friendly whatsoever. Therefore I thought it would be very interesting to start a research about the achievement of sustainable energy in Poland. Because many emissions are produced by households, the focus of this research will be on the residential sector. Afterwards, my perspective about achieving sustainability has changed. In The Netherlands achieving sustainability is a hot issue in public and private sectors. Furthermore, because of the targets of the Europe 2020 Strategy, I was thinking all the European countries were making a lot of effort to achieve energy efficiency and to achieve a greater share in renewable energies. But during my stay in Poland, soon became apparent achieving sustainability is not one of the priorities of the private sector, nor of the public sector. This made it very challenging to find actors involved which were suitable for my research topic. Finally, I did find some relevant interview partners to interview about achieving sustainability in the residential sector of the city of Wroclaw. Without the help of others I could never have written my Master thesis. First of all, I want to thank my supervisor Peter Ache, because his comments and recommendations were very useful for the structure and theoretical framework of my research. Secondly, I would like to thank Magdalena Belof and the other members of the Institute of Territorial Development, for the arrangement of my graduation internship in Wroclaw. Sometimes it was hard to communicate, because of the Polish language, but they were all very helpful. Moreover, Stephanie Dühr was also of great help because she recommended to do a graduation internship at this institute and she did give me the contact details of Magdalena Belof. Last but not the least ones, I would like to thank all the interviewees and people involved in informal meetings. They made it possible to gather information about a relatively new subject in the city of Wroclaw: Sustainability in the residential sector.

Rosa Daamen
Wroclaw, May 2016

Summary

In the European Union ambitious environmental goals have been established to achieve sustainable energy and energy efficiency in the member states. According to the European Commission due to the complexity cooperation is needed between different levels, sectors and stakeholders to achieve these environmental goals. In the European member states the buildings stock is responsible for a large share of greenhouse emissions and changes in the building sector can reduce major emissions. This research focuses on the identification of multi-actor governance in achieving sustainability in the residential sector. The new insights of this research can contribute to a better understanding of multi-actor governance processes in the sustainable housing policy. A case study is conducted in Wroclaw, a city in the South-West of Poland. The main question of this thesis is as follows:

How does the multi-actor governance system in the sustainable housing policy of Wroclaw look like and what are the processes within this governance structure?

Existing perspectives of different agents in the multi-actor governance system of sustainable housing policy have been analyzed to identify the multi-actor governance and the processes within this system. Not only the actors involved have been identified, but also the existing processes within the multi-actor governance. The analysis is done with the policy arrangement approach, which is inspired by the structuration theory of Anthony Giddens. Both of the theories deal with the duality of structure. The policy arrangement concept has given an understanding of the structuration of the multi-actor governance system towards achieving sustainable residential buildings in Wroclaw. In order to identify the governance system, an elaboration has been made about the two main aspects of this system: The organization and substance. The organization is the social system of different agents that are nested in structures of rules and resources. The organization aspect consists of three dimensions: Actors, resources and rules. The aspect of substance is operationalized with the dimension policy discourse. There is a mutual interdependency between these four dimensions, which represents the interrelated and complex study of a governance system. The analysis of these dimensions and the interrelations between them did bring forwards a better understanding of multi-actor governance in the sustainable housing policy of Wroclaw.

Besides a literature study to form the theoretical and methodological framework, qualitative research has been used to analyze the case of Wroclaw. Semi-structured in-depth interviews and informal meetings have been conducted with actors involved in the sustainable housing policy of Wroclaw.

Firstly, the agents of the sustainable housing policy of Wroclaw have been identified through asking experts which organizations and individuals are visible in the policy arrangement. Soon it became apparent the amount of actors involved was very limited. This made it even more interesting to analyze the underlying social structures of why the degree of interest among Polish actors is so low towards achieving sustainability in the residential sector. From the public domain the European Union, the national government of Poland, the regional government (Marshal Office of Lower Silesia) and the local government (municipality of Wroclaw) are involved in the sustainable housing policy of Wroclaw. The experts and researchers from the university and from the research institute Climate-KIC are also actors involved from the public domain, because they are financed by public authorities. From the private domain individual developers, manufactures of sustainable technologies in

residential buildings and the architectural office Lipiński are visible in the multi-actor governance system to achieve sustainable residential buildings in Wrocław. Furthermore, the non-governmental organization Lower Silesian Smog Alarm and local citizens do influence the policy arrangement of sustainable housing.

After the identification of the agents, the resources every actor does have to influence other actors and to influence the policy arrangement have been analyzed. This was very useful to identify how the agents are connected to each other. Besides financial resources, the formal competences and knowledge resources have been analyzed, which can influence connections between actors. There are some formal competences visible in the multi-actor governance system, but because the authorities with formal competences do not focus on achieving sustainability in residential buildings, these competences are not influencing the policy arrangement. The share of information resources and financial resources to influence the sustainable housing policy are negligible as well, because the amount of resources is not high enough to have a big influence on the policy arrangement. The lack of resources made clear it is hard for the actors to influence the policy arrangement or to influence agents in the multi-actor governance system.

The elaboration of the resources has been followed by the elaboration of the rules of the game in the governance system. The rules of the game concern legislation, procedural norms and integration or coordination of rules. This indicator did elaborate the objectives of the legal landscape towards achieving sustainability in the residential sector of Wrocław. The regulations to achieve sustainability are very weak in Poland, which makes it hard to encourage the private developers or local citizens to take sustainable measures in the residential buildings. Furthermore, the public authorities are hardly collaborating and communicating with the local residents or with other departments which makes it hard to develop an effective legal landscape towards the achievement of sustainability in the housing sector. The willingness to cooperate is already existing, but this development is going very slowly in Wrocław.

Finally, the policy discourse has been described to analyze the underlying social structures of the multi-actor governance in the sustainable housing policy of Wrocław. The three dimensions of the discourse are: Scientific paradigms, policy programs and metaphors or narratives. These elements did identify the set of values and perceptions of agents and they did help to understand what is at stake among the actors. After the identification of the underlying discourse in the sustainable housing policy of Wrocław it was possible to analyze the duality of structure between the current substance and the organization structure of the multi-actor governance system. To improve the sustainability in the housing policy more experts have to focus on the economic and social issues of sustainability. Because of this lack in expertise it is hard to convince decision-makers, private developers and local residents of the importance of this issue. Besides, the public decision-makers have to make sustainable issues part of the spatial planning, because this is the only competence they have to influence the policy arrangement. The analysis of the scientific paradigm made also clear that economic values are more important than ecological values in Wrocław and that is why sustainable measures have to be economic profitable. There were some funding programs from the public authorities visible, but they were insufficient and there were a lot of problems with the procedural norms to obtain the funding. Because the sustainability is at the end of the public needs, the public money available for this topic is negligible. The local residents are not aware of the importance of sustainability in residential buildings and this lack of awareness contributes to the focus of decision-

makers on other public needs. Furthermore, local residents will not be encouraged by European legislation to take sustainable measures, because Polish people do want to think about solutions by themselves and they do not want to follow European impositions.

The identification of the multi-actor governance system in the sustainable housing policy of Wrocław made clear changes in both the organization structure and the substance of the policy arrangement are essential to achieve sustainability in the residential sector. The organization structure and the substance of the policy arrangement are mutual dependent which means the underlying discourse is influencing the few agents, the low share of resources and the weak rules of the game of the policy arrangement. The other way around, the weak organization structure is influencing the underlying social structures in Wrocław which do hardly contain norms and values to achieve sustainability in houses.

In conclusion, changes in both parts of the multi-actor governance system can develop a positive vicious cycle to improve the effectiveness of the policy arrangement to achieve sustainability in residential buildings in Wrocław. But due to the lack of financial resources, the lack of awareness and due to other public needs the development of sustainable residential buildings is going very slowly in the city of Wrocław.

Table of Contents

- Preface..... III
- Summary IV
- List of tables and figures..... X

- 1. Introduction..... 11
 - 1.1 Project framework..... 11
 - 1.2 Research aim 11
 - 1.3 Research questions..... 12
 - 1.3.1 Main question..... 12
 - 1.3.2 Sub questions 12
 - 1.4 Societal and scientific relevance 13
 - 1.4.1 Scientific relevance..... 13
 - 1.4.2 Societal relevance..... 13
 - 1.5 Structure of the thesis 13
- 2. Theoretical framework 15
 - 2.1 Research philosophy 15
 - 2.2 Applied theories 15
 - 2.3 Multi-actor governance..... 16
 - 2.4 Structuration theory..... 17
 - Connection of structure and agency 18
 - 2.5 Policy arrangement approach 19
 - 2.5.1 Operationalization concepts 20
 - Actors..... 20
 - Resources 21
 - Rules of the game 21
 - Discourse 22
 - 2.6 Definition sustainable housing policy in Wroclaw 22
 - 2.7 Conceptual model 23
- 3. Methodological framework..... 24
 - 3.1 Research design..... 24
 - 3.2 Research strategy..... 24

3.3 Research methods.....	25
3.4 Data analysis.....	25
3.5 Ethics in societal science research	26
3.6 Informal meetings	27
4. Description of the case study	28
4.1 Urgency of sustainability in the residential sector	28
4.1.1 Air pollution.....	28
4.1.2 Final energy consumption	29
4.2 Support for sustainability in residential buildings.....	30
4.3 Administrative structure of Wroclaw	31
4.2.1 Competences of provinces	32
4.2.2 Competences of districts	32
4.2.3 Competences of municipalities	32
5. Organization structure	34
5.1 Actors.....	34
5.1.1 Public actors involved.....	35
5.1.2 Private actors involved	36
5.1.3 Civil society actors involved	36
5.2 Resources	38
5.2.1 Formal competences	38
5.2.2 Financial power	39
5.2.3 Knowledge resources	40
5.2.4 Connections between the actors involved.....	41
5.3 Rules of the game.....	43
5.3.1 Legislation.....	43
5.3.2 Procedural norms	44
5.3.3 Integration or coordination of rules.....	45
5.4 Main findings of the dimension organization structure.....	45
6. Substance	46
6.1 Discourse	46
6.1.1 Scientific paradigms.....	46
6.1.2 Policy programs	47
6.1.3 Metaphors or narratives	48
6.2 Main findings of the dimension substance	49

7. Duality of structure.....	50
7.1 Actors and discourse	50
7.2 Resources and discourse	51
7.3 Rules of the game and discourse.....	51
8. Main findings.....	53
8.1 Main findings.....	53
8.1.1 Actors.....	53
8.1.2 Resources	54
8.1.3 Rules of the game.....	54
8.1.4 Discourse	54
8.1.5 Duality of structure.....	55
8.1.6 Possible improvements of the multi-actor governance system.....	55
8.1.7 Relevance of the research results	55
8.2 Reflection.....	56
8.3 Recommendations.....	56
9. Literature	58
10. Annexes	61
10.1 Interview guide.....	61
Introduction.....	61
Introduction actor	61
Analysis actors	61
Analysis resources	61
Analysis rules of the game.....	62
Analysis discourse.....	62
Completion	62
10.2 Interview contact details and informal meetings	63
10.2.1 Interviews	63
10.2.2 Informal meetings	63

List of tables and figures

Number	Name	Page
Figure 1	Governance model of the institutions	16
Table 1	Overview of main conceptual focuses and theoretical frameworks of multi-actor governance	17
Figure 2	Structure system and system of interactions	18
Figure 3	The aspects and dimensions of the policy arrangement approach	19
Figure 4	The dimensions of an existing policy arrangement	20
Table 2	Operationalization policy arrangement dimensions	20
Figure 5	Conceptual model	23
Figure 6	Air quality in Lower Silesia	28
Figure 7	Energy consumption in the residential sector per capita in the European member states	29
Figure 8	Budget subsidies of the Thermo-Modernization Fund, in million PLN	30
Figure 9	Nomenclature of territorial units in Polish Statistics	31
Table 3	NTS levels of the city of Wroclaw	31
Figure 10	Analysis of the sub dimensions of multi-actor governance	34
Figure 11	Mapping sheet agents in the sustainable housing policy	35
Figure 12	Connections between the agents in achieving sustainability in residential buildings of Wroclaw	42
Figure 13	Duality of structure between organization and substance	50
Figure 14	Identification of multi-actor governance and possible improvements	53

1. Introduction

1.1 Project framework

During the Paris Climate Change Conference the United Nations proposed to bind all nations to emission limitations (United Nations, 2015). The new agreement requires all nations to scale up every five years voluntarily pledged CO₂ emission limitations to increase the chances of preventing a global warming (United Nations, 2015). The European Union did already adopt legislation to achieve sustainable energy and energy efficiency in the member states: The Europe 2020 Strategy. This strategy does contain energy targets which have to be achieved and implemented at all levels of governance in Europe (European Commission, 2015b). The following targets are adopted to be achieved up to 2020 by the European Union as a whole:

- A reduction in greenhouse gas emissions of at least 20% below the 1990 levels
- 20% of the total European energy consumption have to come from renewable resources
- A 20 % reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency

Each member state had to present the European Commission a National Action Plan in order to define the directions of sustainable development (Den Boer, Den Boer & Szpadt, 2011). From all the European member states mainly Poland will have a problem with the achievement of energy efficiency and decarbonisation because still a great share of the economy depends on coal (Budzianowski, 2012).

According to the European Commission cooperation is needed between different levels, sectors and stakeholders due to the complexity of the 2020 objectives (European Commission, 2015b). Governance can bring together all the relevant stakeholders and that is why the strategy promotes 'governance' instead of 'government'. It emphasizes the importance of collaboration and coordination as the means of building a local institutional capacity to counter problems (ibid.). Several features can make it difficult to bring together all the necessary stakeholders in a policy cycle, like different resources, skills, expertise and powers of stakeholders involved. In this regard, it is interesting to identify how multi-actor governance systems look like and what the positions and interactions between different actors are.

1.2 Research aim

The ambitious environmental goals set by the European Union were perceived by the Polish executive as potentially counter-productive to the economic development of Poland (Riedel, 2008, p. 23). Because of the economy of Poland is highly dependent on coal and lignite, the European priorities in terms of energy issues conflict with the energy system of Poland (Riedel, 2008). The system of multi-actor governance can contribute to improve the transition of Poland towards energy efficiency and this makes it interesting to analyze systems of multi-actor governance in Poland. The identification of a multi-actor governance system can explain the relevance and the structure of such governance system. A case study on the level of the city of Wroclaw is chosen to analyze this issue.

In the European member states the building stock is responsible for a large share of greenhouse gas emissions (Nolte, Griffiths, Rapf & Potcoava, 2012). Major emission reductions can be achieved

through changes in the building sector, which is crucial to achieve the reduction targets of the European Union (ibid.). The conditions of houses and buildings in Poland are very poor. Although the minimum adequate insulation requirements in Poland's building regulations have tightened in recent years, the insulation measures do still fall short of the levels required in many Western European countries (ibid.). Due to this fact, the heat loss from residential building in Poland have been estimated about twice of those found in other European member states (ibid.). Furthermore, the lack of adequate insulation results in high heating costs and for this reason energy consumption does have a strong impact on household's expenditures (Energie-Cités, 2009). The Operational Program Infrastructure & Environment and the Regional Operational Programs in Poland do concern achieving energy efficiency and renewable energy actions in the housing sectors (ibid.). The housing investments in energy efficiency and renewable energy will be co-financed with structural funds (ibid.).

1.3 Research questions

1.3.1 Main question

The objective of this research is to get a better understanding of the structure and processes of multi-actor governance in the sustainable development of the residential sector in Wroclaw. The main question of this thesis is as follows: *How does the multi-actor governance system in the sustainable housing policy of Wroclaw look like and what are the processes within this governance structure?* All the relevant concepts which are needed for the analysis of the empirical data are included in this main question and will be further described in Chapter 2, the theoretical framework.

1.3.2 Sub questions

Different steps will be taken to answer the main research question at the end. Firstly, there will be analyzed which actors are involved in the multi-actor governance system. Furthermore, the connections between these actors, their influences and their goals will be described. To describe the connections between the actors it is relevant to analyze which resources every actor does have to influence other actors or to influence the policy system, like financial powers of actors with grants. Then, rules of public policies, procedural rules and rules of coordination between the actors will be evaluated. They include both formal and informal rules. Afterwards, the discourses which structure the communication processes between actors will be analyzed. With this structure it will be possible to answer the main research question. By answering the following sub questions a well-structured analysis of the Master thesis can be provided:

- *Which actors are involved in the sustainable housing policy in Wroclaw?*
- *Which resources do the agents have to influence other actors or to influence the governance system?*
- *Which rules are visible in the sustainable residential sector of Wroclaw?*
- *Which discourse is visible to structure the processes between the agents?*
- *Is the 'duality of structure' visible in the sustainable housing policy of Wroclaw?*

The empirical part of the research will give answers on these questions and knowledge will be obtained to identify the multi-actor governance system in the sustainable housing policy in Wroclaw.

1.4 Societal and scientific relevance

The analysis of the existing literature around this topic made it possible to find a statement of the problem or gap in scientific literature (Creswell, 2013, p. 61). The scientific and societal relevance are retrieved from the previous desk study of the available scientific literature.

1.4.1 Scientific relevance

This research aims at contributing scientific knowledge about a new topic. The scientific relevance of the research refers to the contribution to theories and practices around multi-actor governance. Knowledge will be provided to better understand multi-actor governance systems by way of applying it to a specific case: The city of Wroclaw. Evidence of the structure and the processes of multi-actor governance in achieving sustainability in the residential sector will be provided. No generalization can be made after the study to develop a new theory, because only one case study will be done. On the other hand, more detailed and deeper information by the participants can be obtained with the focus on one particular case.

1.4.2 Societal relevance

Furthermore, this Master thesis can have effects on the everyday social life of people. The societal relevance reflects the possible contribution of the research to the solution or change of real life planning issues. In this case, the multi-actor governance in the field of sustainability in the housing sector of Wroclaw will be described. The outcome can make clear on which elements the governance system could improve to achieve energy efficiency and the use of renewable energies in the residential sector. Recommendations can be made about possible improvements in the multi-actor governance system. Afterwards, these possible improvements can contribute to changes in the sustainable energy policy of the residential sector in Wroclaw. Finally, this can contribute to the achievement of more energy efficiency and more renewable energy resources in residential buildings in the city of Wroclaw. The European Union argues that cooperation is needed between different stakeholders to achieve energy efficiency and this case study will give new insights about the applications of multi-actor governance in a specific area.

