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COUNTING ON NUMBERS

AIR POLLUTION, RISK, RESIDENTS AND LOCAL MEDIA

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Abstract

This research investigates the construction of air pollution as a risk in local media. The aim of this thesis is to map the factors influencing the reporting and response to the risk. As method, a case study and qualitative content analysis of local newspapers in Kraków is used.

The first part of the thesis consists of a review of research on environmental risks in media. Further on, an overview of the scope of the theoretical toolbox is presented. Then a summary of the methodological approach, including emphasis on the importance of the case study and a description of social constructionism, is provided. In the following chapter the characteristic Ethnographic Content Analysis is described. Further on, results and an analysis of the material are presented.

The conclusion of the thesis is that air pollution and its management are constructed in media through a set of numbers and that the stress in the publications is put on the state's responsibility and existing regulations. The media's content is influenced by empowered citizens' support of this way of looking at air pollution. On the one hand the focus on the numbers explains the existing situation, on the other it oversimplifies the problem of air pollution and corrupts the results of citizens' engagement.

Key words: Air pollution, environmental risk, risk management, counter-democracy, civic engagement, audit-culture, agenda-setting, Ethnographic Content Analysis

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Table of Contents

1. Introduction	5
2. Existing Research on Media, Environmental Risks and Air Pollution	8
2.1. Media Representation of Environmental Risks.....	8
2.1.1 Socio-cultural Context.....	9
2.1.2. Activism, Accuracy and Local Media.....	10
2.2. Media and Air Pollution.....	11
2.2.1. Media's Role in Communicating Air Pollution	12
2.2.2. Policy Making and Citizens Empowerment.....	12
2.3. Summary	13
3. Risk, Agenda-setting, Counter-democracy and Audit Culture.....	14
3.1. Perspectives on Risk	14
3.2. Conceptualization of Risk	15
3.3. Agenda-setting Theory	20
3.4. Counter-democracy	23
3.5. Audit Culture.....	25
3.6. Summary	26
4. Social Sciences, Case Study, Social Constructionism – Methodology	28
4.1. Specific Position of Social Sciences	28
4.2. Importance of Case Study	29
4.3. Social Constructionism and Mediatization	31
5. Ethnographic Content Analysis – Methods.....	31
5.1. Ethnographic Content Analysis.....	33
5.2. Sampling	35
5.3. Protocol and Categories	35
5.4. Limitations	36
6. Media, Risk and Counter-democracy – Results and Analysis	38
6.1. Inventory	38
6.2. Establishment of Risk – Scienticized Consciousness.....	38
6.3. State’s Role – The Issue of Accountability	41
6.4. Questionable Risk Management.....	43
6.5. Citizens’ Role – Voice of Side-effects.....	45
6.6. ...and a Sign of Counter-democracy	48
6.7. Outcomes.....	49
7. Counting on numbers – Discussion.....	52
8. Summary and Conclusion	56
References.....	59
Appendix 1. Interviews – Questionnaire.....	67
Appendix 2. List of publications	68
Appendix 3. Codes.....	75

1. Introduction

Picture yourself a city covered in fog. You probably envision dim lights, barely recognizable buildings. The image is mysterious, a bit romantic, it may even send a chill down your spine. But what if I was to tell you that the mist you see is actually poisonous? That it is a sign of air pollution, a silent killer of all residents of the city? Not so mysterious or romantic anymore, is it?

According to the European Environment Agency (2014: 8), “[a]ir pollution is the top environment risk factor of premature death in Europe”. This institution attributed more than 400 000 premature deaths on this continent to air pollution between 2010 and 2012, not counting the short-term health effects such as respiratory problems. The costs of air pollution in 2010 were estimated between 330 billion and 940 billion Euros.

“This constitutes a substantial loss for Europe: for its natural systems, its economy, the productivity of its workforce, and the health of Europeans” (EEA 2014: 13).

Air pollution belongs to the group of environmental risks (one of the six significant types of modern risks) that “arise in, or are transmitted through, the air, water, soil or biological food chains, to man” (Whyte & Burton 1980: 3). The European Commission has proposed a new Clean Air Policy Package, targeted at improving air-quality in Europe by 2030 (EEA 2014: 17). The Policy Package shows how important it is to treat air-pollution as a risk and make a long term commitment to combat the negative health effects of air pollution.

Poland has one of the biggest concentrations of particulate matters (PM), one of the most dangerous pollutants, in the EU (EEA 2014: 37). Particulate matters are an atmospheric aerosol – a combination of very small particles of smoke, fumes, dust, pollen and water suspended in air. They are divided into different categories according to their size, for example to PM₁₀ (diameter smaller or equal 10 µg) and PM_{2.5} (diameter smaller or equal 2.5 µg). In the last years,

“Poland increased its PM₁₀ concentrations, with some stations registering significant trends. No other country registered statistically significant average increasing trends in PM” (EEA 2014: 39).

In 2011, Kraków, the second largest city in Poland with 760 000 inhabitants, was the most polluted city in Poland and one of the most polluted cities in the Europe (NIK 2014: 20). The main sources of particulate matters in Kraków are heating stoves (running on wood or coal), traffic and industry in and around the city. The timeframe of interest in this study is November 2015, the beginning of the winter season, the time when the pollution is the highest. During this period, the monthly average concentration of PM10 was $93 \mu\text{g}/\text{m}^3$ (micrograms per cubic meter), and the highest daily average was $265 \mu\text{g}/\text{m}^3$. For the reference, the European Environmental Agency describes concentrations of PM10 higher than $50 \mu\text{g}/\text{m}^3$ as a “significant threat” (EEA 2014: 24).

In this context, the situation in the city is a good case for researching the importance of constructing air pollution as a risk. Without the knowledge about *how* risk is perceived, one cannot see the limits established by the interpretation. The interpretation and understanding of the situation also determines the response to risk. The presented case study is also a way of describing a more general issue of risk construction as a process influenced by multiple social factors. In this thesis, I discuss the main arguments that deal with the issues of local newspapers representation and construction of risk, and the response to that risk. It is my purpose to highlight the ambiguity of civic engagement in face of risk by pointing to the elements that construct the risk. Little research has been published on air pollution within the communication field and that is an additional reason why this issue is relevant to discuss.

This thesis draws on Ulrich Beck’s (1992) sociological theory of risk society to argue that air pollution as risk is socially constructed. A crucial role in the assessment of the situation is played by scientists who are the ones that measure air-pollution and thus provide the “numbers” that are the subject the subject of discussion. Anthony Giddens’ (1990) emphasis on expert systems supports this approach as it also allows us to think through the importance of scientists in managing risks. The construction of risk is debated in the context of agenda-setting theory that is key for understanding what role media play in risk construction and popularization of scientists’ visions of risk. To this end conceptualization of risk perception is generative for grasping how people behave in the face of risk and what position they might take (Wildavsky & Dake 1990). It is here also that Dahlgren’s (2013; 2009) attention within media research to civic engagement and Rosanvallon’s (2008) idea of democratic distrust are of value for informing why and how people engage and try to influence politics when threatened. Finally, Cris Shore’s

and Susan Wright's (2015; 1999) anthropological concept of audit culture helps to challenge the vision of a citizen's victory in renegotiation of what constitutes risk. The analysis presents how audit culture corrupts civic engagement. The usage of theories from different fields allows one to fully grasp the complexity of the air pollution as described in the media. The variety of approaches also highlights that media study is not done in an academic void but has to draw from other fields to create meaningful interpretations.

The main research questions are as follows:

How is air pollution constructed in the local media in Kraków, one of the most polluted cities in Europe?

- How is the response to risk described by the local media?
- What is the role of counter-democracy in risk-construction in the local media?
- What role do numbers play in the construction of air pollution as a risk in the local media?

The thesis is structured as follows. After reviewing research on environmental risks in the media, an overview of the scope of the theoretical toolbox is given. Then I provide a summary of my methodological approach, based on Bent Flyvbjerg's (2001) focus on "phronetic" social science, including an emphasis on case studies and a description of social constructionism. The following part consists of a description of the Ethnographic Content Analysis (Altheide 1996; 1987) which is a tool for approaching documents, especially when trying to understand the communication of context-dependent meaning. Further on, results and an analysis of the material are presented. References to additional theories, such as Anthony Giddens' (1990) "expert systems" and Aaron Wildavsky's and Karl Dake's (1990) theory of risk perception, are introduced. Finally, in the discussion section I consider several implications to demonstrate the importance of numbers in risk description and argue that the oversimplification of risk has significant consequences.

2. Existing Research on Media, Environmental Risks and Air Pollution

The explored articles show a picture of a very complex research field with a strong focus on local problems. The literature review analyzes the relationship between printed media, from here on referred to as “media”, and environmental risks. The examination starts with a debate about the influence of media on the construction of environmental issues. In the next part, media representations of environmental risks are reviewed. This chapter includes a historical overview of the focus of the media on environmental issues. The description also contains a debate on the influence of the socio-cultural context, and its influence on news frame shaping. Next, the topic of media's influence on activism and the importance of accuracy of reporting is presented. The special role of the local media in reporting is also stressed. The second part of the review focuses on media reports on the air pollution and describes the structure of the research field. This section underlines the role of media in communicating health effects of air pollution and media's influence on policy related to combating the issue. Last but not least, the review touches upon activating citizens in combating air pollution.