1.5 Structure of the thesis

This chapter introduced the situation around multi-actor governance and sustainable development in Europe and Poland. Furthermore, the research questions of this thesis are described and different steps will be taken in this thesis to answer these research questions. Firstly, Chapter 2 will examine the relevant concepts and theories of multi-actor governance. The operationalization of these theoretical concepts will make it possible to analyze the empirical research data. Afterwards, the methodological choices to collect and analyze the research data will be described in Chapter 3. The following chapter does describe the general information of the city of Wroclaw and its surroundings. It includes information about the urgency of sustainability in the residential sector and information about support programs to take sustainable measures. Furthermore, an analysis of the administrative structure of Wroclaw will be made. Before getting a better understanding of processes and social structures in Wroclaw it is important to have an objective view on the general information of the city area. After the elaboration of the theoretical framework, the methodological framework and the general information of the region, the analysis of the empirical research data can be done. The different divisions of the multi-actor governance system will be described in Chapter 5 and in Chapter 6. Chapter 5 will focus on the organization structure of the multi-actor governance and the following chapter will describe the substance of the multi-actor governance. Chapter 7 will

present the main findings about the duality between the organization structure and the substance of multi-actor governance. The final main findings about the multi-actor governance in the sustainable housing policy of Wroclaw will be identified in Chapter 8. Besides, this chapter will give a reflection on the research process and it will contain recommendations for further scientific research.

2. Theoretical framework

A desk study was done to collect relevant documents and information from internet websites which are relevant for the research topic. This scientific literature and policy documents are the basis for the topic of the Master thesis and it is also the basis for further research. During the analysis of the research more documents on planning theories and on the research methodology are collected which are of relevance. The applied research philosophy will be described in the first part of this chapter. Afterwards, the applied theories which are relevant in this Master thesis will be elaborated. Furthermore, the definition of the sustainable housing policy in Wroclaw will be described. At the end, the conceptual model will operationalize the main concepts of the research and the relation between these concepts. The conceptual model makes clear how to measure different elements of the study.

2.1 Research philosophy

Philosophy means the use of abstract ideas and beliefs that inform our research (Creswell, 2013, p. 16). Philosophies are needed for an understanding of philosophical assumptions behind different parts of the research (ibid.). In this research social constructivism will be the central research philosophy. It states that actors develop meanings and understandings of phenomena in a different way, because of social construction (Creswell, 2013, p. 24). The varied and multiplied meanings and experiences are often negotiated socially and historically (ibid.). The purpose of this research is to analyze the experiences and meanings of the multi-actor governance system of the sustainable housing policy in the city of Wroclaw. This analysis will be done through evaluating the perspectives of the actors involved in the achievement of sustainability in the residential sector of Wroclaw.

Social constructivism is a philosophy which develops varied and multiple subjective meanings, directed towards certain objects or things. The goal of the research is to rely as much as possible on the participant's views of the situation being studied. These individual views are formed through historical and cultural norms. In this way it is possible to interpret the meanings others have about a specific phenomenon. From a constructivist perspective, the process of regime creation and strengthening over time helps to create and spread shared norms of acceptable behaviour among different actors, consensus over the significance and definition of a given problem and knowledge about a given problem and its solutions (O'Neill, 2009, p. 76). The process of regime creation can also change perspectives and identities of the parties themselves.

2.2 Applied theories

Grounded theory is a qualitative research design in which the inquirer generates a general explanation (a theory) of a process, an action or an interaction shaped by the views of participants who have experienced the process (Creswell, 2003, p. 83). Data about a process will glean from the interview partners. In this case, information of actors involved in multi-actor governance in the sustainable housing policy will be collected and compared. New information will be gathered from interviews and then the gap in literature can be filled in. The policy arrangement approach can be applied as an analytical framework for studying multi-actor governance systems. This approach can analyze how actions of actors solidify into structures and on the other hand, how structures influence the actions of actors. This approach is derived from the structuration theory of Anthony Giddens, which does connect structure and agency. Firstly, this theory of Giddens will be described to

understand the relationship between actors and social forces and to understand different forms of structure (Giddens, 1984). Afterwards, the policy arrangement approach will be analyzed and an operationalization will be given of this approach. Elaborating these approaches in detail can serve as a context for understanding the concept of multi-actor governance in this Master thesis. The operationalization of the concepts will make it possible to analyze the positions and interactions between the main actors involved in achieving sustainability in the residential sector in Wroclaw. Finally, after the description of relevant theories and concepts of this research, a conceptual model can be made of the relation between these concepts and this model will structure the elaboration of the empirical research data.

2.3 Multi-actor governance

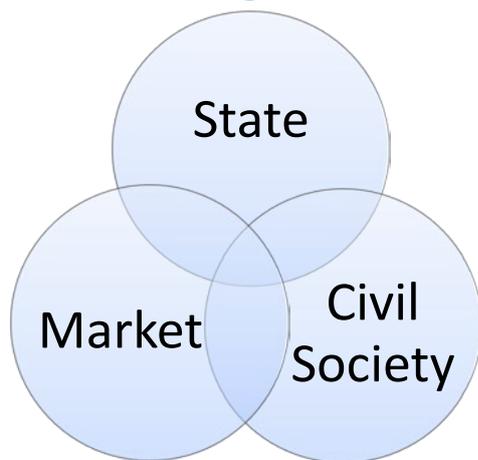


Figure 1. Governance model of the institutions (Based on Steurer, 2013)

In the governance model of multi-actor governance actors from the state, market and civil society domain collaborate with each other in multiple and diverse ways when their goals or comparative advantages are common (Metz, Davidson, Bosch, Dave & Meyer, 2007). It emphasizes the importance of collaboration and coordination as the means of building a local institutional capacity to counter problems, like the reduction of energy in residential buildings. The hybrid model of figure 1 represents the interplay and co-management between the domains. In this research the focus will be on the mixtures and instruments of actors in these three institutions to achieve sustainability in the residential sector in Wroclaw. In the scientific literature a lot of theories can be found about multi-actor governance. An overview of main conceptual focuses and theoretical frameworks of multi-actor governance systems are described in the following table based on the research of Leon Hermans (Hermans, 2005, p. 27). Different analysis models can be used to elaborate the theoretical frameworks.

Main conceptual focus	Theoretical framework
Perceptions of actors	Discourse analysis
	Comparative cognitive mapping
Resources of actors	Conflict analysis
	Transactional analysis
	Stakeholder analysis
Structural characteristics of actor networks	Network analysis

Table 1. Overview of main conceptual focuses and theoretical frameworks of multi-actor governance (Based on Hermans, 2005, p. 27)

This overview is not exhaustive, but it contains sufficient theoretical frameworks to provide a solid starting point for further review of the use of frameworks and models for multi-actor analysis (Hermans, 2005). The three basic theoretical perspectives of multi-actor governance processes are: The focus on networks, focus on perceptions or the focus on resources of actors. Because the research of this Master thesis wants to gain insight in the existing structure and processes within the multi-actor governance system, the analysis model have to cover more perspectives of multi-actor governance with still the emphasis on the perceptions of actors. Although the theories of discourse analysis and comparative cognitive mapping seem to achieve the objective of this research, these theories will not be used. The theory of discourse analysis is often criticized for being unclear of its philosophical foundations and because of lacking an adequately developed sociological theory (Haig, 2004; Breeze, 2011; Jørgensen & Phillips, 2002). Furthermore, there is a lack of tools and expertise to perform the theory of comparative cognitive mapping. Because of this criticism and the lack of expertise and tools sociological theories will be applied in this study to analyze the concept of multi-actor governance. Sociological theories are important for the study of understanding complexities of real world policy making (Lamsal, 2012). The theory of Anthony Giddens can be of great assistance for the understanding of the shared reality of the social world (Giddens, 1984). The policy arrangement approach is derived from the structuration theory of Anthony Giddens and it can be applied as an analytical framework for studying multi-actor governance systems. This approach can analyze how actions of actors solidify into structures and on the other hand, how structures influence the actions of actors.

2.4 Structuration theory

Different sociologists have studied the human element of agencies in the social world trying to create an encompassing social theory of the social world (Lamsal, 2012). Max Weber, Émile Durkheim and Karl Marx did profoundly influence research of the social world as founders of sociology (ibid.). Lamsal identifies in his analysis these founders of sociology. Max Weber was the founder of the social action theory, which argues for the study of social action through interpretive means based on understanding the meanings of individuals to their own actions (Lamsal, 2012). Durkheim's functionalism theory did focus on the maintenance of integrity and coherence of societies and Karl Marx's work was concerned with the division into classes through capitalism and the competition this entailed (Lamsal, 2012). According to Lamsal Marx argues that one can understand the social and political conditions by understanding the material conditions of people through history (ibid.). Although Anthony Giddens structuration theory originated from these social theorists, his theory

lacked regard for humanist elements based on volunteerism and lacked the focus on objective structures. Furthermore, he included the consideration for the socio-structural context of individuals or group agency. The structuration theory emphasizes the relationship between structure and agency in society with attention to the actors themselves producing their social reality (Lamsal, 2012). To construct social reality agents use their practical understanding and the resources of the social structure (Giddens, 1984). Thus, the role of the social structure can be both a constrain and an opportunity for human action.

Connection of structure and agency

To understand the relationship between actors and social forces, different terms in conjunction with his theory and different forms of structure will be explained (Giddens, 1984). Furthermore, will be described how the relationship between the two concepts can be used to understand our shared reality of the social world. The concept agent refers to any social unit that is capable of making a difference, which is not only about human individuals. Agency is the continuous flow of conduct and change which is constructed through time and space. The concept structure cannot be separated from agency and is described as rules, resources, restrictions and possibilities. Because structure and agency are connected to one another Giddens has termed this connection the ‘duality of structure’ (Lamsal, 2012). Agents can create our society’s structure by means of invented values and norms, but at the same time they are constrained by our social structure (ibid.). Finally, the system is seen as the reproduced relations between actors organized as regular social practices. Figure 2 does illustrate the connections between the structure system and the system of interaction.

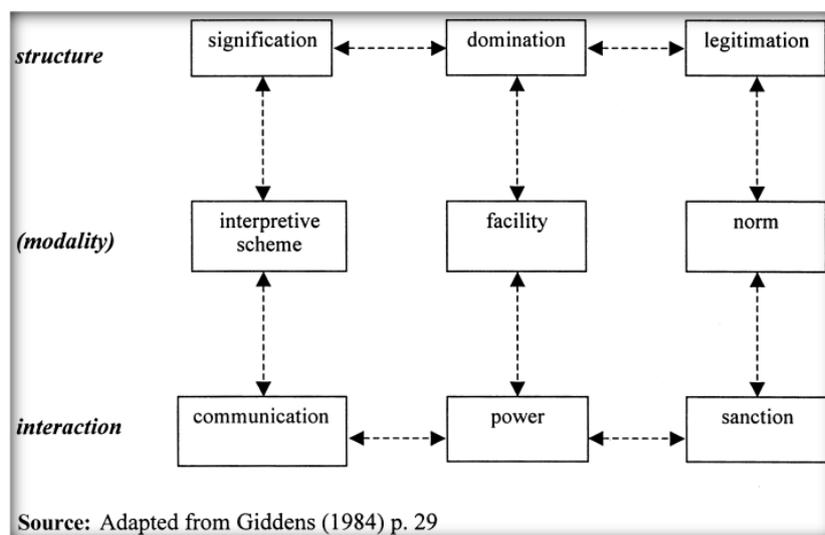


Figure 2. Structure system and system of interactions (Giddens, 1984, p. 29)

As displayed in figure 2 there are three dimensions of structure in a social system: Signification, domination and legitimation. The modalities do explain why and how the different dimensions of interaction are affected. The means by which structures are translated into actions are called modalities, which are interpretive schemes, facilities and norms. The three dimensions of interaction are described as communication, power and sanctions. Signification does produce meaning through semantic codes, interpretive schemes and discursive practices, which represent the organized webs of language (Lamsal, 2012). The second dimension, domination, does focus on the production and exercise of power, originating from the control of resources. The last structural form of interaction between the actor and the structure is legitimation. This produces a moral order via naturalization of

societal norms, values and standards. When agents interact they exhibit meanings (called sanctions by Giddens) of their behavior. Thereby, interactions shape the current social norms and are weighed against the moral rules of the structure (ibid.). If action of an agent is considered legitimate in the social systems, it is structured by this element of legitimation. Thus, the structure does determine the power, communication and meanings of the actors and the other way around, the agents do determine the signification, domination and legitimation.

2.5 Policy arrangement approach

Since the 1990's the context of behavior and actions is taking into account with policy arrangement approaches (Arts & Van Tatenhove, 2002). With the use of this approach an analysis can be made of how actor's behavior or actions solidify into patterns and structures and how patterns structure day to day behavior or actions of actors. This approach has been inspired by the structuration theory of Giddens, which also deals with the duality of structure (ibid.). The policy arrangement concept will give an understanding of the structuration of environmental governance systems (ibid.).

Structure and agency are connected in the policy arrangement, where actors act in the development and implementation of policies (Van Leeuwen, 2010). In order to identify governance systems, an elaboration has to be made about its main aspects: Organization and substance. In figure 3 the aspects and dimensions of the policy arrangement approach are displayed. According to the structuration theory of Anthony Giddens, the organization is the social system of different agents that are nested in structures of rules and resources (Giddens, 1984). Three main dimensions of the aspect organization can be distinguished: Actors, resources and rules (Arts & Van Tatenhove, 2002). The aspect of substance in the policy arrangement approach will be analyzed with the dimension policy discourse (ibid.). The actors in the policy arrangement do co-determine the organization and substance of the arrangement. Figure 4 shows the mutual interdependency between the four dimensions, which represents that the study of a governance system is interrelated and complex. These four dimensions are the basis for the identification of the multi-actor governance system in sustainable housing policy in Wroclaw.

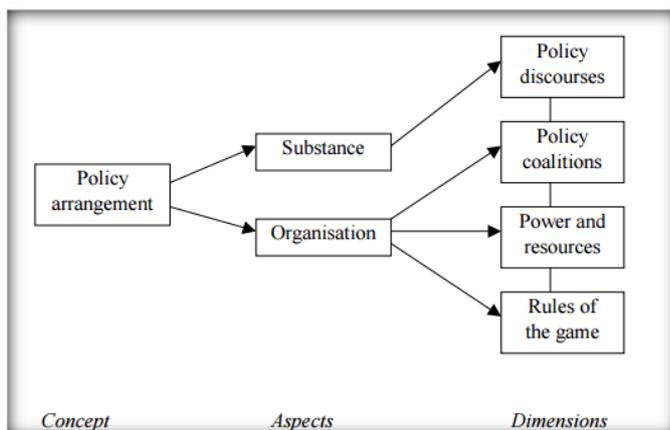


Figure 3. The aspects and dimensions of the policy arrangement approach (Arts & Van Tatenhove, 2002)

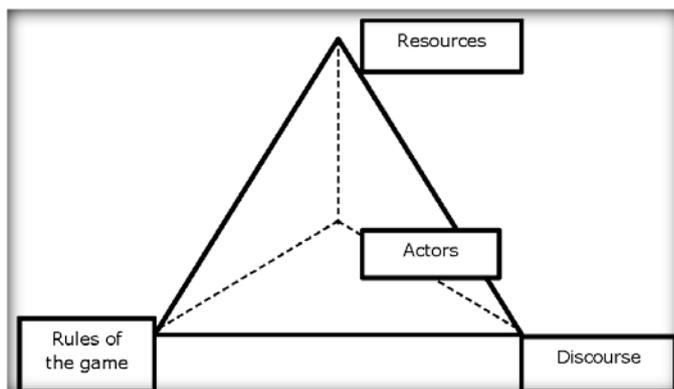


Figure 4. The dimensions of an existing policy arrangement (Van Leeuwen, 2010, p. 34)

Thus, in this research the analysis of a multi-actor governance system concerns all the four dimensions represented in figure 4: Actors, resources, rules of the game and discourse (Van Leeuwen, 2010). Actors will be taken as a starting point, because before the actual policy arrangement can be analyzed, the main actors involved in the organizational process of multi-actor governance have to become clear and have to be described. Afterwards, the other dimensions will be addressed.

2.5.1 Operationalization concepts

Actors	Resources	Rules of the game	Discourse
Public actors involved	Formal competences	Legislation	Scientific paradigms
Private actors involved	Financial power	Procedural norms	Policy programs
Civil society actors involved	Knowledge resources	Integration or coordination of rules	Metaphors or narratives

Table 2. Operationalization policy arrangement dimensions (Based on Larrue, Hegger & Trémorin, 2013)

Actors

The method which will be used for mapping out the relevant actors, the agents, will be done with network analysis. This mapping tool is interview-based and helps to determine which actors are involved in a given network, how they are linked, how influential they are and what their goals are (Anandajayasekeram, Puskur & Zerfu, 2009). A mapping sheet will be placed in front of the interview to write down all the names of individuals, groups and organizations that can influence the sustainable housing sector in Wroclaw (ibid). Furthermore, the actors have to describe the positions in the domains of state, market or civil society of the actors involved (Larrue, Hegger & Trémorin, 2013). The outcome of this mapping sheet is displayed in figure 11 in paragraph 5.1. Larrue, Hegger & Trémorin (2013) made an operationalization of the different dimensions of an existing policy arrangement for assessing flood risk governance in Europe. Based on their research different types of actors are considered which can be possible actors involved in the multi-actor governance system:

- Public actors involved: These can be public authorities both at a national, regional and local levels. Because researchers and experts do get public funding in this policy arrangement they are also public actors involved.
- Private actors involved: These concern market parties on different levels involved in decision-making and implementation.

- Civil society actors involved: Non-governmental organizations on different levels, citizens, consumer organizations and pressure groups.

After the determination of the relevant actors involved, the coalitions and oppositions have to be described by the interviewees. Actors with the same preferences and opposite preferences according to achieve sustainability in the residential sector will be analyzed. In the analysis of the connections between the agents, the dimension resources will emerge.

Resources

To find out how all the organizations and individuals are linked to each other it is relevant to analyze which resources every actor does have to influence other actors and to influence the policy arrangement. The different kind of resources are displayed in table 2 based on the research of Larrue, Hegger & Trémorin (2013). The technical skills are removed from the selection of their research, because the knowledge resources do already concern the expertise and disciplines within the organization. Furthermore, the infrastructure resources are removed from the operationalized indicators of the research of Larrue, Hegger & Trémorin (2013). They included this indicator because in the analysis of flood risk management at an European level it is interesting to analyze who has the power to decide on building or destroying infrastructure. In this local case focusing on sustainable development in the residential sector, there is no relevance to analyze the infrastructure resources. The following resource-related issues have to be addressed to analyze the influence on the policy arrangement:

- Formal competences: Rules which grant some authorities to certain powers, for instance the power of public authorities to regulate property.
- Financial power: Some actors may have the power to provide other actors with financial resources (grants, funds) or they may have possibilities to raise taxes and levies.
- Knowledge resources: This indicator concerns what disciplines and fields of expertise are represented among the agents and how the information between actors is shared.

Rules of the game

Rules of the game refer to the rules of public policies, the procedural rules and to the rules of coordination between the actors (Larrue, Hegger & Trémorin, 2013). These include both formal and informal rules. Also in this dimension some indicators of the flood risk management research are left out because the analysis of these indicators are not of relevance for the objective of this Master thesis. The research of Larrue, Hegger & Trémorin (2013) described the indicator legal instruments as the tools that actors have to enforce things. Because this indicator does overlap with the description of the dimension legislation of the concept resources, this indicator will be left out. The indicator substantive norms will be left out, because it does overlap with the description of the dimension discourse. These indicators are both about the share in interest of individual norms and values of relevant actors. The last indicator of the dimension rules of the game, which is used in the research of flood risk management, is about transnational influence of the legal system. Because of the importance to integrate procedural norms of policies through a transnational strategy, this transnational influence will be taken into account in the indicator procedural norms (Larrue, Hegger & Trémorin, 2013). Finally, the concept rules of the game is divided into the following indicators:

- Legislation: It is about which legislation is produced and adopted in the sustainable housing policy of Wrocław. A clear view of legislation, legislative arrangements and how they have been made by the legislators should help in finding the objectives of the legal landscape.
- Procedural norms: This indicator concerns country-specific procedures and structures for the development and implementation of a certain policy. Issues like public participation can be evaluated. Furthermore will be described how these norms, procedures, standards and instruments are influenced by transnational processes.
- Integration or coordination of rules: This indicator is about the integration and coordination between different policies that are related to sustainable housing policy. The presence or absence of integration in different policy domains will be analyzed.

Discourse

The last dimension of the policy arrangement approach which will be described is discourse. In this research, discourse is defined as *'an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena and which is produced and reproduced through an identifiable set of practices'* (Van den Brink & Metzke, 2006, p. 67). Discourses structure communication processes between actors and at the same time the organization structure of the policy arrangement can create the underlying society's structure, the discourse (Lamsal, 2012). This mutual interdependency represents the 'duality of structure' of the structuration theory of Anthony Giddens. Three elements can be included in a discourse analysis (Larrue, Hegger & Trémorin, 2013):

- Scientific paradigms: These concern the own set of values and perceptions of actors involved in the sustainable housing policy. Identifying these elements can be relevant to understand the positions between the actors and to understand the development of the policy.
- Policy programs: Programs or objectives have an underlying discourse that can be analyzed to find important spatial and ecological values.
- Metaphors or narratives that are used in a discourse can help to understand what is at stake.

2.6 Definition sustainable housing policy in Wrocław

Because the norms and values about sustainable development change a lot over time, no standard definition of it is included in the theoretical framework. The different agents in the multi-actor governance system of sustainable housing policy will give their norms and values towards sustainable development. The individual ambitions and measures taken by the actors to achieve sustainability will be elaborated. The questions of the semi-structured interviews will focus on cases which are already in the implementation phase, otherwise it will be possible the actors will mainly talk about plans and prospects they have for the future while the focus of this research is on the current stage of multi-actor governance in sustainable housing policy. The analysis of sustainable housing policy will elaborate what the contribution of multi-actor governance is in the achievement of sustainability in the residential sector of Wrocław. Achieving sustainability will focus mainly on two dimensions, which are based on the two main goals of the Polish national housing policy. According to the Operational Program Infrastructure & Environment and the Regional Operational Programs in Poland the focus on achieving sustainability is on achieving energy efficiency and on the use of renewable energy resources in the residential sector (Energie-Cités, 2009). The positions and ambitions of the agents towards the achievement of these dimensions in the housing policy will be analyzed to describe different positions and interactions towards sustainable housing in Wrocław.

2.7 Conceptual model

After the description of the relevant theories and concepts of this research, a conceptual model can be made of the relations between these concepts. The operationalization of the main concepts in the conceptual model make clear how to measure different aspects of the study. The conceptual model is a framework for the elaboration and structure of the Master thesis.

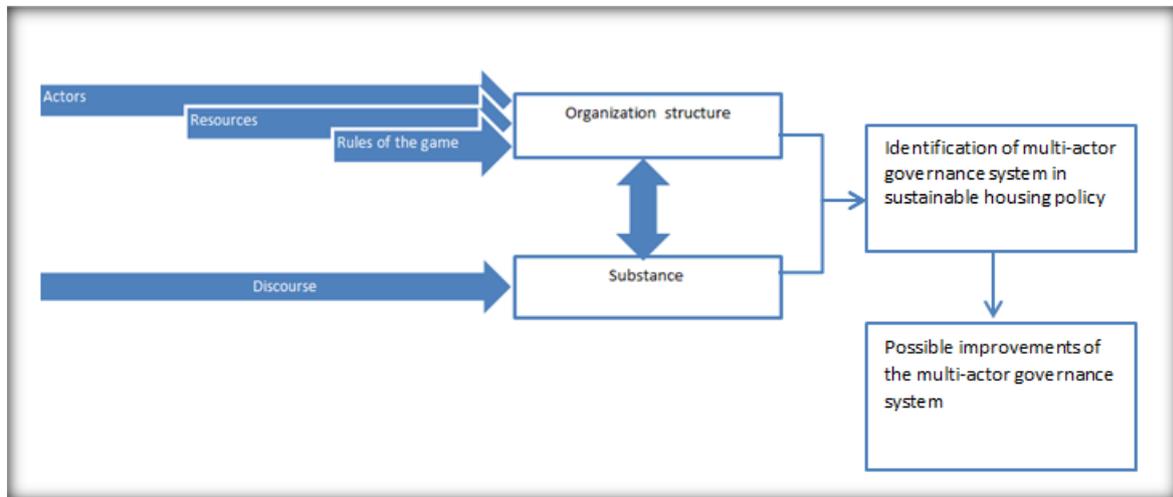


Figure 5. Conceptual model (Own source)

Firstly, the organization structure of the multi-actor governance system will be described. The interview partners are requested to map out the relevant actors involved in the multi-actor governance system in the sustainable housing policy in Wrocław. Afterwards, will be analyzed which resources every actor does have to influence other actors or to influence the policy arrangement. After the description of the resources, the rules of the game will be elaborated. The actors, resources and rules of the game are the three dimensions which determine the organization structure of the multi-actor governance system.

Then, the substance will be described by means of evaluating the discourse of multi-actor governance. The 'duality of structure' is represented with the arrow between organization structure and substance. The discourses do structure communication processes between the actors and on the other hand, the values and norms of the actors create the discourses. After the analysis of the four interrelated dimensions, the multi-actor governance system in the sustainable housing policy of Wrocław can be identified. At the end, through the identification of the structure and processes within the multi-actor governance system can become clear which possible improvements of this system can be made in sustainable housing policy.

3. Methodological framework

'Interpretive research is a research paradigm that is based on the assumption that social reality is not singular or objective, but is rather shaped by human experiences and social contexts (ontology).'

- Bhattacharjee, 2012, p. 103 -

As stated by the theory of Anthony Giddens the social context and the processes within the social context have to be combined to understand social systems (Anthony Giddens, 1991, p. 204). The research paradigm of interpretivism is also based on the assumption that the social reality is not objective, but that it is shaped by human experiences and social contexts. An interpretive paradigm is used to collect and analyze the research data for this Master thesis, because this research paradigm does emphasize the importance of understanding the real and social world of the research subjects from their point of view (Saunders, Lewiss & Thornhill, 2008). Important values, experiences and proceedings of real world processes will become visible with the use of this scientific paradigm. In this chapter the interpretive scientific strategies and scientific methods to elaborate the empirical data will be described. Furthermore, will be described how the empirical data will be analyzed. Due to the scientific research procedures, the answers on the sub questions and the main findings at the end of the research will be shaped objectively.

3.1 Research design

The research design is the plan for conducting the study (Creswell, 2003, p. 49). It is a framework for the data collection and the data analysis (Bryman, 2012, p. 46). There are different approaches which can be used in scientific research: Qualitative, quantitative or mixed methods. In this Master thesis the focus is on the meanings of different actors towards a specific social issue and this will be examined with the use of qualitative research. The elaboration of the thesis will be done with profound research instead of with research which goes into the width. Analyzing the meanings of the actors involved in the multi-actor governance system of sustainable housing policy requires also an exploratory study, because a new scientific topic will be studied. This exploratory study will be done by a field study in the city of Wroclaw. Qualitative research is used to gather relevant research data, because the meanings of participants to a particular issue can be collected with this method. The actors will contribute to a better understanding of the structure and processes existing in the multi-actor governance system.

3.2 Research strategy

A research strategy which is associated with the qualitative research approach is a case study. This strategy does entail a detailed and intensive analysis of a particular case (Bryman, 2012, p. 401) and it is used to make the real world intelligible with the use of a set of interpretive practices (Creswell, 2013). Insight in one or several objects or processes can be obtained with the use of one case on a local level (Verschuren & Doorewaard, 2007). The case study is an interpretive research strategy, because an intensive study will be done of a phenomenon for the purpose of deriving detailed, contextualized inferences and understanding of dynamic processes underlying a phenomenon of interest (Bhattacharjee, 2012). In this study the structure and the processes of the multi-actor governance system in the sustainable housing policy will be explored in depth. The case chosen is the city of Wroclaw in Poland. The extensive collection of qualitative data will be retrieved from the actors

involved in the multi-actor governance system of sustainable housing policy. Case studies are bounded by time and activity (Creswell, 2013). In this regard, it is important to make a working plan to plan the activities to gather relevant information. With the right kind of data and an interpretive reading of the data it is possible to analyze the meanings of the interview partners.

3.3 Research methods

The theories inform the choice of suitable research methods. Research methods are techniques for collecting relevant research data (Bryman, 2012, p. 46). Qualitative research methods are used to answer the research questions and to achieve the research aim. Because the theories focus on the relevance of the meanings of participants, in-depth interviews will be taken to collect the perspectives of the different actors involved. Interviews are the most frequently used techniques in interpretive data collection (Bhattacharjee, 2012). The interview partners are theoretically chosen to best form the research. Firstly, during informal meetings relevant actors involved in the sustainable housing policy of Wroclaw will be examined. These actors involved will be interviewed and they also have to determine which actors are involved in the multi-actor governance system according to their perspective. The interview partners will map out from which domain the agents are and whether or not the agent is supporting sustainability in the residential sector. In paragraph 5.1 figure 11 displays the main findings of this research method to map out the different agents in the sustainable housing policy of Wroclaw. From each agent in the sustainable housing policy a relevant individual will be selected to arrange an interview. The observation objects have to speak English, because the use of a translator can lead to data information which have to be considered with extra attention. Some aspects that are perceived as 'not relevant' by the interpreter will be left out and in this way translators may produce knowledge that does not entirely fit with the goals of the researcher (Berman & Tyyskä, 2011, p. 181). After the description of the agents, the interview partners have to describe which resources, rules and discourses are visible in the governance system of sustainable housing policy in Wroclaw. The sample will generate the understanding of the social process. Face-to-face interviews will be conducted because in this sense it will be possible to investigate the behaviour and expressions of the actors involved (Creswell, 2013). Thereby, face-to-face interviews will make it easier to generate in-depth information with regard to the interview questions (ibid.). The interviews will be conducted with individuals, because interviewing in groups can influence the subjective perspectives of the individuals. Interviews taken one-by-one will encourage the interview partners to tell everything about their perspectives towards the structure and processes of the multi-actor governance (ibid.). An interview guide will be made to ensure all the relevant elements of the research will be taken into account. This interview guide can be found in the Annexes part. The semi-structured interviews will be held with open-ended questions. The open-ended questions will stimulate the interview partners to create their own answers which are not influenced by setting out different options. The interviews will go more into depth through asking further explanations and argumentations of the statements given by the interview partners. The contact details of the interviewees are also mentioned in the Annexes part.

3.4 Data analysis

In the early stages of this research, documents of available project documentation of sustainable housing in Wroclaw were analyzed. Furthermore, the theoretical and methodological framework have been formed by scientific literature. The applied theories will structure the interview guide to conduct interviews. These interviews will be analyzed to answer the sub questions of the research.

During the interviews it is impossible to write down everything that is said by the interview partners (Bryman, 2012). For this reason, if there is the permission to record, the interviews will be recorded. The records will only be used for the elaboration of the interviews and only for this research, which makes it probably no problem to record the interview partners. Afterwards, there will be made a transcription of the records. Not only a text analysis will be done, but also a description of different categorizations will be made. With the computer program Atlas.ti it is possible to emphasize relevant qualitative data of large textual and audio data. The analysis is made with the detailed procedure of the grounded theory approach. This approach consists of three different phases of coding: Open, axial and selective coding (Creswell, 2013). The open coding approach will made several categories of information and the axial coding approach interconnects these categories. A coding scheme will be created, which specify keywords and codes in the transcriptions (Bhattacharjee, 2012). At the end the selective coding approach will tell a 'story' of the connections between these categories (Creswell, 2013). All the empirical findings will be analyzed and interpreted with feedback to the existing scientific literature. By this way of data analysis relevant components in answering the sub questions will become clear. At the end, the larger meaning of the findings can be analyzed with all the information of the empirical data analysis.

3.5 Ethics in societal science research

Because a big share of the data collection is collected directly from the interview partners, the analysis of the research needs ethic approval (National Advisory Board on Research Ethics, 2009). To validate the accuracy of the research this will be done with the ethical principles of social science (ibid.). Ethical issues arise in different phases of the research (Creswell, 2013, p. 65). At the beginning, permission from the interview partners have to be gained to participate in the study. When the actors will reject the request this will be respected by the researcher. Furthermore, during the collection of the empirical data ethical principles will arise. The questions have to be asked with respect to values of the interview partners. The last phase does appear during analyzing the empirical data. The researcher does have to respect the privacy of the interview partners and the research findings have to be made in a honest and useful way (ibid.). The incorporation of ethical principles can be done by different elements (National Advisory Board on Research Ethics, 2009). The first principle is voluntary participation, the interview partners need to be well informed about the components of the procedure (ibid.). Furthermore, the harm to the subject have to be minimized. To minimize the harm the concepts privacy, anonymity and confidentiality are important to maintain (ibid.). Finally, the freedom of the interview partners to make their own decisions is relevant to maintain according to the National Advisory Board on Research Ethics (ibid.). Due to the semi-structured interview guides which will be used for this Master thesis, the interviewees will be free to make their own decisions and to talk about the issues they prefer. But to be sure all the elements which are relevant for the empirical data analysis are covered, some structure is needed with the use of an interview guide. The research philosophy social constructivism also states that questions have to be broad and general, allowing interview partners to construct the meaning of a certain situation or process (Creswell, 2003). The incorporation of ethical principles in the research can contribute to more openness and willingness of the interview partners to give extensive answers. Furthermore, the pursuance of ethical principles maintain the validity and the reliability of the research.

3.6 Informal meetings

For an understanding of existing social structures in Wrocław and Poland informal meetings were of relevance for this Master thesis. The people involved in the informal meetings were not able to inform about all the subdivisions of the identification of multi-actor governance. They were specialized in specific dimensions, which made them also very useful for scientific information and for some eye-openers. The informal meetings made clear it will be hard to find many actors involved in achieving sustainability in the residential sector of Wrocław, because the topic of achieving sustainability is not at issue among different actors. Economic issues are mainly superior to ecological issues in Wrocław (Magdalena Baborska-Narożny: March 3, 2016; Radek Lesisz: March 31, 2016 & Małgorzata Pietras-Szewczyk: April 4, 2016). This lack of awareness towards achieving sustainability made it even more interesting to analyze how the multi-actor governance system function and how different actors think about achieving sustainability. Furthermore, the reasoning behind the irrelevance of achieving sustainability in the residential sector is very interesting to elaborate. These informal meetings were important to understand the limitations in the research procedure to find many relevant actors involved in achieving sustainability in the residential sector of Wrocław. The interviews were very useful to confirm the statements of the informal meetings and to get deeper insights in the different dimensions of the identification of the multi-actor governance system. This made the informal meetings useful to reach trustworthiness and credibility in this research to overcome the limitation of involving many interviewees for the research of this Master thesis. Furthermore, the informal contacts made it possible to get a more objective view towards the social structures existing in Wrocław towards achieving sustainability in residential buildings. Most of the informal meetings were done face-to-face and a few were done by e-mail. The contact details of the informal meetings can be found in the Annexes part.

4. Description of the case study

To give a clear overview of the city of Wroclaw, general information of the city will be described. This background information of the case study will be needed for the empirical analysis and the presentation of the main findings. This Master thesis is focusing on the identification of multi-actor governance and one bounded case is selected to illustrate and elaborate this issue, the city of Wroclaw. This makes the case of Wroclaw a single instrumental case study (Creswell, 2013). Firstly, the urgency of achieving sustainability in the residential sector will be described. Then, the support to achieve sustainability in the residential sector will be analyzed with programs which are currently implemented. The funding programs for sustainability in residential buildings of Wroclaw will be described by means of available scientific literature and information from the interviews and informal meetings. In the third part of this chapter the administrative structure of Poland will be described for an understanding of the competences of public authorities in the city of Wroclaw in the sustainable housing policy.

4.1 Urgency of sustainability in the residential sector

4.1.1 Air pollution

With a population of over 630.000 and 1,2 million inhabitants in the metropolitan area, Wroclaw is the fourth largest city of Poland (Puukka, Dubarle, Goddard, Hazelkorn & Kuczera, 2012). It is the biggest city and the economic engine of the province of Lower Silesia (ibid.). The rapid population growth and the economic growth did contribute to the air quality problem in the city (Puukka, Dubarle, Goddard, Hazelkorn & Kuczera, 2012, p. 234). Thereby, the air quality problems are strengthened because of the strategies of some low-income residents to save money by burning wood and other combustibles to provide heat (ibid.). During the interviews many interview partners explained the local residents do even burn rubbish in their boilers to provide heat and save money (Magdalena Baborska-Narożny: March 3, 2016; Alicja Lindert-Zyznarska: April 20, 2016; Radek Lesisz: March 31, 2016 & Małgorzata Bartyna-Zielińska: March 29, 2016). The CO₂ emissions and the concentration of pollutions is very high in Wroclaw. In figure 6 the spatial variation of air pollutants in the region of Lower Silesia is mapped out. The big red spot shows the concentration of air pollutants in Wroclaw is very high compared to other regions in Lower Silesia (LIFE-APIS-PL, 2014).