2.1. Media Representation of Environmental Risks

Although we live in a more and more digitalized reality, printed media still are an important source of information on environmental risks and uncertainties (Lenz 1996; Juknevičiute, Liubiniene & Thunqvist 2011; Wakefield & Elliot 2003). A big part of the information online is closely linked to the articles offline. So far, the importance of the printed media in defining notions, shaping important issues and ranking those issues has been taken for granted in current research (Ashe 2013; Allan, Adam & Carter 2003). Published academic papers mostly focus on how journalists frame information and simply acknowledge that audiences always bring their own understandings to transmitted materials (Ashe 2013). Because of that, the focus remains on framing of information rather than perception by the audience. Despite the lack of empirical audience-related data, research from psychology gives evidence, that individuals do not learn from all impulses that they receive on daily basis and that is where the role of newspapers as key in agenda-setting emerges. Deborah Lupton (2005: 21) claims that psychometric researchers have discovered that media attention and content influence lay people's perception of risk – presented information is easier to recollect and raises more concern. That is why the media are capable of setting an agenda – they are the link that gives

external signs a meaning, puts them into a specific context and tells people how important specific environmental issues are (Ader 1995).

2.1.1 Socio-cultural Context

According to Stuart Allan, Barbara Adam and Cynthia Carter (2003), specialists in environmental risks and the media, the interest of news reports in environmental risks has been growing since 1970s. Before that, industrial pollution was seen as an unavoidable price that we have to pay for development. In the 1970s a critical approach emerged – journalists started using their sources in a more conscious way and became more knowledgeable on environmental topics. Around that time, reports were focusing on reconnecting nature and humanity. In the 1990s, a more nuanced debate emerged in the media. The presentation of environmental issues was not dichotomous anymore, but the reporting was still built around big events such as natural disasters, rather than everyday hazards (Allan, Adam & Carter 2003: 3-11).

Today, the situation does not look as before. Focus has been shifting towards the daily risks as well. An example of this can be the appearance of air pollution as a topic both in the news and in research. Moreover the discourse has been shifting from the politicized discourse on environmental issues to a more general reflection on the problems (Castrechini, Pol & Guardia-Olmos 2014). It has been shown that today, the reports also align with the socio-cultural (including political) situation in specific countries (Griffin & Dunwoody 1995; Jukneviute, Liubiniene & Thunqvist 2011; Major & Atwood 2004; Tong 2014; Schmidt, Ivanova, Schäfer 2013) and therefore are context dependent.

Research on environmental issues in the printed media suggests that the topic has been strongly linked to politics. When governmental experts are called to the stand, a new frame, shaped by their agenda, emerges (Hove, Paek, Yun & Jwa 2015). This simply proves Teresa Ashe's (2013), a researcher in climate change, finding that sources influence content of the reporting. In the past, governmental sources were most commonly used by journalists, sometimes even excluding other actors such as activists and citizens. The officials and their press kits have been serving as one of the main sources for journalists over the years (Griffin & Dunwoody 1995). Still, there is no follow up research that would state what the situation is nowadays.

The officials have been also presented as responsible for solving the difficult situation (Knight 2010). The shift in the 1970s was also accompanied by linking environmental issues together with policies on this topic in national newspapers (Grantham & Vieira 2014). Even today, in the situation when the government is opposed, it is still presented in the media as crucial in dealing with the risks (Tilt & Xiao 2010). Therefore, the officials remain an important actor in reports on environmental risks.

2.1.2. Activism, Accuracy and Local Media

In this complex socio-cultural context where many factors and competing interests influence reporting, it is important to ask whether media can actually empower citizens and support activism. If media positively influence the perception of risk and appreciation of knowledge (Riffe 2006) and public awareness about environmental issues (Tong 2014), they are an important tool for stimulating citizens' engagement. According to Jan E. Knight (2010), a researcher in journalism, until the 1960s the coverage of environmental issues with its strong governmental discourse would discourage citizens in the USA from participating in environmental movements. A study by a team of social scientists from Lithuania and Sweden has also shown that there is a link between presentation of environmental issues in the media and awareness and activism, but in those two countries, the current coverage fosters, rather than inhibits, activism (Juknevičiute, Liubiniene & Thunqvist 2011). Today, activists have also become a viable source of information and therefore influence the content of the report (Hansen 2013).

The accuracy of coverage becomes crucial in this context. The described power of talking about environmental risks and influencing citizens suggests that it is important to follow whether the media focus on conflict, losses or solutions and whether the provided information is adequate (Major & Atwood 2004; O'Donnell & Rice 2008; Ashe 2013). Media logic is directed not by concern about public health but by environmental episodes (events). This situation creates a problem for focusing on long-lasting risks, such as air pollution, in a holistic way (Das 2012). In addition, coverage is selective, and newspapers, although preferred as a source of knowledge, are an inconsistent source of information on risk (Wakefield & Elliot 2003; Knight 2010). An in-depth literature review of media reports on scientific risks related to environment and health, written by Teresa Ashe (2013) for the Oxford University and Reuters Institute, reveals that media often downplay the danger posed by specific risks. A psychology study suggests that this kind

of reporting (based on single events, lacking in data, focusing on negative information) can lead to schematic thinking by the readers (Nerb, Spada & Lay 2001). Still, the lack of a consistent link between actual conditions and reporting should not be blamed only on event-oriented logic of the media (Ader 1995), but also on the changing knowledge about the results of the environmental risks and pollution.

Last but not least, one cannot underestimate the importance of the local media in reporting on environmental issues. Local media are a regular source of information and the tool for risk communication (Wakefield & Elliot 2003). Although other studies have shown that the local media also have a tendency to focus on single issues (Grantham & Vieira 2014), they are crucial in informing local communities about possible implications of a pollution (Major & Atwood 2004). Moreover, as already stated, local sources in polluted areas would be most likely to communicate results of official reports (Griffin & Dunwoody 1995), which means that in a certain way they take responsibility for informing and educating society. The localized and contextualized content has been proven to be more common than reports on global issues in raising awareness about environmental issues, which can be seen for instance in Lithuania (Juknevičiute, Liubiniene & Thunqvist 2011).

2.2. Media and Air Pollution

The research focusing on air pollution in the media is relatively new in social and environmental sciences and not as well established as research on environmental risks. The role of the media in communicating air pollution is well acknowledged in different areas of science such as geography, health studies, medicine, communication studies or journalism. Most of the available research papers were published after 2000, and lately the topic has been mostly investigated in China, a country openly struggling with the issue, in the context of social media (Kay, Zhao & Sui 2015; Wang, Paul & Dredze 2015; Jiang, Wang, Tsou & Fu 2015; Yang, Yang & Zhou 2015). What is worth noticing is that I was not able to find much research on air pollution within the field of media and communication studies related to the European context – only Karameti's (2015) paper on the discourse in Macedonia.

2.2.1. Media's Role in Communicating Air Pollution

Scholarly research, regardless of the area of expertise, has been focusing on the media as a possible source of knowledge and a tool for effective communication. Research on air pollution in the media started with theoretical questions on how to make people aware of air pollution as an issue (Bickerstaff & Walker 2001) or to share the results of scientific reports with broader public (Bickerstaff 2003). The results of those questions can be seen in research that claim that the media can be tool for explaining air pollution as directly related to industry and something to be concerned about (Chen 2014). Still, it is not only printed media that are acknowledged as a source of knowledge – with the changing media landscape, microblogs and social media have been researched and proven to be a reliable source of information on a current level of air pollution (Wang, Paul & Dredze 2015; Jiang, Wang, Tsou & Fu 2015).

In academic papers, the shortcomings in provision (lack of depth, local context) of information on health effects have been addressed (Beaumont, Hamilton, Machin, Perks & Williams 1999; Wartenberg 2009). Academics have discovered that not all health-related consequences receive accurate coverage – for example, American printed media do not present asthma (strictly related to bad air quality) as a result of environmental pollution (Mayer 2012). Therefore, the question about effectiveness of communication has been enriched by a question about its quality.

2.2.2. Policy Making and Citizens Empowerment

An often puzzling question is whether the media can influence or advance policy related to air pollution. On the one hand, some researchers stress that without the media attention, certain regulations would not be passed (Mayer 2012). On the other, although in coverage of air pollution the government or local officials can be presented as the responsible for resolving the problem (Kenix 2005),¹ research is not able to link reporting on scientific findings and the air quality with political implications. The longitudinal analysis of impact of media's focus on environmental movements (and issues) on real world outcomes between 1959 and 1998 also suggests low correlation (McCreery 2010). Media were shown not only to have a low impact on policy making, but even to be used instead, as in the case of social media, for social monitoring (Kay, Zhao & Sui 2015; Wang, Paul & Dredze 2015; Karameti 2015). Therefore, there is no evidence that the media's interest

¹ As in reporting on environmental issues

in the air pollution can change regulations related to the topic.

Empowerment of citizens by the media is the next important aspect in combating air pollution. Research has shown that the media can both serve as a tool for empowering citizens (Yang, Yang & Zhou 2015; Karameti 2015) but also their control or even lowering interest in the issue (Kay, Zhao & Sui 2015; Chen 2014; Wang, Paul & Dredze 2015; Mayer 2012; Kenix 2005). Therefore, the consensus on this topic is that the media have influence on how citizens react to air pollution. Although the media might not be able to directly influence regulations, they have the capability to empower citizens to do so.

2.3. Summary

As described in the literature review, the representation of environmental risk is still changing and depends on both broader and local socio-cultural context, especially politics. Media's coverage can both promote and inhibit citizens' activity in combating environmental risk and air pollution, which is why the accuracy of reported information and focus on most important (not just newsworthy) issues is crucial. This is also why the role of local media should be further analyzed – they are key in informing communities about impacts of environmental pollution on their health. Since there is no published research combining environmental issues, air pollution and the media in Poland, this thesis can become an entry point to a debate on the mentioned topics – media's role in shaping risk perception, framing the political context, and empowerment of citizens. This research presents a local issue and its representation – fitting the same into Rowan Howard-Williams (2012) postulate for analyzing modern risks as local issues and their interpretation. Last but not least, the thesis is a contribution to few existing articles about air pollution within the communication field. With this thesis I wish to become a part of the discussion about constructing air pollution in the media while taking into consideration a broad view factors that influence the content.