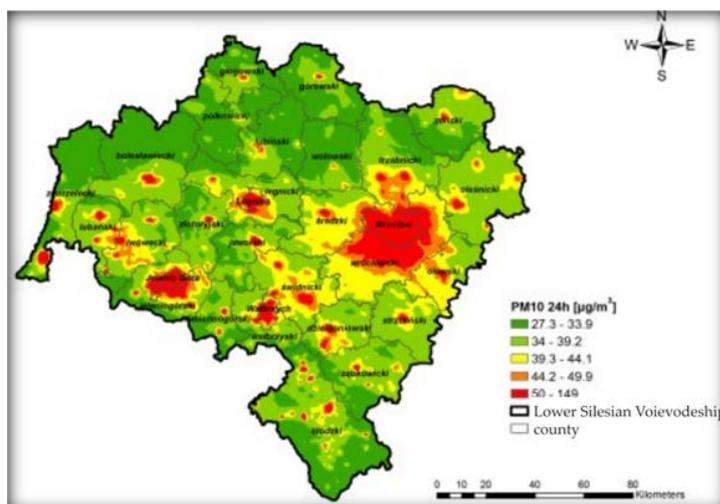


Figure 6. Air quality in Lower Silesia (LIFE-APIS-PL, 2014)

An increase in the share of renewable energy resources and an increase in energy efficiency measures will reduce the amount of air pollutants in the air, which can be of great relevance for the city of Wroclaw. Because in the European member states the building stock is responsible for a large share of greenhouse emissions, major emission reductions can be achieved through changes in the building sector (Nolte, Griffiths, Rapf & Potcoava, 2012). Also in Wroclaw the major air pollution comes from the residential buildings (Radek Lesisz: March 31, 2016). In Europe, potential energy savings in the building sector are estimated at 61% in residential buildings and 38% in tertiary buildings, like offices, shops and hospitals (Climate-KIC, 2014). These potential energy savings will be hard to achieve in the residential sector of Poland without taking energy efficiency measures because of the poor housing conditions the energy consumption in the residential sector is very high (ibid.). Furthermore, in Poland the emissions of greenhouse gases are high, because of the energy sector of Poland is highly dependent on coal and lignite (Riedel, 2008). In this regard, it is very useful to achieve sustainability in the residential sector of Wroclaw. There is few literature available about certified green buildings in Wroclaw and these lacks in literature make the objective of this research even more interesting to analyze.

4.1.2 Final energy consumption

The final energy consumption in the residential sector of the European member states is represented in figure 7. The numbers are given for 2005 and 2013. To take colder climatic conditions into account the residential energy consumption per capita is normalized with heating degree days (HDD normalized). The consumption of Poland did increase with 6% during this time frame (European Commission, 2015a). According to figure 7 of Eurostat the final energy consumption in the residential sector is relatively not high in Poland compared to other European countries. But according to Magdalena Baborska-Narożny there is few research focusing on checking energy efficiency targets in Poland, which make the numbers of this research debatable (Magdalena Baborska-Narożny: March 15, 2016).

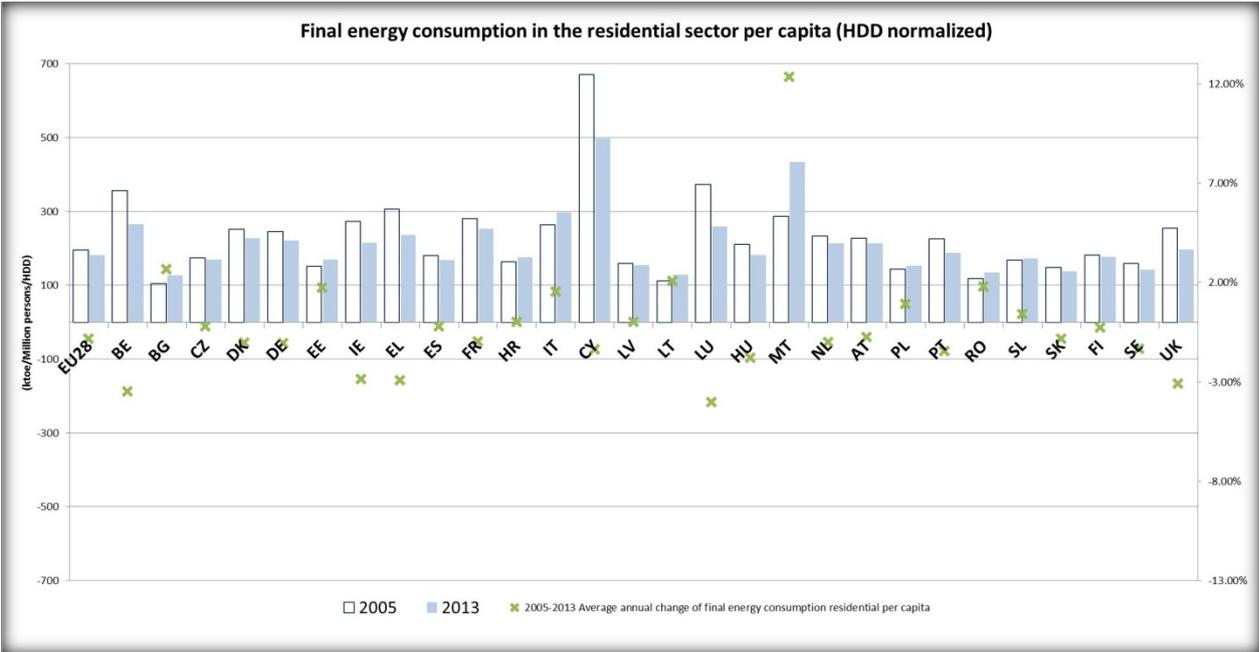


Figure 7. Energy consumption in the residential sector per capita in the European member states (European Commission, 2015a)

4.2 Support for sustainability in residential buildings

The support for energy efficiency improvements in residential buildings is negligible in Poland (Kassenberg, 2011, p. 4). Furthermore, the level of available funds to achieve sustainability in households is insufficient (Kassenberg, 2011, p. 10). Firstly, the Thermo-Modernization Fund was established to achieve energy efficiency in residential buildings. It is granted by the Bank of National Economy to the investor to install a thermo-modernization installation or a renewable energy project. The fund will finance the amount of 25% of the credit. On the local level of Wroclaw the name of this funding program is called KAWKA project. Although the Climate Coalition argues the tool is effective and innovative, the state budget for the finances are by no means certain (Climate Coalition, 2013). For example, in 2010 the state budget did not earmark financial resources to be distributed to the fund (ibid.). The Climate Coalition is an association of 19 non-governmental organizations with a shared mission to prevent human-induced climate change, for the benefit of environment and humanity (ibid.). The national funding for the KAWKA project has already finished, but probably the KAWKA program will continue with funding from the provincial government, the Marshal Office (Alicja Lindert-Zyznarska: April 20, 2016). Figure 8 does display different levels of the budget for the Thermo-Modernization funding during recent years.

Year	Value
1999	5
2000	12
2001	3
2002	37
2003	5
2004	42
2005	115
2006	125
2007	298
2008	270
2009	109
2010	0
2011	260
2012	120
2013	133

Figure 8. Budget subsidies of the Thermo-Modernization Fund, in million PLN (Bank Gospodarstwa Krajowego, 2014)

Another program is financed from the EEA and Norwegian Financial Mechanisms dedicated to energy efficiency and renewable energy. The objectives of EEA grants are to reduce economic and social disparities in the European Economic Area and to strengthen bilateral relations between Iceland, Liechtenstein & Norway (the donor states) and the beneficiary states (Bieszynska & Antink, 2014). The supportable area is broad, which includes saving energy and promoting renewable energy sources. However, this fund was available for projects approved up to 30 April 2016, therefore only finance will be allocated to projects which are already in the implementation phase and did approve before the 30th of April (ibid.). Furthermore, the interview partners did not know about projects with this kind of funding in Wroclaw.

Thirdly, the National Fund for Energy Protection and Water Management offers co-financing of loans for solar collectors in the residential sector (Bellmann, Besold, Culver, Jachimowicz, Sentimenti & Szałata, 2013). The fund also offers individuals surcharges to credits contracted for construction of energy-saving houses. According to EnercitEE circa 25 thousand households joined this program in Poland (ibid.). EnercitEE is a network of 6 partners from 5 European regions, including Lower Silesia, which does contribute to the improvement of local and regional policies and it provides assistance in the transfer of knowledge on energy efficiency and sustainability (ibid). Likewise the EEA funding, agents were not aware of any projects in the residential sector of Wroclaw financed by this loans.

In the province of Lower Silesia there is some additional funding for sustainability in the residential sector with the Regional Operational Program. In the Regional Operational Program 2014-2020 one investment priority is dedicated to the low-emission economy (Katarzyna Banaszkiwicz: March 10, 2016). A sub dimension of this priority does focus on energy efficiency in public utilities and residential buildings. The allocation to achieve these two goals amounts around 85 million Euros (ibid.).

4.3 Administrative structure of Wroclaw

The Nomenclature of Territorial Units in Polish Statistics (NTS) is an ordered list of names of territorial units which divides Poland into hierarchically related territorial units on 5 levels (Local Data Bank, n.d.). It is based on the European Nomenclature of Territorial Units of Statistics (NUTS). The nomenclature is relevant in the process of collecting statistical data and in making data analyses of social and economic developments in different regions. The territorial levels of Poland include:

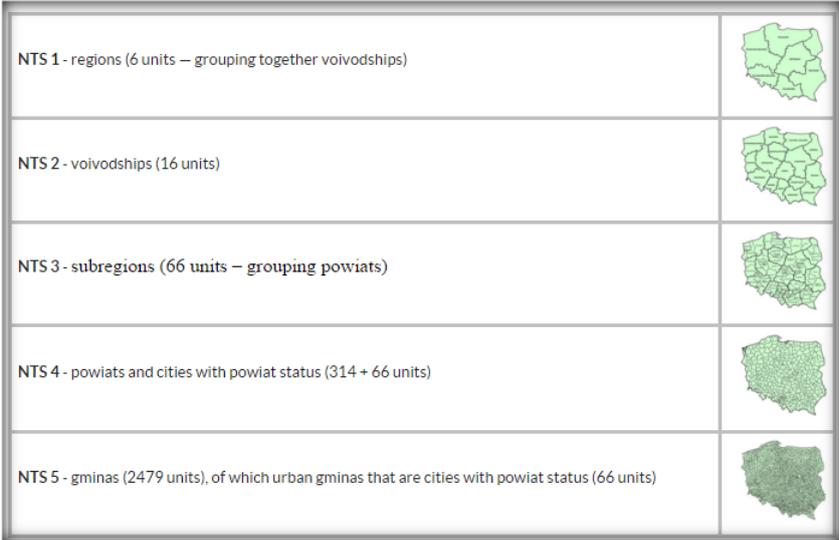


Figure 9. Nomenclature of territorial units in Polish Statistics (Local Data Bank, n.d.)

The first three levels are regional levels and the other ones are local levels. The levels which are relevant for this research are described in the following table:

NTS 1	NTS 2	NTS 3	NTS 4	NTS 5
Południowo-Zachodni (South-West Poland)	Dolny Śląsk (Lower Silesia)	Subregion of Wroclaw	District of the city of Wroclaw	Municipality of the city of Wroclaw

Table 3. NTS levels of the city of Wroclaw (Own source)

Each local administration unit fulfils public tasks within the area of their competence. NTS 2, NTS 4 and NTS 5 are the most influential territorial administrative divisions of Poland (Public Information Bulletin, 2016). The city of Wroclaw does represent the NTS 4 and the NTS 5 level, because Wroclaw is a city with a powiat status (district status), so it has the status of both municipality and district.

4.2.1 Competences of provinces

On the site of the Council of European Municipalities and Regions (CEMR) descriptions are given of the competences of different administrative levels in Poland (Council of European Municipalities and Regions, 2014). The CEMR is an organization which does have two objectives: Influencing European legislation on behalf of local and regional authorities and providing a platform for exchange between members and experts (ibid.). In Poland, the provincial government is the competent body to determine a regional development strategy, which does focus in particular on:

- Encourage economic activities and create conditions for economic development
- Higher education
- Environment and cultural heritage
- Social policy
- Maintaining and developing social and technical infrastructure of regional importance
- Employment

4.2.2 Competences of districts

Poland is divided in 380 districts or cities with a powiat status (district status), like the city of Wroclaw. The competences of governments at the NTS4 level, the districts, encompass tasks concerning:

- Buildings and maintaining infrastructure
- Employment
- Health
- Civil protection
- Secondary education
- Environment

4.2.3 Competences of municipalities

The lowest level of administration in Poland is the municipal level and the competences do include all public matters of local importance. They cover the following fields:

- Local public transport
- Social services
- Communal roads, bridges, squares and traffic
- Housing
- Pre-school and primary education
- Culture
- Environment

The tasks of the different administrative levels in Poland are related to each other and in some fields the competences are even overlapping, like the competence of environmental protection and

cultural heritage. The division in administrative levels represents the city of Wrocław does have both competences of districts and of municipalities, which includes the competence of developing the housing and building sector. The following chapters will elaborate what the structure and processes are within the multi-actor governance system to achieve sustainability in the residential sector. In this regard will become visible how the local public authorities do use their different competences to achieve sustainability in the residential buildings of Wrocław.

5. Organization structure

In order to answer the main research question the sub questions will be covered in the following paragraphs. This chapter will analyze the subdivisions of the organization structure of multi-actor governance. The subdivisions are the actors involved, the resources and the rules of the games which are visible. The following chapter will describe the substance of the multi-actor governance system which incorporates the subdivision discourse. At the end, the multi-actor governance system can be identified with the elaborations and descriptions obtained through these sub questions.

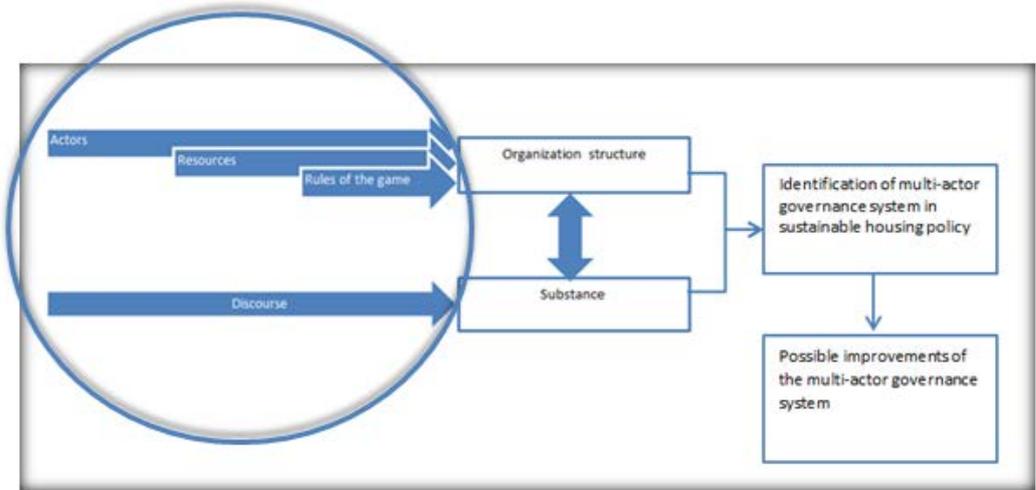


Figure 10. Analysis of the sub dimensions of multi-actor governance (Own source)

5.1 Actors

This part will answer the first sub question of this research, which is as follows: *Which actors are involved in the sustainable housing policy in Wroclaw?* The interviews and informal meetings made clear not many actors are involved in achieving sustainability in the residential sector. A description is given of the different agents which are involved. Figure 11 displays which agents have been indicated during the interviews and from which domain they are: Public, private or from civil society. Furthermore, the figure displays whether or not the actors are supporting sustainability in the housing sector of Wroclaw according to the interviewees. There is also represented by how many interview partners the different agents are appointed to argue which agents are the most visible in the sustainable housing policy according to the interviewees. Because of the application of a qualitative approach in this research cannot be supposed that the most appointed agents are the most influential in the sustainable housing policy of Wroclaw.

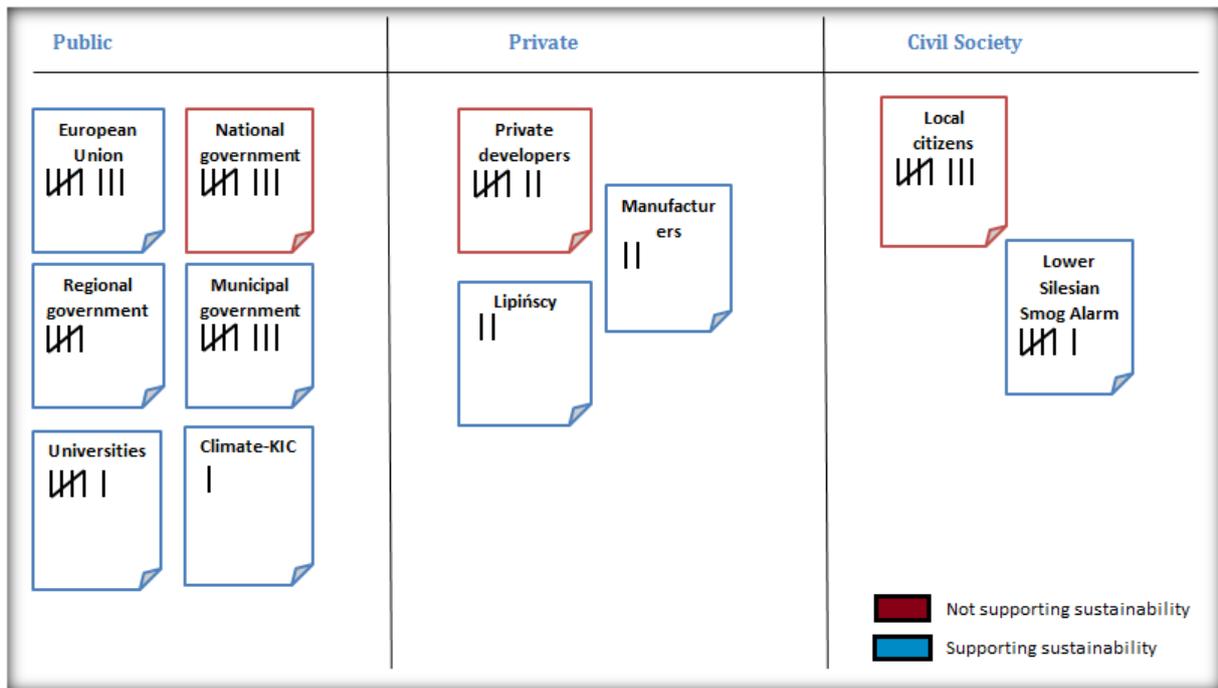


Figure 11. Mapping sheet agents in the sustainable housing policy (Own source)

5.1.1 Public actors involved

The European Union is involved in the sustainable housing policy of Wrocław, because they are making directives towards sustainability which have to be implemented on the national level. Nevertheless, the interview partners did all agree the national government of Poland is not focusing on achieving sustainable measures whatsoever (Małgorzata Bartyna-Zielińska: March 29, 2016; Przemysław Filar: March 29, 2016 & Izabela Mironowicz: March 25, 2016). The new government is very conservative and is even discouraging new ecological modes, because they do not correspond to the Polish tradition. Because the national government is not focusing on sustainability the implementation of the European directives is going very slowly (Małgorzata Pietras-Szewczyk: April 4, 2016 & Izabela Mironowicz: March 25, 2016). The Marshal Office of Lower Silesia is focusing on the regional development of the province area. In the Regional Operational Program 2014-2020 one invest priority is dedicated to energy efficiency in public utilities and residential buildings (Katarzyna Banaszek: March 10, 2016). But according to Małgorzata Bartyna-Zielińska the focus is more on sustainable buildings for public utilities and not really on sustainable residential buildings (Małgorzata Bartyna-Zielińska: March 29, 2016). The housing issue is one of the competences of municipalities in Poland (Council of European Municipalities and Regions, 2014). But when it comes to take sustainable measures in residential buildings in Wrocław the municipality is actually not that much involved, because the housing-market is driven by private developers (Izabela Mironowicz: March 25, 2016; Przemysław Filar: March 29, 2016 & Magdalena Baborska-Narożny: March 3, 2016). There is a willingness among local decision-makers for innovations in the field of sustainability, but due to some legal boundaries this willingness is restricted (Alicja Lindert-Zyznarska: April 20, 2016).

The researchers and experts from universities are also public actors in the sustainable housing policy of Wrocław, because all the big universities and the technical universities in Poland are state-financed (Magdalena Baborska-Narożny: March 3, 2016). Researchers and experts from different universities are doing research on achieving sustainability and developing energy efficient systems

for residential buildings (Izabela Mironowicz: March 25, 2016; Magdalena Baborska-Narożny: March 3, 2016 & Małgorzata Bartyna-Zielińska: March 29, 2016). The national university funding is distributed to the universities and then money for research will be provided through a way of internal funding (Magdalena Baborska-Narożny: March 3, 2016).

Another public actor which is involved is the research institute Climate-KIC. The European Union is financing the European research institute EIT+ and this European funding is divided by EIT+ to different local partners, like Climate-KIC in Wroclaw (Alicja Lindert-Zyznarska: April 20, 2016). The mission of the local research institute is to support cooperation between science, business and administration towards climate and energy issues (ibid.). The main challenge is how to achieve social change and energy efficiency (ibid.).

5.1.2 Private actors involved

Not only public actors are involved in the sustainable housing policy of Wroclaw, but also different private actors are involved. The private developers and private investors of residential buildings are very relevant agents, because the building sector of Wroclaw is strongly dominated by individual investors and private developers (Izabela Mironowicz: March 25, 2016; Przemysław Filar: March 29, 2016 & Magdalena Baborska-Narożny: March 3, 2016). Because of this strong domination in the housing market the residential buildings are build according to the preferences of the private developers (ibid.).

Other private actors involved in achieving sustainability in the residential sector of Wroclaw are the manufacturers of different sustainable technologies for residential buildings. International and national organizations do offer their products during fairs organized (Magdalena Baborska-Narożny: March 3, 2016). For example from April 13 till April 14, 2016 REECO Poland did organize a fair in Wroclaw to create a place where theoretical and practical knowledge can be obtained (ibid.). The focus was on renewable energy sources and it did cover issues concerning energy efficiency and energy-efficient buildings. Nevertheless, not many manufactures are involved to develop and sell sustainable technologies for houses, because not many local residents or companies are interested in these technologies (Radek Lesisz: March 31, 2016).

Furthermore, the architectural office Lipińscy did influence the sustainable housing policy of Wroclaw. The Architectural office Lipińscy did have a passive house project which is called Lipińscy Dom Pasywny 1 (Firląg, 2010). This private organization has built a demonstration house in Smolec, near the city of Wroclaw with the support of specialists from the Institute of Passive Houses by the National Energy Conservation Agency. The effective guidelines for passive house construction developed in Germany were adapted to the local climate conditions of Wroclaw (ibid.).

5.1.3 Civil society actors involved

During the interviews only one organization have been appointed from civil society: The Lower Silesian Smog Alarm (Małgorzata Pietras-Szewczyk: April 4, 2016; Przemysław Filar: March 29, 2016; Alicja Lindert-Zyznarska: April 20, 2016 & Izabela Mironowicz: March 25, 2016). Radek Lesisz, who is involved in the activities of the Lower Silesian Smog Alarm, explains this is a collection of different non-governmental organizations focusing on the air quality (Radek Lesisz: March 31, 2016). They are trying to raise the awareness among local residents and decision-makers to achieve sustainability in houses, because the residential buildings are the main source of air pollution in Lower Silesia (ibid.). The organization is working on a regional level and focuses on Lower Silesia, but most of the activities

are in the city of Wroclaw (ibid.). Also the local residents of Wroclaw are visible in the sustainable housing policy, because they are responsible to take sustainable measures in their houses.

Furthermore, no other actors from civil society are visible in the multi-actor governance system to achieve sustainability in the residential sector of Wroclaw according to interview partners. Maybe there are some other organizations focusing on achieving sustainability in the housing sector of Wroclaw, but their activities and effects are not visible to the main agents, which make these organizations negligible. Generally, the involvement of non-governmental organizations in programs or projects is very low in Poland (Izabela Mironowicz: March 25, 2016 & Alicja Lindert-Zyznarska: April 20, 2016). In Poland it is hard for non-governmental organizations to obtain funding and probably this strengthens the low involvement of actors from civil society in the policy arrangement (Małgorzata Pietras-Szewczyk: April 4, 2016).

5.2 Resources

The second sub question is about which resources the agents do have to influence other actors or to influence the governance system. The analysis of the resources will represent the connections between different actors, because some actors can have a certain power over other actors by means of resources they do have. The different available resources which will be described are formal competences, financial power and knowledge resources.

5.2.1 Formal competences

The formal competences in the sustainable housing policy of Wrocław to regulate property are not allocated to the public authorities. In Poland there are very strong ownership rights, which bring a lot of power to the private developers to make decisions about sustainable measures in houses (Magdalena Baborska-Narożny: March 3, 2016). Małgorzata Bartyna-Zielińska argues the municipality of Wrocław does not have any programs, tools or incentives to participate in building houses, because it is all private developed (Małgorzata Bartyna-Zielińska: March 29, 2016). So when developers start their projects it is up to them what kind of technologies and measures they will use in the residential buildings (ibid.). Thus, the public formal competences towards spatial planning are very weak in Poland and the municipalities do even not always have spatial plans for their whole area (Magdalena Baborska-Narożny: March 3, 2016 & Przemysław Filar: March 29, 2016).

Nevertheless, the municipality has the duty to deliver infrastructure for the residential buildings and when it is about sustainability it is not only about the technical measures in houses, but also about sustainable spatial planning (Izabela Mironowicz: March 25, 2016). The municipality can encourage compact cities, instead of fragmentation to achieve sustainability in the housing sector (ibid.). The housing programs have to be prepared with infrastructural developments, because now the housing programs are often prepared with no look on transport issues (Przemysław Filar: March 29, 2016). The only formal competence in the housing policy for the municipality is to include sustainable infrastructure in these housing programs (Małgorzata Bartyna-Zielińska: March 29, 2016). The municipality can include the achievement of these sustainable measures in the studies of conditions and directions (Marta Pánków: April 8, 2016). Thereafter, these general conditions and directions have to be implemented in the local spatial plans of the municipality (ibid.). To encourage the local citizens to use sustainable public transport, the quality of the public transport has to increase (Małgorzata Pietras-Szewczyk: April 4, 2016). Nowadays, many people do not want to use the public transport because of the weak quality of the transport (ibid.).

The national government of Poland can be very important to encourage private developers to achieve sustainability in the residential sector, for example with funding or lower taxes (Małgorzata Bartyna-Zielińska: March 29, 2016). But because the central government is not focusing on ecological and sustainable values, their formal competences in the sustainable housing policy are not of relevance (Małgorzata Bartyna-Zielińska: March 29, 2016; Przemysław Filar: March 29, 2016 & Izabela Mironowicz: March 25, 2016).

The legislation of the European Union is functioning top-down and have to be implemented on the national level of Poland, but the translation of European directives in the Polish regulation takes time (Izabela Mironowicz: March 25, 2016). Furthermore, the national government is influencing the programs of the regional and municipal government. Because the national government did stop the financing for achieving sustainable residential buildings, the lower levels in Poland did stop their

programs for sustainable housing as well (ibid.). Local governments can make their own regulations, but these have to fit to the national legislation (Radek Lesisz: March 31, 2016). The formal competence between the regional government, the Marshal Office of Lower Silesia, and the municipality of Wrocław is not a top-down approach (Radek Lesisz: March 31, 2016 & Marta Páńków: April 8, 2016). The Marshal Office of Lower Silesia is always sending the regional operational plan to the municipality of Wrocław to give their opinion about the prepared document (Marta Páńków: April 8, 2016). The other way around, the municipality has to send their local spatial plans to the Marshal Office of Lower Silesia, so the members of the Marshal Office can give their opinions about the municipal plans (ibid.). Even though there is a mutual dependency between the Marshal Office of Lower Silesia and the municipality of Wrocław, there is often a lack of cooperation because both authorities do prepare documents for different scales (ibid.).

5.2.2 Financial power

Paragraph 4.2 did describe there were 3 national funding programs to achieving sustainability in residential buildings. Two of them are already stopped and the development of the KAWKA project is uncertain (Radek Lesisz: March 31, 2016). The Thermo-Modernization fund is not giving new funding for the KAWKA project, but the current amount of money the KAWKA project is having now can still be used for sustainable measures in houses of Wrocław (ibid.). Additionally, there is a Regional Operational Program in Lower Silesia which includes additional funding for sustainability in the residential sector. This program will take over the funding of the KAWKA project (Alicja Lindert-Zyznarska: April 20, 2016). However, the level of funding is negligible and the funding is not provided directly to the local residents to take measures. So although, there were some funding programs visible focusing on improving the sustainability in residential buildings the implementation is often ineffective or insufficient. Magdalena Baborska-Narozny says about the funding programs: *'I expect it just doesn't adapt for people, because it is a much bigger effort in terms of legal documents and the certificates that you have to provide to comply with the guidance to get this funding'* (Magdalena Baborska-Narozny: March 3, 2016). She even supposes, even though there is no scientific research available on this topic, the money offered with the funding is not enough to cover the costs of for example the checks (ibid.). The other agents in achieving sustainability in the residential sector of Wrocław did have the same perspective and did confirm the amount of funding is not high enough to take actions (Małgorzata Bartyna-Zielińska: March 29; Izabela Mironowicz: March 25, 2016 & Przemysław Filar: March 29, 2016). Marta Páńków argues the amount of money available from the municipality is not high enough to establish efficient funding programs (Marta Páńków: April 8, 2016). According to her the KAWKA project works very good, but there is not enough money available for all the local residents who would like to change their heating system (ibid.). Thus the statement of Kassenberg made in paragraph 4.2 can be confirmed by the interviewees: The level of available funding to achieve sustainability in households is insufficient and negligible (Kassenberg, 2011).

Another public agent which is giving grants to facilitate projects for sustainable housing is the institute Climate-KIC (Alicja Lindert-Zyznarska: April 20, 2016). They are not financing local residents, but they finance other public authorities with the budget of Climate-KIC to do sustainable projects and to facilitate sustainable actions (ibid.). Via the European institute EIT+ European funding is provided to Climate-KIC to tackle energy and climate issues (ibid.). Previously the municipality was also getting funding from Climate-KIC, but it is uncertain if they will continue their role as a formal partner of the research institute, so now they are not getting any grants (ibid.).

Only the public actors do have financial powers to involve private actors and actors from civil society to take sustainable measures in residential buildings. The interview partners were not aware of any funding from others actors involved in achieving sustainability in the residential sector of Wrocław (Izabela Mironowicz: March 25, 2016 & Magdalena Baborska-Narożny: March 3, 2016). Besides the described funding programs from the public domain, there is also an opportunity for researchers to get municipal grants, for example to do research about the achievement of sustainability (Magdalena Baborska-Narożny: March 3, 2016). Magdalena Baborska-Narożny applied for such grant for her research about the gap between the achieved and the designed performance in terms of energy. The research proposal was about building performance evaluation and the way people behave in buildings, but due to formal reasons this funding was not achieved (Magdalena Baborska-Narożny: March 3, 2016). The ecological organizations in Poland do not have funding programs according to Małgorzata Pietras-Szewczyk, because they have not enough budget for these kind of activities (Małgorzata Pietras-Szewczyk: April 4, 2016). To achieve sustainable goals in the housing sector organizations have to get funding from the government or another foundation, like the Norwegian EEA grants (ibid.). Radek Lesisz also argues the Lower Silesian Smog Alarm is dependent of national and municipal funding (Radek Lesisz: March 31, 2016). The Lower Silesian Smog Alarm is managing to obtain grants from the Wrocław municipality and from the National Environmental Fund. Because the municipality and the national government did stop all the funding programs to achieve sustainability in residential buildings, the organization is still lobbying with decision-makers to obtain money (ibid.).

The European Union does also have funding programs to change buildings, but the city of Wrocław did not adopt these funding programs (Przemysław Filar: March 29, 2016). According to Przemysław Filar the city is more focusing on spending money to cultural issues, like activities towards the European Capital of Culture, instead of on renovation of buildings (ibid.). Meanwhile, the Lower Silesian Smog Alarm did receive some European funding, from the European Climate Fund (Radek Lesisz: March 31, 2016). It was used to run a campaign to raise the awareness among local citizens of the importance of sustainability in residential buildings, but this European funding is already finished (ibid.).

5.2.3 Knowledge resources

Some departments of universities in Wrocław are focusing on doing research about sustainability in the city. For example the Faculty of Environmental Engineering at the Wrocław University of Technology does have researchers which are doing research on energy efficient systems in residential buildings (Magdalena Baborska-Narożny: March 3, 2016; Izabela Mironowicz: March 25, 2016 & Radek Lesisz: March 31, 2016). But the researches of experts about sustainability in houses are mainly focusing on technological issues instead of on economic and social issues according to Małgorzata Pietras-Szewczyk (Małgorzata Pietras-Szewczyk: April 4, 2016). The municipality is working together with experts and researchers from universities when they need specialist information (Małgorzata Bartyna-Zielińska: March 29, 2016). This collaboration with researchers is different compared with private actors, because the municipality will not focus on finding the cheapest experts, but they will focus on finding the best specialist for doing research for the municipality (ibid.). Furthermore, the experts do hardly share all the researches they have elaborated towards sustainability in the residential sector (Małgorzata Pietras-Szewczyk: April 4, 2016). Only when the municipality asks for scientific information, there is a transfer of knowledge resources from experts to the municipality (ibid.). Another public agent which is sharing information with the

municipality is the research institute Climate-KIC (Alicja Lindert-Zyznarska: April 20, 2016). The organization facilitates regulations for the municipality and it combines some municipal projects with scientific research (ibid.).

The research institute Climate-KIC is also collaborating with researchers from the universities in Wrocław (Alicja Lindert-Zyznarska: April 20, 2016). Climate-KIC facilitates actions and scientific researches of the universities and the other way around the universities are important partners for the Climate-KIC to develop new and innovative ideas about climate and energy issues (ibid.).

Furthermore, also private actors do share information about renewable energies and energy efficiency in houses, like the architectural office Lipińscy. The demonstration house of this architectural office was a research and educational program, which did have a promotion role (ibid.). Magdalena Baborska-Narożny confirms the project was made to follow and buy projects like the demonstration house, but according to her the project is not economically viable (Magdalena Baborska-Narożny: March 3, 2016). The costs of a passive house construction are about 38% higher than a normal construction, which amounts about €154 more for 1 square meter (Firląg, 2010). The time of the investment return is estimated about 20-30 years (ibid.). According to Magdalena Baborska-Narożny many people in Poland build a house for life and people do not tend to move around a lot and change houses (Magdalena Baborska-Narożny: March 3, 2016). She argues when local residents will be convinced that it is worth economically to take sustainable measures in residential buildings, they will take these kind of sustainable measures in their houses (ibid.). But because of the costs of the Lipińscy project other residential projects in the city of Wrocław did not follow this architectural office (ibid.).

According to Magdalena Baborska-Narożny there are some opportunities for local citizens in the private market to be informed about the latest technologies to save energy in households, but it is all commercial driven and it is more about making profit (Magdalena Baborska-Narożny: March 3, 2016). The manufacturers of sustainable gadgets for residential buildings do organize fairs to offer their products. But she argues even though it is mainly about making profit, it can help in achieving sustainability in houses (ibid.). The individual investors can be advised by the design team to spend their money on sustainable gadgets and this share of information can convince the local residents to take sustainable measures (ibid.).