3. Risk, Agenda-setting, Counter-democracy and Audit Culture

The toolbox for the analysis presented in this thesis consists of four main theories described in this chapter. First, the reflexive modernization approach to risk and Ulrich Beck's (1992) sociological theory of risk society are presented. Next, the agenda-setting theory is introduced to show what role the media play in risk construction and popularization of scienticized vision of risk. It is here also that Dahlgren's (2013; 2009) and Rosanvallon's (2008) interest in democratic distrust help to understand why and how people influence media content as a sign of democratic oversight. Lastly, Cris Shore and Susan Wright (2015; 1999) idea of audit culture is presented to show why numbers are important in presenting risk.

3.1. Perspectives on Risk

Approaches to the risks can be divided into three main traditions. For the purpose of this thesis the classification applied by Jens Zinn (2006; 2004) are used.² The first called "reflexive modernization approach" is important for presented analysis and focuses on risks related to modernization, individualization, as described by Ulrich Beck and Anthony Giddens. According to this approach, the notion of risk becomes more and more a central concept in political and human life. The second one, called "cultural approach" looks more into creation of identity and symbolic boundaries of a group and on seeing the "other" as the risk. The perspective is based on Mary Douglas' and Aaron Wildavsky's studies. The last approach called "governmentality approach" is rooted in Michel Foucault's perspective. It relates to the production of "truth" and the issue of power, knowledge and self-regulation in the face of risk. There is also a fourth tradition of risk research, outside of the main stream, that is called "system theory approach". It is associated to risk management and is based on Niklas Luhmann's question about society's ability to find a way out of a problem and come up with most optimal solutions. Since the last tradition is well established only in Germany and rarely appears in international discussions about risk (Zinn 2004: 4), it was not taken into account in this thesis.

² Other authors use different names but the content of three categories is similar. In Deborah Lupton's (2005: 36) typology "reflexive modernization approach" is called "risk society perspective", "cultural approach" is called "cultural/symbolic perspective". The name of the "governmentality approach" remains unchanged.

In the process of theorizing risk, Lupton (2005: 18-36) distinguishes three main epistemological perspectives on risk: realist, weak constructionist and strong constructionist perspective. The weak constructionist perspective is crucial for this paper and includes the cultural and reflexive modernization angles (Zinn 2006). The reflexive modernization approach acknowledges objective existence of risks and focuses on the ways of understanding and redefining risks. Still, risk seen from this perspective is something material that can be combated – its sources and consequences can be minimized.

The social constructionist perspective on modern risks argues that

“a risk is never fully objective or knowable outside of belief systems and moral positions: what we measure, identify and manage as risks are always constituted via pre-existing knowledges and discourses. (...) A risk, therefore, is not a static, objective phenomenon, but is constantly constructed and negotiated as (...) formation of meaning” (Lupton 2005: 30-31).

In other words, risk as a phenomenon is at least partially created in rhetorical processes (Lupton 2005: 32) and definitions of risk can be negotiated. The two constructionist perspectives put strong focus on text and specific context – risk cannot be understood outside of social and cultural process (Lupton 2005: 35). This is why this research is a case study that includes the local setting of air pollution. The next issue is an assumption that the media, as any other actor, are not objective or rational, but they are embedded in a social context. In this sense, media reports carry existing discourses on risk but also re-shape and influence them. Before looking closer into media's role, we have to take a step back to see what the characteristic of risk related to modernization is. To do so, we have to look closer into Beck's perspective and conceptualization of risk in the context of air pollution.

3.2. Conceptualization of Risk

In this thesis air pollution is conceptualized through the reflexive modernization approach that is mainly based on Ulrich Beck's concepts of risk society and modern risk. Beck's concept of risk has been one of the most important in the analysis of environmental issues in the media (Bickerstaff 2003; Bickerstaff & Walker 2001; Howard-Williams 2012; Kitzinger 1991; Tong 2014). In his perspective (Beck 1992: 4), risk is defined as

probability of physical harm that is a result of technological or other processes. Modern risks, however, differ from those people knew before – they are a result of technological rationalization that includes change in work, organization, lifestyle, structure, power and politics (Beck 1992: 21). Innocent or even essential things, such as air in the analyzed case, have become a source of possible harm (Beck 1992: 51).

Moreover,

“[r]isks of civilization today typically escape perception and are localized in the sphere of physical and chemical formulas” (Beck 1992: 21).

The risks cannot be defined and therefore challenged without scientific knowledge (consciousness) about them. In Beck’s opinion, scientists, or as he calls them, “sensory organs of science” (Beck 1992: 27, 162), play a crucial role in the understanding of risks. His notion is related to Anthony Giddens’ (1990) concept of “expert systems” that describes a nexus of professionals that we have to rely on in different areas of our lives. This is also the case for air pollution – its smell or look can be mistaken by a lay person for normal fog or smoke – both gray-looking air. What gives negative meaning physical appearance, that deviates from the norm, are scientific designators of air quality in Europe – names such as PM2.5, PM10, O3, NO2, BaP, SO2 and numbers related to them (EEA 2015: 7-9).

The dependency on definition also means that risks are constructed and are open to modification as the knowledge changes – “What was made by people can be changed by people.” (Beck 1992: 157). People depend on experts' knowledge in grasping the complexity of new situations, but these experts at the same time are challenged and demystified as normal human beings who make mistakes. Therefore, there is no certainty or final definition of the risk and its denominates. In other words, the acceptable levels of pollution can always change.

“It ultimately comes down to how long poisoning will not be called poisoning and when it will be called poisoning” (Beck 1992: 65).

In this sense the naming is both an unstable definition and a symbolic tranquilizer – as long as something is not labeled as dangerous, it does not cause panic (Beck 1992: 68-68). Naming, such as the “norm”, “information level” and “alarm level” of air pollution in Kraków, has a performative function – it shapes the current perception of the state.

Modern risks, including air pollution as an environmental risk, are also difficult to grasp because of their localization. They are not simply bound by time or geographical division. The pollution will have impact on people who have not been born yet. The risk also knows no political borders – air pollution moves with the migrating air and cannot be stopped, unless its causes are attacked. Moreover, modern risks have consequences yet unknown. This is again where the importance of science is stressed by Beck. “The implied causality always remains more or less uncertain and tentative. Thus we are dealing with a theoretical and hence scientized consciousness, even in the everyday consciousness of risks” (Beck 1992: 28). In other words, the current scientific perception and daily definitions of risk are always incomplete as they cannot encompass all aspects of the risk.

In addition, scientific knowledge is difficult to precisely communicate to lay people. This is where a gap between scientific and social ways of looking at the risk appears. Because of the gap, certain issues can be either underestimated or overestimated (dramatized) – issues crucial for scientists do not have to be crucial for society, and the other way around. In the case of air pollution, the seriousness of the issue has been already stressed in multiple scientific reports (EEA 2015; WHO & OECD 2015), still it has not been fully recognized among public opinion in Europe. What is important, if people cannot fully understand the complexity of certain issues and cannot be sure whether the currently described risks are actually crucial, they might try to come up with their own interpretations of a situation. In this context access to the media plays, according to Beck, a central role – they are the key to convince the public to internalize a specific agenda (Beck 1992: 32). Therefore, media are one of the important elements in legitimization of the risk and its social recognition. In the context of Kraków, the role of journalists in spreading knowledge has been recognized by NGOs working on improving air quality. As one of the activists stated

“The role of journalists is big. They want to write and talk about it [air pollution]. We wouldn’t be able to do it without them – Kraków has become a frontrunner in fighting smog (...)”³

³ Interview with Ewa Lutomska, vice president of Krakow’s Smog Alarm (KAS), a social movement focused on improving social awareness about the issue of air pollution
<http://mediumpubliczne.pl/2016/02/my-tu-gadu-gadu-a-w-powietrzu-mamy-syf/> (accessed 20.03.2016)

As described by Beck, risks are created in the context of social systems and processes – they are both a result of a social system and influence the way a society operates. Environmental problems become social problems – they endanger culturally elevated values, such as health (Beck 1992: 83). The risks start to influence political and economic systems. Air pollution, as other modern risks, affects all people equally. Everybody in Kraków breathes the same air. “[P]overty is hierarchic, smog is democratic” (Beck 1992: 36) – the exposure to the pollutant is not a matter of choice. Still, the results of the exposure might differ according to age, gender, lifestyle, occupation etc. (Beck 1992: 26). That is why the topic of air pollution is an important one – it is not a question of “if” but of “how much” the issue affects citizens.

If a risk threatens existence universally a need for its management emerges. In this situation, new political decisions might emerge, leaning towards totalitarianism where non-political aspects of life become regulated by the state (Beck 1992: 77-83). For example, Kraków has introduced multiple clean air packages, targeted at improving the situation. As the state takes over specific aspects of decision-making, its capability to protect its citizens is being questioned (Beck 1992: 49). That is why more pressure is put on educated individuals. The access and understanding of crucial information becomes more and more important. The information is supposed to lead to protection through self-limitation – if the air is of bad quality, do not go out. Still, it is difficult to distinguish between the actual risk and information about it –

“[i]t is not clear whether it is the risks that have intensified, or our *view* of them. Both sides converge, condition each other, strengthen each other, and because risks are risks in *knowledge*, perceptions of risks and risks are not different things, but one and the same” (Beck 1992: 55).