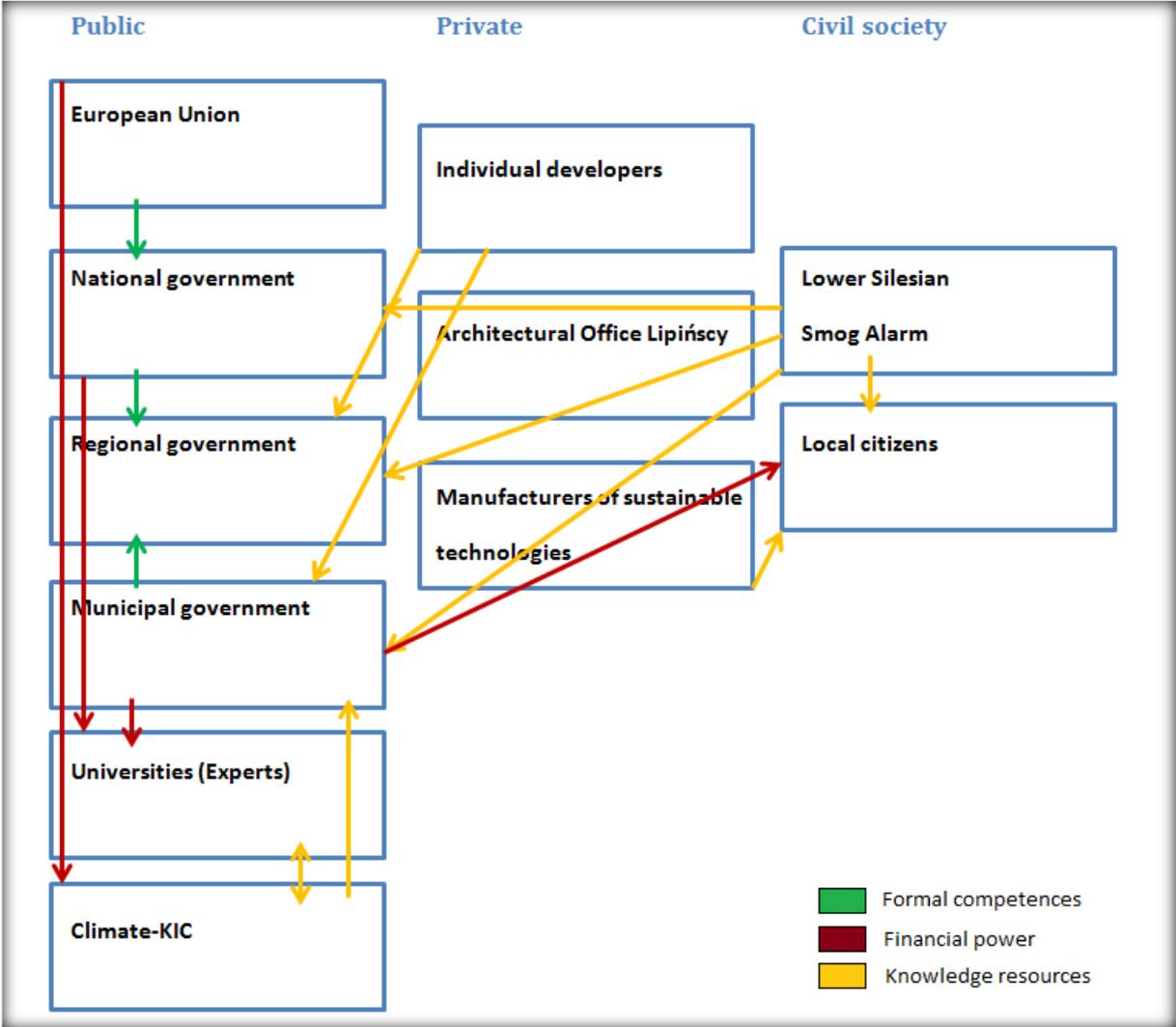
Finally, an important agent from civil society which does focus on sharing information about sustainability in residential buildings is the Lower Silesian Smog Alarm. This organization tries to raise awareness among the society about how to make residential houses sustainable and how this can improve the air quality (Radek Lesisz: March 31, 2016). For example the members of the organization are educating local citizens how to isolate houses, how to get funding for thermo-insulation and how to change their heating systems (ibid.). Besides, the Lower Silesian Smog Alarm is sharing information about the importance of sustainable houses during lobby sessions with the national, regional and municipal government (ibid.).

5.2.4 Connections between the actors involved

The description of the resources made clear how actors in the multi-actor governance system can influence other actors and how they can influence the policy arrangement. Figure 12 displays these connections in a clear overview. The different agents from the public, private and civil society domain are represented. The arrows between the actors represent a connection between the two actors and

this dependency can include formal competences, financial power or knowledge resources. The different resources are displayed with different colors. The resources of the actors involved are very low to influence each other and to influence the policy arrangement. Some connections represented in the figure are not very strong, like the knowledge resources from universities to the municipal government. In Wroclaw there are several experts doing research about sustainable residential buildings, but Małgorzata Pietras-Szewczyk supposes the researchers do not share their information, only when municipalities need some experts for scientific information (Małgorzata Pietras-Szewczyk: April 4, 2016; Magdalena Baborska-Narożny: March 3, 2016 & Izabela Mironowicz: March 25, 2016). Furthermore, the financial resources from the municipal government to the local citizens, with the KAWKA project, are also not very efficient, because of procedural problems and because of the insufficient level of funding (Magdalena Baborska-Narożny: March 3, 2016; Radek Lesisz: March 31, 2016; Małgorzata Bartyna-Zielińska: March 29; Izabela Mironowicz: March 25, 2016 & Przemysław Filar: March 29, 2016). From the connections between the agents appear mainly agents from the private domain are not involved in the share of resources.

Figure 12. Connections between the agents in achieving sustainability in residential buildings of Wroclaw (Own source)



5.3 Rules of the game

The last dimension of the organization of the multi-actor governance concerns the rules of the game. The third sub question will be answered in this part, which is as follows: *Which rules are visible in the sustainable residential sector of Wrocław?* The objectives of the legal landscape will be elaborated towards achieving sustainability in the residential sector of Wrocław.

5.3.1 Legislation

The national legislation does not focus on renewable energies and on energy efficiency in the residential sector, but it is about achieving sustainability of energy in a different perspective. The national legislation does mainly focus on how to use coal in a way that is a bit less harmful to the environment (Magdalena Baborska-Narożny: March 3, 2016). Thus, a legislation towards achieving sustainability does exist, but it is mainly focusing on decreasing the ecological impacts of the use of coal. The legal landscape has to change to achieve sustainability in residential buildings, but with the current national government the legislation towards sustainability will probably not change (Małgorzata Bartyńska-Zielińska: March 29, 2016; Izabela Mironowicz: March 25, 2016 & Przemysław Filar: March 29, 2016).

Not only the regulations for sustainable development are weak in Poland, but also the regulations towards spatial planning are very weak. The municipalities do not always have Master plans for the regional development in their area (Przemysław Filar: March 29, 2016; Magdalena Baborska-Narożny: March 3, 2016 & Izabela Mironowicz: March 25, 2016). The developers prefer to build new buildings in areas where there is no plan, so they can make their own decisions and they do not have to fulfil a plan (Izabela Mironowicz: March 25, 2016). This results in the development of many new neighborhoods far away from the city and this is not sustainable according to Izabela Mironowicz, because there are no amenities over there and the transport will increase (ibid.). For example local citizens in the new neighborhood, which is far away from the amenities in the city, have to use the car to go to school (ibid.). Małgorzata Pietras-Szewczyk confirms it will be very relevant to make sustainability part of the local spatial planning (Małgorzata Pietras-Szewczyk: April 4, 2016). When someone builds a house in Poland there is sometimes even no road to the new building and this is not sustainable development whatsoever (ibid.). To increase the responsibilities of municipalities it will be useful to develop Master plans for the whole area of the city of Wrocław. But according to Przemysław Filar this will be hard to achieve because the municipality does not have enough resources to make plans everywhere and the area of the city is too big to have plans everywhere (Przemysław Filar: March 29, 2016). Furthermore, because of the lack in municipal resources, public houses do have a very small share in the housing sector (Izabela Mironowicz: March 25, 2016 & Alicja Lindert-Zyznarska: April 20, 2016). This makes it even harder for the municipality to influence the housing sector of Wrocław.

Furthermore, there are no building regulations pushing for major shifts in the housing market towards sustainability (Magdalena Baborska-Narożny: March 3, 2016). In public buildings there are already developed some standard requirements and certifications to achieve energy efficiency, but in the residential housing sector there are no building regulations whatsoever (Magdalena Baborska-Narożny: March 3, 2016 & Radek Lesisz: March 31, 2016). According to Marta Páńków certifications for residential buildings are developing to construct buildings in a proper way towards energy efficiency (Marta Páńków: April 8, 2016). But some researchers did conclude these certifications do not identify the real sustainability of buildings, so they are not very useful (Radek Lesisz: March 31,

2016). Małgorzata Pietras-Szewczyk confirms the buildings certifications are not very useful, because they will not influence the value of residential buildings (Małgorzata Pietras-Szewczyk: April 4, 2016). According to Alicja Lindert-Zyznarska it is better to encourage people with a motivation system to take sustainable measures instead of with making building regulations (Alicja Lindert-Zyznarska: April 20, 2016). When people will receive benefits, like funding, to take sustainable measures the willingness will be higher than with the development of obliged certifications (ibid.).

Because of the lack in legislation, the public authorities cannot oblige the private developers of residential buildings to take sustainable measures (Marta Páńków: April 8, 2016). The private developers and owners are not obliged to take sustainable measures and they can choose which kind of measures they prefer in houses.

5.3.2 Procedural norms

The procedural norms concern country-specific procedures and structures for the development and implementation of a certain policy. Magdalena Baborska-Narożny argues there is hardly any involvement visible from local residents or from the bottom-up level to achieve sustainability in the residential sector in Poland (Magdalena Baborska-Narożny: March 3, 2016). The municipality is not really connecting and communicating with the local residents (Małgorzata Bartyna-Zielińska: March 29, 2016 & Marta Páńków: April 8, 2016). Collaboration between public authorities and agents from civil society is quite new for Poland and that is why the governance of the municipality with local citizens and organizations is not that well-developed (ibid.). Izabela Mironowicz supposes both bottom-up approaches and top-down approaches have to improve to achieve sustainability in Poland (Izabela Mironowicz: March 25, 2016). But the achievement of cooperation with other European member states will be difficult in Wrocław, because the sustainable development is on a different stage of development in Poland (Marta Páńków: April 8, 2016). For example, in Poland there are still problems with the coal heating systems and this is not an important issue to discuss for countries like Germany (ibid.). According to the European Commission governance between different levels is very useful as the means of building a local institutional capacity to counter problems (European Commission, 2015b), but the interview partners suppose this procedural norm is not well-represented in Poland.

At the moment the most regional and local actors in Poland are focusing on achieving sustainability in the infrastructure, but because European directives shall be translated into the national and regional policies, the focus towards sustainability in the residential sector will take time (Izabela Mironowicz: March 25, 2016). From the bottom-up level there is already a good example of raising awareness towards sustainability in residential buildings according to Izabela Mironowicz (ibid.). She argues the Lower Silesian Smog Alarm is making the people more aware of the air quality problem in Wrocław (ibid.). Firstly, the citizens were saying the air was clean and there was no need for such a program, but after the establishment of this organization they did become more aware of the bad air quality problem and of the need to improve this air quality (ibid.). The Lower Silesian Smog Alarm is lobbying with decision-makers for funding for the local residents to take sustainable measures in their residential buildings (Radek Lesisz: March 31, 2016). Although the funding programs are almost finished, the lobbying did also have some other effects. After the lobbying of the organization a campaign to raise awareness to achieve sustainability in houses was financed by the municipality of Wrocław (ibid.).

The last procedural factor which is influencing the achievement of sustainability in residential buildings is the privatization of the central heating system of Wrocław (Przemysław Filar: March 29, 2016 & Radek Lesisz: March 31, 2016). Furthermore, the production of energy is not coming from one company, but two companies are delivering the energy together: One owns the network and the other one the heating plants (ibid.). Because they are both focusing on their economical profit, it is hard to collaborate about sustainable issues in the energy supply for residential buildings (ibid.).

5.3.3 Integration or coordination of rules

The last sub dimension is about the integration and coordination between different policies to achieve sustainability in residential buildings. There is hardly coordination visible between different policies to achieve sustainability in the residential sector, because the governments are not pushing towards achieving sustainability whatsoever (Magdalena Baborska-Narozny: March 3, 2016 & Marta Pánków: April 8, 2016). Furthermore, Małgorzata Bartyna-Zielińska argues the departments in the municipal government are separated and not working together (Małgorzata Bartyna-Zielińska: March 29, 2016). There is a willingness to achieve cooperation between different departments of the municipality but this development is going very slowly (ibid.).

5.4 Main findings of the dimension organization structure

In this chapter the organization structure of multi-actor governance has been analyzed. Not many actors are involved in the sustainable housing policy and the resources to influence other agents or to influence the governance system are limited. Because individual developers do have many rights in the housing market they are very influential. However, they do not encourage sustainability in the housing policy because their focus is only on making profit and sustainable measures are often not profitable. The limited resources of public authorities make it hard to influence the policy arrangement. Furthermore, the legal objectives of the sustainable housing policy are not focusing on sustainability, whereby the public authorities cannot oblige the private developers or local residents of residential buildings to take sustainable measures. To achieve sustainability in the residential sector in Wrocław an improvement of the amount of agents, of the resources and of the rules of game is needed.

6. Substance

6.1 Discourse

The fourth sub question of this Master thesis refers to the discourse which is visible to structure the processes between the agents. Scientific paradigms, policy programs and metaphors or narratives are the different dimensions to analyze the current discourse towards the achievement of sustainability in the residential sector of Wrocław.

6.1.1 Scientific paradigms

The scientific paradigm is about the agents' perceptions of the multi-actor governance in the sustainable housing policy. All the agents agree it is very important to achieve sustainability in the residential buildings of Wrocław, but the multi-actor governance does need a lot of changes to make the achievement of sustainable housing more effective. Firstly, there is not enough expertise in Wrocław to manage sustainability in houses (Małgorzata Pietras-Szewczyk: April 4, 2016 & Radek Lesisz: March 31, 2016). There are some experts focusing on technological issues, but the interviewees suppose that it is even more important to take economic and social issues of sustainability into account, because otherwise sustainability will only be expressed in theories and not in practice (ibid.). Anna Nowacka confirms there are some researches about achieving sustainability, but this information is often not used in practice for real outcomes (Anna Nowacka: February 12, 2016). According to Izabela Mironowicz sustainability is already part of many courses at the university, so maybe the expertise in sustainability will change soon (Izabela Mironowicz: March 25, 2016). Furthermore the share of scientific researches with other actors has to improve. Nowadays, scientific information is only shared when the experts are doing research on behalf of the municipality (Małgorzata Pietras-Szewczyk: April 4, 2016 & Małgorzata Bartyna-Zielińska: March 29, 2016).

Not only the scientific knowledge and the share of scientific knowledge have to change, but to make sustainability part of the spatial planning the mindset of the decision-makers has to change as well according to Magdalena Baborska-Narożny, because now it is not their focus (Magdalena Baborska-Narożny: March 3, 2016). In Poland it is not common to look at sustainability in spatial planning and to improve the sustainability the local planning has to change (Magdalena Baborska-Narożny: March 3, 2016 & Przemysław Filar: March 29, 2016). The other interview partners confirm the local spatial planning has to change to improve the situation (Przemysław Filar: March 29, 2016; Małgorzata Pietras-Szewczyk: April 4, 2016; Marta Pánków: April 8, 2016 & Izabela Mironowicz: March 25, 2016). Izabela Mironowicz thinks introducing the idea of a compact city will be very useful in Wrocław, because according to her sustainability is also about a close proximity of residential buildings to amenities in the cities (Izabela Mironowicz: March 25, 2016). The municipality supposes they are already working on stopping the urban sprawl in the housing development of Wrocław, but due to the legal landscape this achievement is very hard (Marta Pánków: April 8, 2016).

The most important factor to achieve sustainability in residential buildings is to make it economic profitable, because the economic values are more important among the local citizens than ecological values (Magdalena Baborska-Narożny: March 3, 2016; Radek Lesisz: March 31, 2016 & Małgorzata Pietras-Szewczyk: April 4, 2016). The national and local government have to encourage local residents to take sustainable measures with the establishment of funding programs and regulations.

The description of the policy programs represent nowadays the support to achieve sustainability in the housing sector is negligible.

6.1.2 Policy programs

All the interview partners were convinced the national government and the local governments in Poland are not pushing towards achieving sustainability in the residential sector. The new government in Poland is even very old-fashioned when it comes to sustainability (Przemysław Filar: March 29, 2016; Marta Páńków: April 8, 2016 & Izabela Mironowicz: March 25, 2016). Because of the tradition of Poland to use coal as energy source, the national government is focusing on keeping coal as main energy source (Izabela Mironowicz: March 25, 2016 & Marta Páńków: April 8, 2016). The European Union has set the national sustainable goals in the Europe 2020 Strategy, but Magdalena Baborska-Narożny has no idea about how Poland will get to the zero-energy and how to achieve the targets of the European Union (Magdalena Baborska-Narożny: March 3, 2016). According to her the government is more focusing on making the coal energy production less harmful for the ecology (ibid.). Besides, the focus of the government is more on other topics and ecology is at the end of the public needs (Małgorzata Pietras-Szewczyk: April 4, 2016; Alicja Lindert-Zyznarska: April 20, 2016 & Marta Páńków: April 8, 2016). Some agents mentioned the government is doing something in the field of sustainability, but it is for public buildings or transport (Małgorzata Bartyna-Zielińska: March 29, 2016; Marta Páńków: April 8, 2016 & Małgorzata Pietras-Szewczyk: April 4, 2016). The reason for this focus can be transport and public building policies do not affect you individually and sustainability in houses will affect you personally (Izabela Mironowicz: March 25, 2016). Likewise the legislation, the policy programs have to improve to achieve sustainability in the housing sector. The implementation of policy programs have to be done step-by-step, so local citizens can get used to take sustainable measures in their houses (Radek Lesisz: March 31, 2016 & Izabela Mironowicz: March 25, 2016). Because of the national government mainly focuses on taking big steps in policy programs instead of small steps, this development will be hard in Poland (Izabela Mironowicz: March 25, 2016).

The funding programs which were existing in Wroclaw to achieve sustainability in the residential buildings of Wroclaw are described in paragraph 4.2. But as already mentioned in paragraph 5.2.2 almost all these funding programs are stopped or almost finished. Furthermore the funding programs of the national, regional and local government were ineffective and insufficient, whereby not many local citizens did take sustainable measures. Not only the level of funding was insufficient, but there were also a lot of problems with the procedural norms to obtain funding for the local residents. The process of obtaining legal documents and certificates to get the funding requires a big effort (Magdalena Baborska-Narożny: March 3, 2016). Another problem linked to the procedural problem of the funding programs was visible in the KAWKA project. The KAWKA project is providing funding after sustainable measures in residential buildings are taken, but for the local citizens it is an obstacle to pre-finance the investments of sustainable measures (Radek Lesisz: March 31, 2016). The problems of the KAWKA program clarify the procedures and level of funding of this program have to improve. But improving this program is not the only thing which have to be done according to Marta Páńków, because KAWKA is only for changing the heating system to a gas system, but it is not focusing on modern sustainable technologies in residential buildings (Marta Páńków: April 8, 2016).