In the times of growing individualization, the gained knowledge about a risk becomes a reason for reflexivity – conscious self-reflection, contemplation on one's lifestyle and daily choices (Lupton 2005: 72-73, 113). Knowledge about air pollution evokes questions about how you use your car, what how do you heat your household, whether you should put a mask on when you leave your house, if your kids should play outside today, and many more. That is why the risk management does not only take a form of new regulation but also of self-limitation.

As already mentioned, the invisible hazards become visible through consciousness and access to knowledge. Therefore, they are also shaped by the media that play an important role in the agenda-setting process. According to research ordered by the Ministry of Environment in Poland, three most commonly used sources of knowledge about environmental issues are television (76%), the internet (31%), press (19%) (TNS Polska 2014: 35-36). The majority of respondents (72%) never intentionally searched for information about the state of environment what could imply that information presented to them by the mass media is enough. According to Beck, media regardless their shortcomings play a decisive role in shaping public opinion according to political needs and can significantly influence the definition of problems their portrayal of risk (Beck 1992: 193, 197; Beck 2003: xiii). I would argue here, that following the agenda-setting theory, media rather give directions (suggest), and not push, the public towards certain interpretations. This however, does not change the fact that media have a saying in how the risk is defined and what steps should be taken.

Although Beck's theory serves as a valuable framework, especially in research on environmental global risks, it has been also criticized for a tendency towards overgeneralization (Howard-Williams 2012: 312) and lack of supporting research (Kitzinger 1999; Lupton 2005: 85). According to Jenny Kitzinger (1999), professor of Communications at the Cardiff University, grand theories on risk,⁴ including Beck's "risk society", neglect to present empirical evidence that would link risk and media coverage. As a solution to this problem, Rowan Howard-Williams (2012), a researcher focusing on discourses of global environmental risks, suggests empirical studies that capture the complexity of local contexts and discourse analyses of different types of media outlets, from printed media to social media. Looking at the research reviewed in the previous chapter, one can argue that his suggestion has been strictly followed – the latest publications on the media and environmental risks supplement Beck's theory by focusing on local issues and their interpretation and this thesis is an addition to this trend.

Over the last years, the reflexive modernization approach has been also criticized for being too simplistic and for generalizations focusing on technical and environmental risks as consequences of industrialization and globalized capitalism. The concept of risk society has been also accused of narrowing risk down to technical and statistical

⁴ Also: Cohen and "moral panics", Kaspersen and "risk amplification" (Kitzinger 1999)

management and omitting different rationalities and socio-cultural perspectives in risk perception (Zinn 2006; Zinn 2004; Taylor-Gooby & Zinn 2006). This is why latest research based on Beck's theory includes subjectivity and importance of context in risk perception – risk as being managed and valued in the context of forms and levels of local knowledge and responses to a specific case. The improved reflexive modernization approach has acknowledged that risk calculability is a social construct itself. Moreover, the researchers rooted in Beck's thinking shifted the focus from the risk itself into uncertainty as a shared experience in the modern world (Zinn 2004: 3-4). The uncertainty is both linked to the possible risks and to the process of risk creation – the risk label is seen as a way of turning “unmanageable uncertainties into manageable risks” (Zinn 2004: 8). Current research within the reflexive modernization focuses on challenges to the official expertise and the importance of lay risk perception. The most-recent research also stresses the social function of constructed risks and puts more stress on risk interpretation (Zinn 2004). In this thesis, the updated version of the reflexive modernization approach with focus on specific case, context, ambiguity of risk management is taken into account.

3.3. Agenda-setting Theory

To understand the role of the media in risk construction, the frame of agenda-setting theory is used. The theory is important since the top three sources of knowledge about environmental issues are media (TNS Polska 2014: 35-36). Media act as a guide in the complex issue, which is in this case air pollution.

Notions of agenda-setting theory have been present in media studies since the beginning of 20th century. The theory is rooted in Walter Lippman's (1922) claim that reality, including risk, is extremely complex and difficult to grasp. Therefore, people cannot fully understand what is happening around them and act upon their vision, also transmitted through the media, of the reality. Over the years, Lippman's approach has been criticized for being rooted in the theory of mass society and seeing audience as passive recipients. Nevertheless, his way of thinking turned out to be very influential and has been transformed into the agenda-setting theory, supported by work of Bernard Cohen, Maxwell E. McCombs and Donald Shaw. Within this theory, Cohen claimed that the press can influence what we think about but he also acknowledged that each member of the audience experiences the world in a different way (Baran & Davis 2007: 364).

McCombs and Shaw verified Cohen's hypothesis on media's influence through a study on political campaigns in the USA in the 1970s. As McCombs defines,

“[a]genda-setting focuses on what audiences learn from the mass media, and this learning process is mediated by individual differences in the relevance of particular mass media message as well as the degree of interest in specific details” (McCombs 2005: 548).

According to McCombs and Shaw, mass media inform the audience about an issue and give it importance through its position, size etc. (Baran & Davis 2007: 364). Agenda-setting theory, as social constructionism, also includes a notion that media do not simply reflect reality, but shape it as well. McCombs and Shaw showed through their analysis that there is a positive correlation between pressure on specific issues in the media and their perception by the audience. The main critique of their study was that there is no proof of a causal relationship between presentation and perception – it is also possible that media cater to the vision existing among the audience (Baran & Davis 2007: 365). Still, the analysis done by McCombs and Shaw inspired much further research, for example by Iyengar and Kinder (1987), that has demonstrated that agenda and priming settled by the media influence what information the audience perceives as important. The power of agenda-setting lies in the availability heuristic – media attention and prominence of a story make it easier for a member of an audience to recall specific information if needed.

With time, agenda-setting theory expanded outside of studies on thinking about political issues (for example see: Ogata Jones, Denham & Springston 2006; McCombs 2005: 552-554) and inspired new theories. An example of development of the theory is Kurt Lang's and Gladys Lang's agenda-building theory, according to which the happening process is not unilateral (public opinion is not the only dependent variable, as in Lippman's classical theory). Instead, media and active audience influence each other. This is especially visible nowadays, when media are interactive and journalists can follow the comments of their readers and see the way they interact with the content. Another theory inspired by agenda-setting theory is the framing theory, according to which framing of news (order of information, language) also influences how people think about issues and what attributes they see as most important (Baran & Davis 2007: 367-368). In

case of the framing theory, the focus is on the attributes that construct and prime a dominant vision of an issue or an object (McCombs 2005: 546-547, 549).

The agenda-setting theory served also as a base for Simon Cottle's theory on media's role in construction of global crises (Nohrstedt 2010: 39-43). Although he focuses on transnational phenomena, Cottle claims that media play a significant role in positioning risk as meaningful and important. He distinguishes between "mediation" and "mediatization" of problems in the media. By mediation he means informing the general public about an issue – media provide information that help the public handle the situation, give people a push for action. By mediatization, he means that "the problem or danger is created *in and by* the media (...) it is the media that construct the threats towards which actions and politics are directed" (Nohrstedt 2010: 41). In the mediatization process media become "the place and scene for political manifestations and planned events" (Nohrstedt 2010: 42). The distinguished categories are closely linked – it is difficult to see when mediation of a threat turns into mediatization and what level of mediatization has occurred, especially in the social media. What the two categories rather give us is the description of the media as creators of pre-conditions for public attention and political actions. Cottle's notion of mediatization of crisis underlines the role of media in risk perception and creation, and is crucial in understanding air pollution. It is linked Beck's idea of the media as a one of the factors in creation of "risk consciousness".

In general, although the tradition related to agenda-setting theory started almost one hundred year ago, it remains relevant within media and communication research – "journalists do significantly influence their audience's picture of the world" (McCombs 2004: 19). Lippman's vision of the media playing the role of guide in the complicated reality is still valid and especially useful when looking at complex construction of air pollution. Agenda-setting theory is also applicable in the new news media, including online newspapers analysed in this thesis (McCombs 2005: 543). Online papers, as traditional, are also concentrated and are often closely linked to the printed version (McCombs 2005: 545). Still, the growing importance of the internet should not overshadow the fact that digital divide still exists. A significant number of people receive their information from traditional media. According to TNS Polska's report from October 2015, one of the biggest research houses, every third Pole (36%) uses the Internet less than once per week. 96% of respondents from this group are seniors (TNS Polska 2015) –

one of the most vulnerable groups to air pollution. Therefore, in the context of this study, the role of traditional media in agenda-setting remains especially important.

3.4. Counter-democracy

Media is an important element of citizens' empowerment and stimulation in the face of risk. Although Peter Dahlgren (2013; 2012; 2009), expert in the field of media and democracy, mainly focuses on the social media, his claims about democracy, civic engagement and media as such is relevant also in the researched context. According to Dahlgren (2009: 47-48) the role of the media should be connecting citizens to the political life and enabling their participation. Dahlgren, after Pierre Rosanvallon, links participation to citizens' dissatisfaction or distrust (called in this context "democratic distrust") that is an integral part of democracy (Rosanvallon 2008: 4; Dahlgren 2013: 13; 2012: 2-3). In Poland the level of the distrust is especially high – in 2015 almost 59% of the citizens did not trust the government and the parliament, and 37,5% did not trust their local representatives (GUS 2015: 2). The distrust can be linked to the fact that democratic system carries with itself high expectations and people feel easily disconnected from the political decisions. Dahlgren (2009: 22-24) also claims that in Western democracies parties rather react to arising problems than take charge of the situation what is especially problematic in a state of emergency. In the face of risk when people are looking for security, they might feel obliged to act upon their distrust and get involved in the political world.