Even though the focus of the governments is not on achieving sustainability in residential buildings, there are some small policy programs in the Wroclaw municipality to encourage this issue. When you

are producing toxic gases with your way of heating the house, the municipal police will come over and they will give you a fine (Radek Lesisz: March 31, 2016 & Marta Páńków: April 8, 2016). However, many local residents do complain the municipal policy is not coming (Radek Lesisz: March 31, 2016). Furthermore, Marta Páńków supposes the KAWKA funding project is much more useful than this project (Marta Páńków: April 8, 2016). Another policy program which is focusing on sustainable houses is a model housing area: Nowe Żerniki (Marta Páńków: April 8, 2016 & Małgorzata Pietras-Szewczyk: April 4, 2016). This sustainable housing project in Wrocław was set up by the municipality. With consultations and workshops between the municipality and architects a new model estate was created with the main goal to achieve environmental friendly and ecological houses (Marta Páńków: April 8, 2016). Sustainable measures are taken in the houses to create low-energy buildings (Nowe Żerniki, 2016). Furthermore, renewable energy systems are provided in the district to produce energy (ibid.).

So even though the national, regional and local government do have formal competences in the sustainable housing policy the competences are not of great relevance, because the focus of the policy programs is not on ecological and sustainable values (Małgorzata Bartyna-Zielińska: March 29, 2016; Przemysław Filar: March 29, 2016; Radek Lesisz: March 31, 2016 & Izabela Mironowicz: March 25, 2016).

6.1.3 Metaphors or narratives

Furthermore, metaphors and narratives that are used can help to understand what is at stake among the society. During the interviews narratives were told about local residents burning rubbish in their boilers to provide heat (Magdalena Baborska-Narożny: March 3, 2016; Alicja Lindert-Zyznarska: April 20, 2016; Radek Lesisz: March 31, 2016 & Małgorzata Bartyna-Zielińska: March 29, 2016). This phenomena shows local citizens are not aware of the importance of sustainability in residential buildings. They do burn rubbish for economical savings, which represents economical savings are more important for them than the achievement of ecological savings in the energy production of residential heating (ibid.). The local residents are also not convinced to use renewable energy systems to produce energy, because renewable energy systems are very expensive in Poland (Radek Lesisz: March 31, 2016 & Marta Páńków: April 8, 2016). Besides, Wrocław does have very poor conditions to produce energy from renewable energy systems, except for energy from biomass (Marta Páńków: April 8, 2016). Even when citizens do use renewable energy systems, these systems are often combined with other heating systems to produce energy (Izabela Mironowicz: March 25, 2016). Furthermore, the idea of achieving sustainability is quite a new idea in Poland (Małgorzata Bartyna-Zielińska: March 29, 2016; Radek Lesisz: March 31, 2016 & Małgorzata Pietras-Szewczyk: April 4, 2016). The residents do not feel any responsibility for sustainability. For example they blame the municipality of Wrocław for the bad air quality and they are not aware they do contribute to this air pollution with the way of producing energy in their houses (Małgorzata Bartyna-Zielińska: March 29, 2016). To make them more aware education is the key issue according to Izabela Mironowicz (Izabela Mironowicz: March 25, 2016). Even when local citizens are aware of the importance of sustainability they will probably not take own initiatives to achieve sustainability, because they have to be encouraged by the government with funding (Przemysław Filar: March 29, 2016; Marta Páńków: April 8, 2016; Alicja Lindert-Zyznarska: April 20, 2016 & Radek Lesisz: March 31, 2016). It is all about saving money among the local residents and only when sustainable measures will be economic profitable they will take the measures (Magdalena Baborska-Narożny: March 3, 2016; Alicja Lindert-Zyznarska: April 20, 2016; Radek Lesisz: March 31, 2016 & Małgorzata Pietras-

Szewczyk: April 4, 2016). Furthermore, according to Izabela Mironowicz whole communities have to become aware to take sustainable measures and not only individuals (Izabela Mironowicz: March 25, 2016). In cities this awareness towards sustainability in houses is already increasing (ibid.). Alicja Lindert-Zyznarska confirms both the local residents and the decision-makers are becoming more aware of the importance of sustainability, but the introduction of sustainable knowledge is still very hard to achieve among residents because you have to change daily structures (Alicja Lindert-Zyznarska: April 20, 2016). The weak awareness among local residents contributes to the weak focus on sustainability among decision-makers, because with the focus on other public needs the decision-makers will gain more appreciation of the local residents (Alicja Lindert-Zyznarska: April 20, 2016 & Izabela Mironowicz: March 25, 2016). Politicians will be encouraged to focus on sustainability in policy programs and regulations when local residents will become more aware of this topic (Alicja Lindert-Zyznarska: April 20, 2016).

Another cause for the lack of awareness in Poland towards achieving sustainable housing is because of the mindset of the Polish people. The people in Poland do not like impositions from top-down, because they do want to think about solutions by themselves (Małgorzata Pietras-Szewczyk: April 4, 2016 & Marta Pánków: April 8, 2016). For example people will only take sustainable measures in their houses when they experience it is better for their health to achieve sustainability (Małgorzata Pietras-Szewczyk: April 4, 2016). But when the European Union makes regulations to achieve sustainability they do not support these impositions (ibid.).

Furthermore Przemysław Filar argues achieving sustainability is not a media issue, so it is hard to make the local people aware of the importance of sustainability in residential buildings (Przemysław Filar: March 29, 2016). However, according to Radek Lesisz, from the Lower Silesian Smog Alarm, there is a lot of support from media to cover messages about sustainability (Radek Lesisz: March 31, 2016). He argues the connection with the media and journalists is very important, because the politicians have to react on the messages of the mainstream media and in this way the consciousness among the decision-makers towards sustainable housing will increase (ibid.).

6.2 Main findings of the dimension substance

The substance of the multi-actor governance in the sustainable housing of Wrocław has been analyzed with the sub dimensions scientific paradigms, policy programs and metaphors or narratives. To achieve sustainability in houses it is very important to make sustainable measures profitable, because all the interviewees argued that economic values are more important than ecological values. The local residents have to become more aware of the importance of sustainability and the share of knowledge to present the advantages of sustainable measures has to improve as well. The expertise and the awareness among decision-makers have to increase as well. Nowadays, sustainability is at the end of the public needs. Not many policy programs and spatial planning projects are focusing on sustainability and the existing policy programs are insufficient. Thus, an improvement in the substance is needed to achieve sustainability in the housing sector and especially the awareness towards the importance of sustainability has to increase in Wrocław.

7. Duality of structure

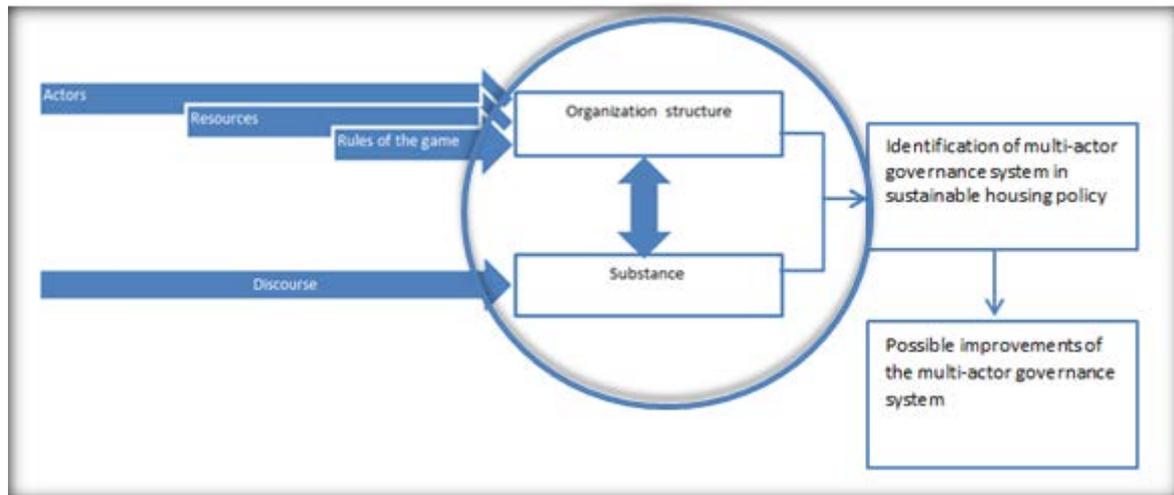


Figure 13. Duality of structure between organization and substance (Own source)

The last sub question of this research refers to the visibility of the ‘duality of structure’ in the sustainable housing policy of Wrocław. The organization structure of the multi-actor governance in achieving sustainability in the residential sector of Wrocław cannot be seen separately from the substance of the multi-actor governance. The interconnection between agency and structure is termed the ‘duality of structure’ by Anthony Giddens (Lamsal, 2012). The agency consists of the actors, resources and rules. Agents can create structures by means of invented resources and rules, but at the same they are constrained by the existing discourse (ibid.). In this way, the identification of the multi-actor governance system will represent the reproduced relations between actors involved as regular social practices. After the analysis of the concepts of the structuration theory it was possible to understand the system of multi-actor governance as a duality. The policy arrangement approach and the structuration theory described social change is dependent on the different sub dimensions of the theories. This Master thesis proved only an improvement of both the organization structure and the substance of the multi-actor governance system will make the achievement of sustainability in residential buildings of Wrocław possible.

7.1 Actors and discourse

Because just a few agents in Wrocław are involved in the sustainable housing policy, not many other actors will be aware of the norms, values and the importance of sustainability in residential buildings. The enlargement of agents will raise the awareness to take sustainable measures in households among the society. On the other hand, given the concept of sustainability in residential buildings is quite unknown and irrelevant in Poland, it makes sense not many actors are visible in the multi-actor governance system in the sustainable housing policy of Wrocław. When there are projects about sustainability there is often a lack of expertise, because not many actors are involved in these kind of topics (Małgorzata Pietras-Szewczyk: April 4, 2016 & Radek Lesisz: March 31, 2016). According to Magdalena Baborska-Narożny the underlying social structures of the public authorities, so the mindset of the people who make decisions, have to change (Magdalena Baborska-Narożny: March 3, 2016). However, it will be quite hard to achieve an enlargement of agents in the sustainable housing policy, because daily structures have to change (Alicja Lindert-Zyznarska: April 20, 2016).

7.2 Resources and discourse

The interview partners made often apparent no measures towards sustainability are done because of the lack in financial resources. Because taking sustainable measures is expensive for private owners and local citizens, hardly any measures are taken to improve the sustainability in residential buildings. The lack of financial support is influenced both by economic and social factors. The economic reasoning is easy to substantiate: There is no money available at the public authorities for funding programs. The social reasons are connected to the existing discourse. Because the achievement of sustainability in residential buildings is an underrepresented value in the social structures of Wrocław, no funding programs will be established to achieve this value. When there is no support from the government with financial resources the people will not try sustainable technologies in their houses (Izabela Mironowicz: March 25, 2016).

The public authorities can impose regulations or make policy programs to achieve sustainable housing, but because it is not their focus the society is also not becoming aware of the problem. The European directives to achieve sustainability are also not effective in Poland, because of the existing mindset. Polish people do not want to follow impositions, but they want to create own solutions and regulations (Małgorzata Pietras-Szewczyk: April 4, 2016). Because of this existing mindset, the European directives will not encourage the Polish citizens and governments to achieve sustainability in the residential sector.

The discourse is also influencing the knowledge resources of agents in the sustainable housing policy of Wrocław. Because sustainable values are underrepresented among the society, not many experts are focusing on the issue of sustainability in houses (Małgorzata Pietras-Szewczyk: April 4, 2016). The lack of education for social and economic issues of sustainability contributes to the fact not many scientists are interested in sustainable issues (ibid.). Besides, the experts who do focus on these issues do hardly share their information (Małgorzata Pietras-Szewczyk: April 4, 2016). The share of scientific information about achieving sustainability in residential buildings can change the existing discourse and can make people more aware of the relevance of this issue.

7.3 Rules of the game and discourse

The regulations to achieve sustainability in the housing sector are very weak and to improve the legal landscape the mindset of decision-makers towards the importance of sustainability has to change (Magdalena Baborska-Narożny: March 3, 2016). Nowadays, sustainability is not part of spatial planning and legal regulations, because many decision-makers and local citizens do not pursue ecologic values. To make sustainability more visible in spatial planning and in the legal landscape ecologic values have to become more important among the society.

Because there is no consciousness among decision-makers to achieve sustainability in houses they are also not collaborating together about this topic. The lack of awareness among the local residents does also contribute to hardly any communication or collaboration between the local residents and the municipality. A change in the discourse among the society towards achieving sustainability can improve the collaboration and communication between different policy-makers and local citizens. There is already a willingness to achieve cooperation between different departments of the municipality but this development is going very slowly (Małgorzata Bartyńska-Zielińska: March 29, 2016).

The dialectic in the multi-actor governance system represents the decision-makers have to use resources and rules to influence the activities, norms and values towards sustainability of other actors in the society of Wrocław. In this way, the organization structure will expand. The increase of actors, financial resources and rules of the game will increase the awareness towards the importance of sustainability in the residential sector. The other way around, a growing awareness towards the achievement of sustainability in the housing sector will influence the organization structure of the multi-actor governance. This mutual dependency between the organization structure and the substance represents an improvement in one of these dimensions will produce positive effects for the entire multi-actor governance system in the sustainable housing policy.

8. Main findings

The objective of this research was to get a better understanding of the structure and processes of multi-actor governance in the sustainable development of the residential sector in Wroclaw. The elaboration of perceptions of different agents in this topic made it possible to present main findings at the end of my research. The identification of multi-actor governance incorporates two important dimensions: The organization structure and substance. These dependent dimensions can be further divided in subdivisions. The organization structure represents the following subdivisions: Actors, resources and rules of the game. The subdivision discourse does represent the substance of the multi-actor governance. The elaborations of these subdivisions formulated answers on the sub questions and at the end on the main research question of this research. The main findings of this Master thesis are followed up by a reflection on the research process. Finally, recommendations will be made for further scientific studies connected to the topic of this research.

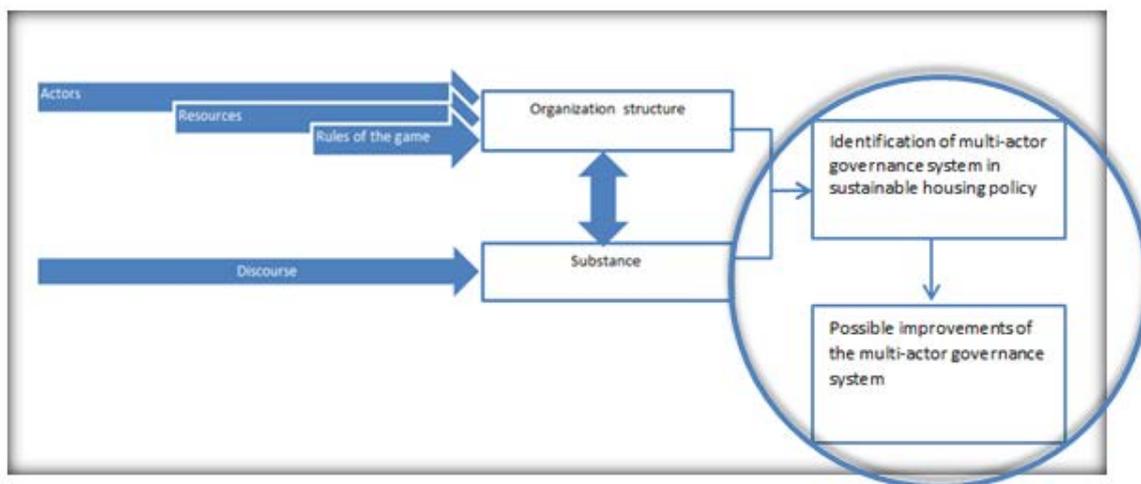


Figure 14. Identification of multi-actor governance and possible improvements (Own source)

8.1 Main findings

The following main research question has been formulated to get a better understanding of the structure and processes of multi-actor governance in achieving sustainability in the residential sector of Wroclaw: *How does the multi-actor governance system in the sustainable housing policy of Wroclaw look like and what are the processes within this governance structure?*

8.1.1 Actors

From the public domain governments from different levels are visible in the sustainable housing policy of Wroclaw. The European Union is involved, because the European directives towards sustainable houses have to be implemented on the national level of Poland. Besides the national government, the regional government (Marshal Office of Lower Silesia) and the local government (Municipality of Wroclaw) do have competences in the housing policy of Wroclaw. Furthermore, the experts and researchers from the universities and from the research institute Climate-KIC are agents from the public domain.

The most influential agents from the private domain are private developers, because they have many formal rights in the housing market. Also manufactures of sustainable technologies in residential buildings are visible in the multi-actor governance. Finally, the architectural office Lipińscy is visible, even though they did not achieve their desired result.

The local citizens are the most important agent from civil society, because they have to take sustainable measures in their residential buildings. Furthermore, the non-governmental organization Lower Silesian Smog Alarm is focusing on sustainability in the housing sector of Wrocław.

8.1.2 Resources

The negligible resources clarify it is very hard for actors in the multi-actor governance system to influence other actors or to influence the policy arrangement. There are some formal competences visible among the governments, but because the governments are not focusing on sustainability in residential buildings, these competences are not influencing the sustainable housing policy. Furthermore, the share of information and financial resources between actors is weak to influence each other.

8.1.3 Rules of the game

The regulations in Poland to achieve sustainability are also very weak. Because of the lack in legislation, the public authorities cannot oblige the private developers and local citizens of residential buildings to take sustainable measures.

Furthermore, there is hardly any communication and collaboration between the local residents and the municipality in the legal landscape. From civil society there is some influence on the regulations from the Lower Silesian Smog Alarm, they are lobbying with the local government for municipal programs to achieve their goals and the lobbying has already some results. But because of the privatized central heating system it is still very hard to achieve sustainability in residential buildings, because the private organizations do focus on their economic profit and sustainable measures are not profitable.

Finally, there is also no cooperation between different departments of the government to achieve sustainability in the housing sector. There is a willingness to cooperate with the separated departments, but this development is going very slowly.

8.1.4 Discourse

There are not many experts visible in the sustainable housing policy of Wrocław which are focusing on the economic or social issues of sustainability. To improve the situation it is important to have information about the advantages of sustainable measures in residential buildings. Furthermore, the decision-makers have to make sustainability part of spatial planning, because that is the only competence they have to change the policy arrangement. The most important factor to achieve sustainability in houses is to make it economic profitable, because the economic values are more important than the ecological values.

The policy programs are not focusing on sustainability, because it is at the end of the public needs in Poland. There were some public funding programs in Wrocław to take sustainable measures in residential buildings, but they are already finished or will finish soon. The level of funding of these programs was insufficient and there were a lot of problems with the procedural norms to obtain the funding.