This is where the counter-democracy (as alternative politics) arises – a sign of renewal of citizens' engagement and a performative vision of citizenship (Dahlgren 2009: 30-33). Counter-democracy, a concept established by Pierre Rosanvallon (2008), can be explained as

“the process whereby citizens, in various constellations, exercise indirect democratic power by bypassing the electoral system means engagement outside or on the boarder of the dominant system” (Dahlgren 2012: 3).

Lack of faith that politicians will protect citizens, act towards the common good and be effective, leads to more formal organization of distrust (Rosanvallon 2008: 4). Examples of counter-democratic action can be seen in NGOs, social movements or protests. In Poland, the level of civic engagement is quite low, still the belief that lay people can

together effectively influence the reality around them has been slowly but steadily growing over the last twelve years (CBOS 2014). Through the self-organization, citizens become a part of the political system – watchdogs, veto-wielders and judges (Rosanvallon 2008: 4, 17). An example of counter-democratic engagement is a social movement called Krakowski Alarm Smogowy, (Krakow’s Smog Alarm) that was started in Kraków in 2011. KAS’ actions are focused on improving social awareness about the issue of air pollution through lobbying, campaigns, social media and apps.

“We live in highly mediated societies, and much of our civic knowledge derives from the media. In a sense, the media bear some responsibility for our political involvement” (Dahlgren 2009: 81). Dahlgren distinguishes between participation *in* and *via* media that influences changes in the society. By participation *in* the media he means involvement in content creation and by participation *via* the media he means facilitation of activation (for example protest or petitions visible in the social media) (Dahlgren 2013: 22-23). Media provide space for communication of issues and are one of the channels that turn private issues into public matters. The important moment is when people’s voice becomes audible and becomes a recognized part of public sphere (Dahlgren 2013: 54-56). Media give visibility to the active citizens’ that “become the routine functional form of democratic oversight” (Rosanvallon 2008: 66-68). To execute ones citizenship and become a part of a counter-democratic movement, knowledge, media literacy, access to information and communicative sphere for engagement is needed.

Well-prepared and active citizens can serve as a source of information for the media and the drive behind bringing a topic into public attention (Dahlgren 2009: 97-101). The growth of platforms within the media means also more opportunities for citizens to share their agenda and monitor people in power. This can be seen for example in activists that assist journalists or in participatory journalism itself (Dahlgren 2013: 97-98, 109-110). This is why Dahlgren distinguishes between material and discursive elements of participation – practices can take many forms of expression, such as speaking or writing, and depend on communicative skills (Dahlgren 2013: 23-25). Educated citizens can be an equal partner in mediated discussions and their involvement in changing the discourse about an issue can be a sign of civic engagement.

Still, media are not a value-free partner. They carry existing vision of political life, establish boundaries of the world we live in (Dahlgren 2013: 118-120; 2009: 52-54). In a

way, they socialize people into a specific position in the world. Especially, mass and mainstream media reflect current social system and carry dominating discourses and power structures that have

“[t]he power to define the issues, set the terms of discussion, present the options, and generally specify what constituted the real of ‘realistic’ and ‘legitimate’ political alternatives” (Dahlgren 2013: 32).

In other words, media driven by existing power structures show the limits of possible actions and solutions. Therefore, on the one hand media (especially alternative) can carry different explanations of the reality, present multiple agendas, but on the other hand most probably work within the frame of existing power structures.

This is where the question about role of citizens in reporting on risk emerges. If we connect Beck’s vision of the media playing a decisive role in shaping public opinion by their portrayal of risk (Beck 2003: xiii; 1992: 193, 197) and Dahlgren’s notion of the media as a frame for participation, new questions about reaction to risk and role of citizens arise. The questions are related to the mediatized engagement in face of air pollution and the role of the citizens in content creation.

3.5. Audit Culture

Last tool in the conceptual toolbox is the “audit culture” described by Cris Shore and Susan Wright (2015; 1999). Audits are a quantified, formalized and standardized means of control related to management (Power 1994). Together with economism, understood as priority of economic criteria over other values (Dahlgren 2009: 20-22), and the neoliberal state, the idea of managing and solving problems through quantified performance indicators has spread in the last decades (Shore & Wright 1999). This tendency is especially visible in Poland, where the longing for belonging to the group of Western Countries has led to automatic appropriation of tools proposed by international organizations, such as EU, OECD, WHO etc. According to Shore and Wright, more and more aspects of human lives are transformed through numbers,

“Even intangible phenomena such as levels of ‘trust’, ‘levels of corruption’, ‘quality of life’ (...) are now routinely quantified, measured and ranked” (Shore & Wright 2015: 22).

Shore and Wright mostly link the audit culture to performance management and the industry created around it. Still, their theory is also applicable in other fields, such as risk management.

In the audit culture, experts are crucial in making phenomena auditable, analyzing them and establishing the descriptions as based on numbers (Power 1999: 11). This relates to the importance of science and experts, and influence of scientific discourse on daily definitions as described by Beck. Occurrences, including air quality, are benchmarked and performance being compared. Quantification makes issues “easier” to grasp and decontextualizes them. Suddenly problems that were difficult to comprehend become clear for anybody who is able to sort numbers. The numbers provided by experts gain power to define whether situation is good or bad.

The audits are a way of managing risk (Power 1999: 5). On the one hand, regular controls are supposed to reduce the possibility of risk, on the other hand, audits produce a sensation of “imaginary control” (Power 1999: 40) – the feeling that somebody is labelling the current state and is in control of the situation (Power 1999: 5, 123-140). The problem is that the focus on numbers narrows down and oversimplifies certain issues. What cannot be measured is often downplayed and put aside although it still might have significant influence on the current situation. Numbers help to establish risk, but they cannot encompass everything that a risk implies. As Beck puts it,

“[t]he barriers provided by ‘acceptable values’ seem better suited for Swiss cheese than to the protection of the public (the more holes the better)” (Beck 1992: 55).

The concept of audit culture helps to understand both roots and consequences of constructing and managing air pollution as a set of numbers.

3.6. Summary

To accurately examine and analyze the issue of air pollution all described theories are necessary. It has to be highlighted that air pollution in the media is a multilayered problem and it is difficult to separate different aspects of the issue. One cannot study how air pollution is created in media without reflecting on the nature of modern risks and their constructability, explained by the reflexive modernization approach. The perception of air pollution as graspable through scientific formulas (numbers) was brought to the media

attention by active citizens. The citizens promoting this specific vision of risk in the media were a result of democratic distrust, and a sign of counter-democracy and mediatization of the risk. The vision of air pollution as a set of numbers became a part of mediated agenda and a way of explaining the reality. Finally yet importantly, the audit culture helps to understand better where the fixation on numbers comes from and what its implications are.

4. Social Sciences, Case Study, Social Constructionism – Methodology

4.1. Specific Position of Social Sciences

This study departs from Bent Flyvbjerg's (2001) position that people, as "experts" in daily actions, perform many tasks intuitively and in a holistic way, and that is why their "experience cannot necessarily be verbalized, intellectualized, and made into rules. Therefore, the cognitivists have a difficult time understanding it" (Flyvbjerg 2001: 19). In other words, social phenomena, including risk, cannot be subjected to classical approach to science with objective rules, grand theories and predictions (Flyvbjerg 2001). It is so, because the in theory-creation process context should be excluded by definition (for a theory to be viable). Still, without a context, social phenomena cannot be properly studied.

"[A] social science theory of the kind which imitates the natural sciences, that is, a theory which makes possible explanation and prediction, requires that the concrete context of everyday human activity be excluded, but this very exclusion of context makes explanation and prediction impossible" (Flyvbjerg 2001: 40).

Social scientists study patterns of behavior. The background and context of those patterns is crucial for understanding how they work. Yet patterns of behavior can change without the knowledge of the researcher, who is making a context-dependent interpretation. That is why a grand, unshakable theory about risk construction cannot be created.

Moreover, the issue of double hermeneutic in social research arises. People (as objects of studies) are self-reflecting actors, capable of modifying their behavior according to their current state of knowledge. In addition, social research is also embedded in a context that a researcher should reflect upon (researchers as self-reflective beings). In other words, understanding a social phenomenon can influence the future of the studied object and research since people (both researchers and object of attention) adjust their behavior accordingly to their constantly changing knowledge. Therefore this thesis has a potential to change local perception about air pollution as a risk and serve as a base for future development.

Flyvbjerg suggests that social scientists should focus on one of the intellectual virtues, "phronesis", described by Aristoteles. Of the three defined by the Greek philosopher, two, "episteme" (scientific knowledge based on rationality), and "techne"

(application of technical knowledge) belong to the world of natural sciences. Phronesis that focuses on ethics and practical common sense should be the expertise of social sciences (Flyvbjerg 2001: 55-57). Phronesis is crucial for daily experience, practical wisdom and value judgement – key objects of social sciences reflection that cannot be studied by natural sciences. Phronetic social science also includes reflection on the moral aspects of social life. The virtue poses questions about what is happening and whether the direction we are heading towards is desirable – if we agree to the effects of the proposed in the media construction of air pollution.

4.2. Importance of Case Study

In studying phronesis, specific cases are crucial – they help to understand phenomena in the social world (Flyvbjerg 2001: 85-87). Cases are able to grasp social context, narratives, complexity and ambiguity of real life that would be difficult to describe in general schemes or middle-range theories. Moreover, case studies can be used for hypothesis testing, production of theories, falsification, verification or generalization. What is more important, good cases can also serve as positive examples and should not be underestimated as such (Flyvbjerg 2001: 77). They also give meaning to lived experience and allow us to imagine an alternative future (Flyvbjerg 2001: 135-137).

Flyvbjerg (2001: 129-164) gives a specific set of methodological guidelines for phronetic social science and case studies. He opts for focusing on values (situational ethics), power (productive, omnipresent, dynamic, relation to knowledge and ways of exercising it), starting from small questions and looking at practice before discourse. In his opinion one should focus on *how* rather than *why*. Looking at small questions allows us to connect micro level with a macro structure. In this study I am also asking the *how/what* questions and trying to establish the micro-marco links.

The critique of case studies has been built around the tendency to use them as a tool for verification of “the researcher’s preconceived notions” instead of falsification (Flyvbjerg 2001: 81). The approach is also criticized for “erasing phenomenological detail in favor of the conceptual closure” (Flyvbjerg 2001: 85) and for the difficulty in combining specific case studies in a general proposition or theory. I would argue that this critique can be applied to other kind of research as well and is more related to scientific practice than case studies as such. Any researcher might be tempted to simplify his studies – it all comes down to the questions of scientific integrity. As to the difficulty in

creating generalization based on cases, this does not imply that doing so is impossible – it has been successfully done.⁵ Moreover, generalization is not the only way of obtaining knowledge – we also need information that can serve as a reference point to our current knowledge.

In my opinion, the biggest value of case studies lies in the fact that they are capable of generating practical information and reflection. They are a way of talking about “the problems that matter to the local, national, and global communities in which we live” (Flyvbjerg 2001: 166). Half of the success is effective communication of conducted research – research in social science is done both in public and for the public (Flyvbjerg 2001: 166). Case studies give concrete, practical knowledge that can serve, if not generalized, at least a specific community. This is why a scientist should remain open to dialogue, critique and discussion to contribute to ongoing practices and debates.

In summary, since social scientists cannot produce universal explanatory nor predictive theories, we should abandon the ambition to do so. Instead of producing unnecessary knowledge and articles that nobody reads, the social science should be

“a practical, intellectual activity aimed at clarifying the problems, risks, and possibilities we face as humans and societies, and at contributing to social and political praxis” (Flyvbjerg 2001: 4).

Social scientists understand social phenomena in terms of motives and reasons for actions and the case studies allow to develop interpretations of existing practices and understand human behavior. This is why I chose a case study design – to understand current perception of air pollution in Kraków and consequences it entails, and to be able to share this practical knowledge with others.

⁵ Examples of great generalized case studies are *Asylums* by Erving Goffman or *Discipline and Punish* by Michel Foucault

4.3. Social Constructionism and Mediatization

As already written in the theoretical background of this thesis, the ontological orientation of risk analysis is social constructionism. According to this perspective, developed by Peter Berger and Thomas Luckmann (1991),

“[people] think the words they use directly refer to reality. But this is only how the lifeworld of the people who use that language perceive reality” (Inglis & Thorpe 2012: 95).

Although reality might seem to be objective, humans in their interactions and conversations construct binding visions of the world around them. The constructed versions of reality seem to be obvious, natural, correct and indisputable. It is so, because people are socialized into taking a specific vision of the world as their own. This also implies that the same situations might be constructed differently from different standpoints that are shaped by different factors:

“X need not to have existed, or need not to be at all as it is. X, or X as it is present, is not determined by the nature of things; it is not inevitable. (...) X was brought into existence or shaped by social events, forces, history, all of which could have been different” (Hacking 1999: 6-7).

Constructed are classifications and not individual people or events (Hacking 1991: 10). Risk is an example of a constructed class of objects.⁶ As other objects, it is ontologically subjective (without people and their perception there would be no such thing as a risk) but it is epistemologically objective (for example it is a factor that influences insurance rates, government’s actions) (Hacking 1999: 22).

One of the main questions of constructionism is about “how realities are made” (Charmaz 2006: 187). This perspective assumes fluidity of realities. This is also the case of risk – its interpretation is always temporary.⁷ As any other socially constructed object, the danger involved in risk has been re-conceptualized over the centuries – from something godsend to something produced and controlled by people (Lupton 1999: 4). Media, as an important factor, carry the established meanings but are also a field for their

⁶ Hacking distinguishes between construction of objects, ideas and elevator words (Hacking 1999: 21-24)

⁷ To read more about changing interpretations see for example the analysis of child abuse in Hacking 1999, p. 133-138

negotiation and social recognition. With risks difficult to grasp by the senses, such as air pollution, people have to rely on shared knowledge. Media suggest certain interpretations of the situation and therefore influence the reality. The presented analysis follows the idea of mediatization (construction) of air pollution as a risk in the media to see what kind of agenda is presented by the newspapers.

The constructivist perspective also stresses the uniqueness of social sciences and case studies – one cannot study social constructs, meanings embedded in the social context and try to create universal explanatory or predictive theories. The multiple shades of gray are very important in approaching the tacit meaning. They are only visible through researcher's sensitivity, intuition and very often cannot be turned into grand and objective theories.

In this thesis, I will not focus on the struggle between weak (there is an objective reality under the social world) and strong social constructionism (everything is constructed), represented in risk research by reflexive modernization and governmentality approaches. I am rather interested in the presentation of reality (regardless of its core) and actions taken upon the established definitions. As a researcher, I also acknowledge that even presented interpretation of events is a construction itself. It is one of many possible interpretations of the situation, but it does help to understand and challenge the existing way of describing air pollution.

5. Ethnographic Content Analysis – Methods

5.1. Ethnographic Content Analysis

As a method for approaching the case study, ethnographic content analysis (ECA), a type of qualitative content analysis advocated by David Altheide, was chosen. Content analysis has a long tradition within media research and is a well-established tool especially when it comes to studying texts,⁸ capturing meaning and the agenda setting power of the media (Hansen & Machin 2013: 87). ECA is a tool appropriate for analysing “current affairs such as news media coverage and policy analysis” (Tesch 1990: 26).

Qualitative content analysis and ECA are especially useful when studying objects from the social constructivist perspective. ECA is a reflexive and interactive way of approaching data. The method is “used to document and understand the communication of meaning, as well as to verify theoretical relationships” (Altheide 1987: 68). This approach focuses on narrative descriptions and nuances of a text (Krippendorff 2004: 16). ECA falls into the category of interpretative/descriptive type of analysis (Tesch 1990: 98-99). This also relates to the presented analysis about air quality in the media. The method is capable of grasping

“two aspects of the document: (a) the document process, context, and significance and (b) how the document helps define the situation and clarify meaning for the audience member” (Altheide 1996:12).

Qualitative content analysis is data driven focused on latent meaning and is case oriented (Schreier 2012: 16, 26). The research is naturalistic (the data already exists – it is not induced) and situational (Schreier 2012: 20-25).

The reflexivity of the ethnographic content analysis is a result of the notion that the world around us is constantly constructed. In ECA, categories, as in grounded theory, partially arise from the analysed material. It means that a researcher goes back and forth between the analysed materials and the codes (units of meaning). The coding process is inductive – new codes can emerge during the study. The important aspect of the code creation is the analyst’s contribution – he is the one who brings concepts to the table (Krippendorff 2004: 21). This also means that the process of coding is quite flexible but at the same time strictly analytical (Altheide 1996: 16).

⁸ To read more about uniqueness of text as a source see Krippendorff 2004, p. 22

The processing of data in ECA is systematic, all pieces relevant to the research question are being examined and a sequence of steps is being followed (Schreier 2014: 171). During the analysis, 8 out of 10 principles of qualitative data analysis⁹, provided by Renate Tesch (1990: 95-97) as general guidelines were followed:

- The data analysis began with data collection - the articles were reflected upon and notes about each of them were taken
- The analysis process was “systematic and comprehensive but not rigid” (Tesch 1990: 95) – the analysis was methodological but the codes were developing with the data (new codes emerged and some codes were deleted)
- Analytical and reflexive notes were taken during the process
- Data was divided into clusters – while maintaining the context of specific articles and “connection to the whole” (Tesch 1990: 96), similar pieces of data were put together
- The data (clusters) were organized by a system of labels – categories were formed
- The data was compared and contrasted – categories were challenged and patterns were established
- Categories (topics) were re-defined and adjusted to the changing knowledge
- A more consolidated picture of the event was created.

Before the analysis, semi-structured interviews were conducted with journalists writing about air pollution for each of the newspapers. Although the interviews were not a part of the analyzed material, they allowed to gain background knowledge about the history of the topic, the process of gathering knowledge about the issue, stakeholders involved, cooperation between editorial boards, difficulties related to the topic and newspaper’s involvement in the issue. Information from the respondents gave a much appreciated context to the analyzed articles and allowed to elevate the case study to the thick description level. The interview questions are available in the appendix.

⁹ The remaining two principles (number 8 and 9) are more of a general nature. They state that each process has its own formula and that the process requires an intellectual craftsmanship rather than mechanistic procedures (Tesch 1990: 96-97) – this is why they were discarded as descriptive rather than practical

5.2. Sampling

The research focused on three newspapers: *Dziennik Polski*, *Gazeta Krakowska* and *Gazeta Wyborcza*. *Dziennik Polski* and *Gazeta Krakowska* are two local newspapers, issued only in the Małopolska voivodeship. *Dziennik Polski* had an average daily sale of 26 731 copies, and *Gazeta Krakowska* of 23 723 copies in November 2015. They both belong to the Polska Press Group, but as interviewed journalists claimed, there is no cooperation between editorial boards. There is rather a “healthy competition”, as one of them explained. Moreover, the newspapers have different target groups – *Dziennik Polski's* main focus are printed news, while *Gazeta Krakowska* mainly publishes online – thus reaching different readers. The interviewed journalist from *Gazeta Krakowska* said that everything that is printed in their newspaper is also published online. This is not the case for *Dziennik Polski* where more articles are available offline than online. This is why the articles for *Gazeta Krakowska* were sampled from their website and articles for *Dziennik Polski* were sampled from the printed version.