Finally the local residents of Wroclaw do not feel any responsibility for sustainability and many of them are not aware that their way of producing energy causes a lot of environmental problems. When they become aware of the importance they will maybe take some sustainable measures, but they want to think about solutions by themselves. When regulations from top-down will impose sustainable measures have to be taken, the local residents will not follow these regulations because of the Polish mindset to think about solutions by themselves. Furthermore, when the local residents will become more aware of sustainability, politicians will be encouraged to focus on sustainability in policy programs and regulations (Alicja Lindert-Zyznarska: April 20, 2016). Present-day political decisions do focus on other public needs, because the importance for sustainable housing is less high among the local residents (Alicja Lindert-Zyznarska: April 20, 2016 & Izabela Mironowicz: March 25, 2016).

8.1.5 Duality of structure

Changes in both the organization structure and the substance are essential to achieve sustainability in the residential sector of Wroclaw. The policy arrangement approach and the structuration theory described that social change is dependent on the different sub dimensions: Actors, resources, rules of the game and the discourse. This Master thesis proved only an improvement of both organization structure and substance of the multi-actor governance will make the achievement of sustainability in the residential sector of Wroclaw possible, because of the duality of structure. The weak organization structure of the governance system does contribute to an absence of norms and values among different actors in Wroclaw towards achieving sustainability in the residential sector. And the other way around, the lack of importance of sustainable values in the discourse causes not many actors are involved, not many resources are visible and a lack of rules in the multi-actor governance system to achieve sustainability residential buildings in Wroclaw. This mutual dependency between the concepts represents an improvement in one of these dimensions will produce positive effects for the entire multi-actor governance system in the sustainable housing policy.

8.1.6 Possible improvements of the multi-actor governance system

The duality of structure did explain the organization structure of the sustainable housing policy is very weak due to larger structural forces, the substance of the multi-actor governance system. To improve and expand the actors, resources and rules of the game the underlying discourse towards achieving sustainability in residential buildings of Wroclaw has to improve. Thereafter, the improvement of the organization structure of the multi-actor governance system will raise the awareness among the local citizens and decision-makers to achieve sustainability in the housing sector, whereby the sustainable values in the existing discourse will become more important. Thus, changes and improvements in both the substance and the organization structure can develop a positive vicious cycle in the improvement of the multi-actor governance system in achieving sustainable houses in Wroclaw.

8.1.7 Relevance of the research results

The gained knowledge about the identification of the multi-actor governance and the processes within this governance system were about the specific case of the city of Wroclaw. Nevertheless, because the discourse towards sustainability in the residential sector of Poland will be the same, some research results might also be applicable in other Polish cities. New insights have been made about the underlying discourse, which does influence the actors, resources and rules involved in the multi-actor governance of the sustainable housing policy. The recognition of these underlying social

structures led to a better understanding of the absence of organization structures in the multi-actor governance in the sustainable housing policy of Wrocław. The new insights can make it possible to take appropriate measures which can improve the sustainability in the residential sector. It is important to change the mindset of public, private and civil society actors towards achieving sustainability, because the change of the discourse can contribute to the achievement of more sustainable measures in residential buildings in the city of Wrocław. Thus, the main findings of this research have contributed to the scientific and societal relevance of this Master thesis.

8.2 Reflection

For some aspects in the research process it is relevant to make a critical reflection. Even though the objective of this research has been reached there were experienced some constraints during the research process.

Because of the constraint in time a cross-sectional study is applied to consider the multi-actor governance in achieving sustainability in the residential sector of Wrocław. No knowledge can be obtained about the cause-and-effect-relationships towards norms and values to achieve this sustainability. The questions were only about structures and processes which are already in progress to identify the current multi-actor governance system. With a longitudinal study it will be possible to indicate cause-and-effect relationships, which is interesting to analyze the causes of the underlying social structures in Wrocław. For example an elaboration can be made about the influence of policy programs and campaigns to raise awareness among different actors involved and how social structures will change after the introduction of such programs. Even though a longitudinal study was not possible for this Master thesis, the use of a cross-sectional study was also very relevant for a comparison of different divisions of multi-actor governance at the same time. The use of these divisions of multi-actor governance made it possible to answer the main research question.

Another limitation which is already described in the methodology section is the limited number of interviewees. The limitation in respondents makes the external validity of the research limited, with more interviews or with surveys a more general view about underlying social structures can be made, because the overall statements in qualitative research need more attention. The people involved in the informal meetings were of relevance for additional scientific information about the research topic and they all agreed it is very hard to find many actors involved in achieving sustainability in the residential sector of Wrocław. Despite of the limited numbers in respondents, enough scientific insight is obtained to identify the multi-actor governance system in the sustainable housing policy of Wrocław. This in-depth information does contribute to the internal validity of this research.

8.3 Recommendations

The first recommendation is connected to the reflection of this research. To analyze the changes in social structures and to analyze cause-and-effect-relationships towards achieving sustainability in the residential sector of Wrocław it can be useful to do a longitudinal study. The possible effects of programs and measures to raise the awareness towards the achievement of sustainability can be elaborated with a longitudinal study. This kind of research will make clear which causes are visible behind the social structures to achieve sustainability in the residential sector. It can be of relevance to change the underlying perspectives towards sustainability. Due to the duality of structure,

changing the underlying perspectives can produce the development of programs, measures and campaigns towards energy efficiency measures in the residential sector.

Furthermore, a quantitative study can be done to identify general views of citizens in Wroclaw towards achieving sustainability in the residential sector. The external validity of the research will increase with a quantitative study among the citizens. A more generalized point of view towards social structures existing among local citizens can be obtained with surveys. Many respondents in this research informed about the lack of awareness among citizens towards achieving sustainability. It will be interesting to analyze why there is a lack of awareness and how the norms and values towards sustainability can change.

Moreover, it might be interesting to focus more on practical oriented research. There are few studies available about how to change the residential buildings in Wroclaw in an effective and efficient way towards sustainability. To improve the situation more practical studies about how to achieve sustainability in residential buildings is required before measures in the residential sector can be done by different actors. For example a study can be done about which renewable energies are the most efficient and effective to use in residential buildings in Wroclaw. After this kind of research concrete measures can be taken to improve the sustainability in the residential sector of the city.

9. Literature

- Anandajayasekeram, P., Puskur, R., & Zerfu, E. (2009). *Applying innovation system concept in agricultural research for development. A learning module*. Addis Ababa: International Livestock Research Institute.
- Arts, B. & Van Tatenhove, J. (2002). *Policy and power. A conceptual framework between the 'old' and 'new' paradigm*. Retrieved from: [http://brinjal.org.uk/themes/policy-advocacy/2002-7%20\(2\).pdf](http://brinjal.org.uk/themes/policy-advocacy/2002-7%20(2).pdf)
- Bank Gospodarstwa Krajowego (2014). *Thermo-modernization Program in Poland*. Warsaw.
- Bellmann, M., Besold, J., Culver, J., Jachimowicz, A., Sentimenti, L., & Szałata, Ł. (2013). *Grants and other incentives for cost and energy efficiency. Summary Evaluation Report for Lower Silesia Region, Free State of Saxony and Emilia Romagna*. EnercitEE. Retrieved from: [file:///C:/Users/rdaamen/Downloads/EN_Evaluation_Report_Summary_GRACE%20\(11\).pdf](file:///C:/Users/rdaamen/Downloads/EN_Evaluation_Report_Summary_GRACE%20(11).pdf)
- Berman, R.C. & Tyyskä, V. (2011). A Critical Reflection on the Use of Translators/Interpreters in a Qualitative Cross-Language Research Project. *International Journal of Qualitative Methods*. Volume 10. Issue 1, p. 181
- Bhattacharjee, A. (2012). *Social Science Research: Principles, Methods, and Practices*. Tampa: University of South Florida.
- Bieszynska, A. & Antink, R. (2014). *Market Review – Poland. Energy Efficiency in Buildings*. WBCSD. Retrieved from: http://wbcsdservers.org/wbcsdpublications/cd_files/datas/business-solutions/eeb/pdf/Poland-Market-Review-EEB-Lab.pdf
- Breeze, R. (2011). Critical discourse analysis and its critics. *Pragmatics*. Volume 214. Issue 4. International Pragmatics Association.
- Bryman, A. (2012). *Social research methods. Fourth edition*. New York: Oxford University Press.
- Budzianowski, W.M. (2012). Target for national carbon intensity of energy by 2050: A case study of Poland's energy system. *Elsevier*. Volume 46. Issue 1, p. 575-581
- Climate Coalition (2013). *The Climate Coalition's position on implementation of energy efficiency improvement measures in Poland*. Warsaw. Retrieved from: http://www.koalicjaklimatyczna.org/theme/UploadFiles/climate_coalition%E2%80%99s_position_ee.pdf
- Climate-KIC (2014). *Climate-KIC & Knight Frank launch groundbreaking green property index proposal*. Lower Silesia, Poland.
- Council of European Municipalities and Regions (2014). *Poland*. Retrieved from: <http://www.ccre.org/en/pays/view/34#>
- Creswell, J.W. (2003). *Qualitative, Quantitative and Mixed Methods Approaches*. London: SAGE .

- Creswell, J.W. (2013). *Qualitative inquiry & research design. Choosing Among Five Approaches*. London: SAGE.
- Den Boer, E., Den Boer, J., & Szpadt, R. (2011). Waste-to-energy in the Baltic Sea Region. *REMOWE*. November 2011. Report no: O3.2.2.
- Energie-Cités (2009). *How does the European Regional Development Fund finance energy efficiency and renewable investments in housing sector in Bulgaria, Poland and Romania?* Retrieved from: http://energy-cities.eu/IMG/pdf/ERDF_financing_EE_in_housing_sector_en.pdf
- European Commission (2015a). *Assessment of the progress made by Member States towards the national energy efficiency targets for 2020 and towards the implementation of the Energy Efficiency Directive 2012/27/EU*. Brussels. Retrieved from: https://ec.europa.eu/energy/sites/ener/files/documents/1_EEprogress_report.pdf
- European Commission (2015b). *Local and Regional Partners Contributing to Europe 2020. Multi-actor governance in support of Europe 2020. Conference Report*. Brussels. Retrieved from: http://ec.europa.eu/regional_policy/sources/conferences/mlg2015/conference_report_mlg_en.pdf
- Firląg, S. (2010). *Certified passive building in Poland*. Warsaw: National Energy Conservation Agency. Retrieved from: <http://www.buildup.eu/en/practices/cases/certified-passive-building-poland>
- Giddens, A. (1984). 'Elements of the Theory of Structuration'. *The Constitution of Society: Outline of a Theory of Practice*. Berkeley: University of California Press, p. 1-28
- Giddens, A. (1991). *Modernity and Self Identity*. Cambridge: Polity, p. 204
- Haig, E. (2004). Some Observations on the Critique of Critical Discourse Analysis. *Studies in Language and Culture*. Volume 25. Issue 2, p. 129-149
- Hermans, L.M. (2005). *Actor analysis for water resources management. Putting the promise into practice*. Delft: Eburon Publishers.
- Jørgensen, M. & Phillips, L. (2002). *Discourse Analysis as Theory and Methods*. London: SAGE Publications.
- Kassenberg, A. (2011). *Expert evaluation network delivering policy analysis on the performance of cohesion policy 2007-2013*. Institute for Sustainable Development. Retrieved from: http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/eval2007/expert_innovation/2011_synt_rep_pl.pdf
- Lamsal, M. (2012). The Structuration Approach of Anthony Giddens. *Himalayan Journal of Sociology & Antropology*. Volume 5, p. 111-122
- Larrue, C., Hegger, D., & Trémorin, J. (2013). *Researching Flood Risk Governance in Europe: a framework and methodology for assessing Flood Risk Governance*. STAR-FLOOD project report.
- LIFE-APIS-PL (2014). *Check what you breathe!* Wrocław: University of Wrocław and Voivodeship Inspectorate of Environmental Protection. Retrieved from: <http://life-apis.meteo.uni.wroc.pl/en/home-page/82-check-what-you-breathe>

Local Data Bank (n.d.). *Central Statistical Office Wrocław*. Retrieved from:
<https://bdl.stat.gov.pl/BDL/start>

Metz, B., Davidson, O.R., Bosch, P.R., Dave, R., & Meyer, L.A. (2007). Fourth Assessment Report: Climate Change 2007. *IPCC report*. Cambridge: Cambridge University Press.

National Advisory Board on Research Ethics (2009). *Ethical principles of research in the humanities and social and behavioural sciences and proposals for ethical review*. Helsinki.

Nolte, I., Griffiths, N., Rapf, O., & Potcoava, A. (2012). *Implementing nearly zero-energy building (nZEB) in Poland- Towards a definition and roadmap*. Buildings Performance Institute Europe (BPIE).

Nowe Żerniki (2016). *Ekologia*. Retrieved on April 14, 2016, from:
<http://nowezerniki.pl/idea/ekologia/>

O'Neill, K. (2009). *The Environment and International Relations*. Cambridge: Cambridge University Press.

Public Information Bulletin (2016). *Central Statistical Office of Poland*. Warsaw. Co-financed by the European Union with the European Regional Development.

Puukka, J., Dubarle, P., Goddard, J., Hazelkorn, E., & Kuczera, M. (2012). *Higher Education in Regional and City Development: Wrocław, Poland*. OECD.

Riedel, R. (2008). *When environmental challenges spill over into energy policy problems –the case of the Polish (potential) veto on the EU climate–energy package*. Centre for European Studies ARENA, p. 23. Retrieved from: <http://www.jhubc.it/ecpr-porto/virtualpaperroom/150.pdf>

Saunders, M., Lewis, P., & Thornhill, A. (2008). *Research methods for business students*. Harlow: Pearson Education Limited.

Steurer, R. (2013). *Disentangling governance: A synoptic view of regulation by government, business, and civil society*. Vienna: Universität für Bodenkultur Wien. Retrieved from:
http://www.wiso.boku.ac.at/fileadmin/data/H03000/H73000/H73200/InFER_Discussion_Papers/InFER_DP_13_3_Disentangling_governance.pdf

United Nations (2015). *Historic Paris Agreement on Climate Change. 195 Nations Set Path to Keep Temperature Rise Well Below 2 Degrees Celsius*. Paris. Retrieved from:
<http://newsroom.unfccc.int/unfccc-newsroom/finale-cop21/>

Van den Brink, M. & Metze, T. (2006). Words matter in policy and planning. Discourse theory and method in the social sciences. *Netherlands Geographical Studies*, p. 67

Van Leeuwen, J. (2010). Who greens the waves? Changing authority in the environmental governance of shipping and offshore oil and gas production. *Environmental Policy Series*. Volume 1. Wageningen: Wageningen Academic Publishers.

Verschuren, P.J. M. & Doorewaard, H.A.C.M. (2007). *Het ontwerpen van een onderzoek. Vierde druk*. The Hague: Boom Lemma Uitgevers.

10. Annexes

10.1 Interview guide

Introduction

- Introduction of the researcher
 - Research objective of the Master thesis
 - Permission for recording and explanation what will be done with the records
-

Introduction actor

- Vision of the actor
- Domain of the organization: Is it public/ private/ civil society?
- What measures did your organization take to develop sustainable housing?
- Do you think sustainable housing is important? (Why?)

Analysis actors

Actors involved

- Is there a program in Wroclaw which does focus on sustainability in the residential sector or are there more projects?
- Which actors are involved in this program/ these programs? Can be individuals, groups and organizations.
- From which domain are these actors involved: Public, private or from civil society?
- According to your opinion which actors do have the same preferences and which do have opposite preferences according to achieve sustainability in the residential sector?

Analysis resources

Financial power

- Are there actors in the system which provide other actors with financial resources, like grants or funds?
- Which actors do have the possibility to raise energy taxes?

Knowledge resources

- Which actors do have expertise in the field of energy efficiency?
- Which actors do have expertise in the field of the use of renewable energy resources?
- Do these actors with expertise share their information with other actors? And how do they share their expertise and information?

Formal competences

- Are there rules to give certain actors more power to influence the system? For example, are the public authorities more powerful to regulate processes compared to other actors involved?

Analysis rules of the game

Legislation

- Is there a general legislation produced and adopted in the field of sustainable housing?
- Are there individual arrangements between actors to achieve sustainable housing?
- Which actors are involved in the development of these legislations?

Procedural norms

- Is the implementation of sustainable housing of relevance because of national policies, or did the sustainable housing policy develop from the local level?
- Is the policy influenced by international cooperation or by international organizations? (Why?)
- Are the local citizens involved in the process of the development of sustainable housing? And on which manner?
- Do you think local citizens should be more involved in the process?

Integration or coordination of rules

- Do certain policies collaborate to achieve sustainability in general in the city of Wroclaw? For example, economic and ecological departments?
- Which policy departments are related to sustainable housing policy?
- Do you think there is an absence of integration between different policy domains in Wroclaw? (Should the integration improve between different policy fields?)

Analysis discourse

Scientific paradigms

- Which actors do you think are the most relevant to encourage sustainability in houses and why?
- Do you think the resources to achieve sustainability in houses has to change to make it more effective? (On which elements?)
- Do you think the rules of the game to achieve sustainability in houses has to change to make it more effective? (On which elements?)

Policy programs

- Which policy programs do focus on achieving sustainability in the residential sector?
- Do you think ecological values are well represented in policy programs? (Why?)
- Do you think ecological values or economic values are more important in policy programs?

Metaphors or narratives

- Are the agents in Poland aware of the relevance of energy efficiency and renewable energies? (Why?)
- Can you suggest some improvements which are needed in the sustainable housing policy?

Completion

- Thank the organization for the time and support
- Ask about their interest in retrieving the final version of the Master thesis

10.2 Interview contact details and informal meetings

10.2.1 Interviews

- Magdalena Baborska-Narozny (Wroclaw University of Technology, Faculty of Architecture): March 15, 2016.
- Izabela Mironowicz (Wroclaw University of Technology, Faculty of Architecture): March 25, 2016
- Przemysław Filar (Towarzystwo Upięszania Miasta Wrocławia, TUMW, Society for making the city of Wroclaw more beautiful): March 28, 2016
- Małgorzata Bartyna-Zielińska (Municipal Office of Wroclaw & Wroclaw Development Office): March 29, 2016
- Radek Lesisz (Involved in Lower Silesian Smog Alarm, to improve the quality of the air): March 31, 2016
- Małgorzata Pietras-Szewczyk (University of Lower Silesia, Faculty of Technical Sciences & Instytut Geodezji): April 4, 2016
- Marta Pánków (Wroclaw Development Office & Municipality of Wroclaw): April 8, 2016
- Alicja Lindert-Zyznarska (Climate-KIC & Wroclaw EIT +): April 20, 2016

10.2.2 Informal meetings

- Katarzyna Banaszkiwicz (Marshal Office of Lower Silesia): March 10, 2016
- Anna Nowacka & Marta Resak (Poltegor Institute): February 12, 2016
- Marta Kukuła, Magdalena Belof & Jan Blachowski (Institute for Territorial Development)