Gazeta Wyborcza is a national newspaper but it has its own editorial office and local daily magazine in each of the bigger cities in Poland, including Kraków. I decided to include it in the research since it is the most popular newspaper in the region. In November the average daily sale of the local magazine was 20 500 copies. Only the articles from the local magazine were taken into the analysis and in the further part of the thesis the local magazine will be referred to as *Gazeta Wyborcza*.

All pieces related to the topic of air pollution, published between 1-30.11.2015 were gathered. They gave a total number of 127 publications that were analyzed – 69 publications from *Dziennik Polski*, 29 from *Gazeta Krakowska* and 29 from *Gazeta Wyborcza*.

5.3. Protocol and Categories

All gathered articles were analysed, described according to a protocol (date, code, location, author, major theme, topics in specific paragraphs, stakeholders). Out of the protocols, recurring themes were chosen and turned into categories that later on were enriched by codes. The continuous adjustment of the categories led to emergence of main topics for data collection and analysis:

- **Reporting – numbers:** Articles that report data on the actual or possible state of air

- **Reporting – referencing to norms:** Articles that benchmark the numbers related to the actual or possible state of air to the norm ($50 \mu\text{g}/\text{m}^3$)
- **Reporting – source:** Articles that report on the source of the numbers
- **Alarm level:** Articles that use the alarm level ($300 \mu\text{g}/\text{m}^3$) as the reference point for the situation
- **Alarm level – other countries:** Articles that describe the limits in other countries
- **Levels – comments:** Articles that comment on official levels
- **Protest:** Articles that report on the citizens' protest
- **Tolerance level:** Articles that include the new tolerance level ($150 \mu\text{g}/\text{m}^3$) as a reference point
- **Health implications:** Articles that describe health effects of air pollution

21 articles from *Dziennik Polski*, 12 articles from *Gazeta Krakowska* and 11 articles from *Gazeta Wyborcza* were subjected to detailed coding. Codes used during the analysis are available in the appendix to this thesis.

5.4. Limitations

ECA is criticized for the tendency for being subjective. Being aware of the subjectivity accusations, during the analysis I closely followed the systematic steps described in this section. Moreover, I presented the analysis in a transparent way and supported emerging conclusions with quotes from the articles.

ECA challenges the linear execution of analysis and the dependence on theories as the only driver for units of meaning. Some researchers exclude inductive coding from the qualitative content analysis (Schreier 2014: 173). This kind of exclusion of a specific way of content analysis could be rather seen as a sign of trying to imitate natural sciences where there are more favored rules of approaching the data that exclude alternative research.

Finally, ECA is not a value-free approach, as seen from a positivist perspective. The analytical codes and dimensions, theories used for understanding the content are a result of a choice of a researcher (Hansen & Machin 2013: 88-91). Although I tried to make my analysis as reliable as possible, the theories used for understanding the analyzed situation were a result of a subjective choice. The proposed categories and used theories were a result of a long term interest in the issue of air pollution in Kraków. Being well-

aware of the role the researcher plays in analyzing and contrasting the results, I would rather embrace it – the choice of theories was intuitive and allowed me to reach the tacit meaning, otherwise not graspable by scientific tools.

6. Media, Risk and Counter-democracy – Results and Analysis

6.1. Inventory

During the last weekend of October 2015, the concentration of air pollution in Krakow was off the charts. According to the first article that appeared on this topic (GW 1), during this weekend the norms (50 micrograms (μg) per cubic meter) of PM10 were exceeded by up to “1243%”. The norm can be described as a health-based acceptable level and this kind of exceedance as a great health threat.¹⁰ The report was the first time the topic appeared in the winter season of 2015-2016 (winter time being the time of the highest pollution levels). This weekend can be marked as the critical event – the moment when the air quality was described in the media as a risk. It is not that the pollution was never as high but that the threat became mediatized. From this moment on, the topic of air pollution appeared in the three major local newspapers almost every day in November 2015.

The events reported by the newspapers can be described in a summarized way as follows. During the entire month the air pollution was high, yet the officials avoided taking actions to counteract the situation. The newspapers reported that the regulations excused the officials from taking any steps. Because of that the citizens protested against the regulations that did not protect them. As a result, the officials, forced by the citizens, adopted new regulations. Keeping in mind Simon Cottle’s (Nohrstedt 2010: 39-43) concept of mediatization (creation of a threat in the media), this analysis seeks to grasp the construction of air pollution in the media. First, the analysis touches upon the establishment of the risk and role of experts in this process. In the next part, the description of the state’s role in the event of high air pollution is described. Furthermore, the description of citizens and their role is presented. Finally, the outcomes of the challenging of the levels are recognized.

6.2. Establishment of Risk – Scienticized Consciousness

How did the newspapers describe the problem? The main tool for presentation of the risk was numbers. Other designates of air pollution, such as air that is difficult to breathe in (GW 2) or fogginess of the air, were problematic to measure. Except from couple of

¹⁰ http://powietrze.gios.gov.pl/gios/site/content/annual_assessment_air_acceptable_level (accessed 20.03.2016)

publications, pictures were not as commonly used in the articles. *Gazeta Krakowska* posted pictures on its website of the city covered in the “fog” (GK 4; GK5; GK 7) and *Dziennik Polski* used similar photos to illustrate articles (DP 11; DP 27; DP 51). Again, the visuals were not shocking – they just showed a misty city landscape. So how were the people living in Kraków supposed to know exactly how bad the air was? The way of describing the situation for all three newspapers was an absolute value of the pollutant¹¹ or a percentage of the norm.¹² The journalists used terms such as “400% of the norm” (DP 5), “3000 percent of the norm” (GW 2) or “600 percent of the norm” (DK 1) to describe the current state of the air. The numbers presented in this specific way amplified the seriousness of the situation – they seemed bigger than 4, 30 or 6 fold. The norm also gave an easy reference point to each description of the air – the air quality was far from the norm, no matter what the norm actually was. This style of presentation (through high numbers) was susceptible to distortion and exaggeration but at the same time seemed to be an objective tool for showing how threatening the situation was due to the set by the European Commission benchmark (50 µg/m³).

The dependency on the numbers linked the responsibility for the accuracy of information to the scientists. The air quality was measured by the Provincial Inspectorate for Environmental Protection (WIOŚ), a governmental institution responsible for monitoring and controlling air quality in specific voivodeships¹³ in Poland. Thus the numbers reported by the newspapers came from a reliable source – a professional institution created to monitor state of the environment. Still, the source was dependent on the machines and experts to interpret them. When the air pollution significantly exceeded the norms, the machines were reported to be broken. A quoted representative of WIOŚ claimed that a “[t]housand percent of a norm is not a possible result” (DP 3), but he did not deny that the air quality was really bad (GW 2; GK 6). The representative also admitted that machines break down quite often (GW 2; GW 3; GK 6). In other words, on the one hand the knowledge about the state of the air depended on the numbers what were supposed to come from a trusted institution. On the other hand, even the numbers, as a signifier of seriousness of the situation, were not as reliable as expected. “Can we believe the monitoring stations if the sensors fail, which according to employees of WIOŚ

¹¹ See also: DP 5, 7, 8, 10, 11, 27, 29, 30, 41, 42, 45, 50, 60, 62; GK 2, 3, 12, 14, 16, 18, 20, 21, 22, 23, 15; GW 1, 2, 3, 4, 5, 12, 18, 24, 25, 27

¹² For example: DP 2, 5, 8, 14, 27, 62; GK 1, 2, 6, 9, 11, 12, 15, 16, 18; GW 1, 2, 3

¹³ Voivodeship a term describing administrative division in Poland. The country is divided into 16 voivodeships. Each voivodeship has its own Provincial Inspectorate for Environmental Protection (WIOŚ).

happens often?” asked one of the newspapers (DP 8).

Anthony Giddens (1990: 27) points here to the dependency on the expert systems. By expert systems he means “systems of technical accomplishment or professional expertise that organize large areas of the material and social environments in which we live today”. In other words, expert systems are groups of professionals that we have to depend on in different areas of our lives (doctors, lawyers, accountants). And this is true, people cannot define precisely air quality by what is seen or felt when breathing the air – sometimes the level of pollution is not something tangible, but just a number on a screen. In this context, the newspapers described people as not capable of estimating exactly the air quality and having no other choice but to believe that the provided numbers are accurate and that the Inspectorate for Environmental Protection is watching over them.

Moreover, as in Giddens’ perspective, the relationship between residents and experts measuring the air was based on trust, not on confidence (the residents did not have enough knowledge to check experts’ accuracy) (Giddens 1990: 33-36). The described situation underlined the tension between dependency on the numbers, the significance of the institution providing them and the reliability of the provided numbers. At the moment when the newspapers reported that the machines had been giving inaccurate measurements, the trust was challenged. That way the taken-for-granted trust in experts turned into active trust described by Giddens (Taylor-Gooby & Zinn 2006: 403). Active trust (and related to it active mistrust) is a result of the fact that people are critical and reflexive - the trust is not simply given, it has to be earned and sustained by the experts (Szerszyński 1999).

To fully understand the situation, the role of WIOŚ and the difficulty of grasping air pollution as a risk, Beck’s (1992: 28) concept of scienticized consciousness of risk, closely related to expert systems, complements the analysis. Beck’s concept draws on the role of scientists as experts and claims that they are crucial in realizing that people are at risk. Scientists, through their measurements and produced numbers, play an important role in identifying air pollution (and specific levels) as a risk. And their recognition of threatening levels is later on carried through the media, including the described newspapers. Nevertheless, as already described, in the analyzed case the media did not simply reprint received numbers. They were more active than Beck described – the journalists questioned the reliability of the measurements and played with the numbers,

reporting them in different ways and presenting them differently. Still, the newspapers did not focus later on reporting on the reliability of the scientists – the next numbers fit within reasonable limits and were assumed to be correct. The aspect that the journalist challenged the most was the scale the numbers functioned in – the norm, information level and alarm level.

6.3. State's Role – The Issue of Accountability

The link between numbers, levels and accountability was a major part of the debate in the newspapers. From an administrative point of view the numbers-based levels play a significant role. They have the power to transform the risk into the state's responsibility for citizen's well-being. If the daily (24 hours) average of PM10 levels is $200 \mu\text{g}/\text{m}^3$, an "information level" is declared. This means that even short term exposure to the air becomes officially a health threat and the state (voivodeship, city) has the responsibility to inform citizens about the level of pollution, health impact and ask the citizens to restrict their activities outside. If the levels exceed $300 \mu\text{g}/\text{m}^3$, an "alarm level" is declared. This means that the state is obliged to take immediate actions to counteract the situation. The newspapers accepted the role of the levels - "The moment the alarm level is reached, local authorities can take special, immediate action to improve air quality in a specific area" (GK 16). I would like to address here briefly the ambiguity of the label information level – on the one hand it implies that it is just "informing" but on the other it is attached to a level that poses a significant threat. The label is a classical symbolic tranquilizer – a name that is created not to cause panic when the situation is already bad (Beck 1992: 68).

As Beck (1992: 77-78) noticed, when "'acceptable exposures' turn into 'intolerable sources of hazards'" (that is when the numbers exceed the alarm level), the responsibility of the state is re-defined. Beck claims that as the threat (in this case numbers) increases, so does the right of the state to interfere in the name of an emergency (Beck 1992: 78). The interventionism becomes more desirable than on daily basis – the state should and is expected to start taking actions to minimize the threat, just as in case of Kraków. The newspapers were active in following up on the state's responsibility. For example, they called the officials to fulfill their obligations and follow up on their promises.

[J]ournalist: I would like to get back to the latest smog episode. No actions were taken, when the norms were significantly exceeded, but, thanks god, the wind has blown away the dust.

[C]ity [M]ayor: Norms were not dramatically exceeded.

[J]: They were the highest since the last couple of years

[CM]: As far as I remember, they have not reached the information level

[J] Information level (...) was exceeded for more than one day. (...) The situation was bad, we all have seen that. (...).

(GW 27)

This quote comes from an interview with the city mayor, the only interview to appear during the analyzed period of time. As we can see, the journalist played here the role of guardian – she called the mayor up to the plate and elevated the importance of the latest levels of air pollution. This example was not the only one. All three newspapers looked closely at officials' actions and pointed to their shortcomings. Headlines such as “Smog is poisoning us. Officials are fighting it in theory” (GK 27), “Enormous smog in Kraków and chaotic actions of the officials” (DP 10) or “Kraków is suffocating from pollution, and officials... pretend that there is no problem” (GW 3) are just a few out of multiple examples of how newspapers put responsibility for counteracting the situation on the officials (for example see also: GW 14).

The media's pressure on the state's responsibility creates a tension with Beck's way of questioning the state's capability to protect its citizens (Inglis & Thorpe 2012: 271-272). “Safety and protection regulations are insufficiently developed, and where they do exist, they are often just so much paper” (Beck 1992: 42). What he means by this statement is that the state, regardless of whether it has appropriate regulations, in most cases is not effective enough. Here though, the action plans were not even properly developed and implemented. Of course, the newspapers attacked the apathy of officials in combating air pollution but this can be interpreted as believing that the state is capable of acting. This implies a hope that there will be action when people start commotion. Another interpretation is that state's capability was not the relevant factor. Maybe there was a need for finding somebody liable for the situation. In the case of air pollution, when

both the current levels and sources of pollution are so fluid, the state became an easy target because it carried the responsibility for citizens and was paid to serve them.

6.4. Questionable Risk Management

The referenced levels for establishing risk were defined by the Ministry of Environment. The levels of information were described as the “most liberal” in Europe (GW 14; DP 33). The newspapers described how the alarm level had been raised from 200 μg to 300 μg in 2013 (GW 27). “It should not be this way, that we are raising the alarm levels, so that we don’t have to announce them” (GW 14). *Dziennik Polski* devoted a double article to this topic, also on the front page – “Manipulation of norms was the government’s way of dealing with smog” (DP 29; DP 30). The reasons for doing so were described as an “open secret” – to have low numbers of days when levels are exceeded in comparison to other countries where the levels are much lower. Moreover, the Ministry of Environment was described as “not capable of explaining the situation”. In an article published by *Gazeta Krakowska*, the officials were “defending” changes in the regulations (as obliging municipalities to create protection plans) but the journalist juxtaposed their explanation to a statement that the “alarm level is almost never announced although the air is poisonous” (GK 16).

The information and alarm levels were rarely linked to their exact health implications. The health effects were mostly listed – deaths, cancer, vascular diseases, lung problems and influence on unborn children (DP 11; DP 13; DP 43; GW 3; GW 1; GK 1; GK 6). Although the health effects were connected to high air pollution they were not linked to specific numbers but rather to the long-term exposure. The only texts that related the pollution over 200 $\mu\text{g}/\text{m}^3$ to additional 120 patients in the hospitals over a period of two weeks, were two articles, published at the end of November, after the debate about the numbers (GW 24; DP 61). Therefore, the main health-related question remained: “what is a result of the pollution”, and not “what is a result of those specific levels”. Therefore, the topics of established levels and real life consequences of air pollution were almost parallel, with only one intersection.

The manipulation and regulation of the numbers comes down to risk management that replaces problem solving. This is also where the risk crossed paths with the audit culture – numbers became tools for management and imaginary control of the situation. “Management can issue strict safety regulations, knowing they will be unenforceable, and

insist that they be obeyed. That way they can keep their hands clean, and can shift the responsibility for the accidents and death to the people's cultural blindness to hazards, cheaply and in good consciousness" (Beck 1992: 42). Although in this quote Beck describes the idea of too strict regulations that solve the issue in theory, the case of too loose regulations actually has the same results. The law that was supposed to protect from the risk became an empty regulation. If the regulation works, it is had a placebo effect – it had no regulative power but purely discursive effects.

The state's way of dealing with risk was based on perception of the situation. According to the protocol the officials were not obliged to take any steps – the norms were never exceeded to actually reach the alarm level. Over time, the state's response shifted from the focus on the levels to the focus on the public's perception of the situation. After all, an alarm level was just an arbitrary number established by public authorities. Since the official norms were seen as not strict enough, the newspapers became the forum and the indirect supporter of renegotiation of the information and alarm levels. The first sign of challenging the levels and finding new benchmarks appeared in the first week of November, when *Dziennik Polski* wrote a text about officials saying that they are "not thinking about actions yet" since the alarm level had not been reached so far (DP 7). The journalists compared this statement to the fact that "other, cleaner cities" like Paris have an alarm level and traffic reduction by $50 \mu\text{g}/\text{m}^3$ (DP 7; see also: DP 8). Also *Gazeta Wyborcza* published an article starting with a comparison of limits in France ($70 \mu\text{g}/\text{m}^3$), Belgium ($80 \mu\text{g}/\text{m}^3$), the Czech Republic ($100 \mu\text{g}/\text{m}^3$) and Poland ($300 \mu\text{g}/\text{m}^3$) to show how high the Polish alarm level is (GW 8). The examples of other countries made the situation look worse than when compared to internal regulations.

As one can see, other European cities and their norms and implications of those norms were called to the stand (GK 16; GW 8; GW 16; DP 29; DP 30; DP 33; DP 35; DP 40; DP 42). A quote by an activist that opens one of the articles questions "Are lungs of Poles more immune than lungs of French or Belgians? (...) When in Paris the level of pollution reaches $80 \mu\text{g}$, an alarm level is being called. In Kraków this level of pollution does not raise any concerns" (GW 14). *Dziennik Polski* published lists of alarm levels in specific countries and used them as a reference point for local pollution (DP 30). In this way the newspapers positioned the risk in the European context and created a reference point for actions that should be taken by the officials. The air pollution as a risk became in this context an international problem – an issue that other countries struggle with as

well but not as much as Poland. The articles also stressed that in accessing risk, Polish norms are far behind. A way of interpreting this measure is the fact that Poland still aspires to catch up with other European countries, so the officials should be as effective as in other countries. Moreover, the newspapers use this aspiration to lobby for a change risk management.

The distrust presented in the media towards the government's way of approaching risk can be understood through the notion of the active distrust or the notion of counter-democracy described by Pierre Rosanvallon (2008). In his opinion, a certain level of distrust towards the government is an inherent element of democracies and in Poland the level of the distrust is especially high (GUS 2015: 2). The distrust leads to processes "by which people have attempted to impose control over the political processes carried out in their name" – and those processes are the counter-democracy (Rosanvallon 2008: xi). Rosanvallon claims that the level of general distrust in Europe has been growing and is related to the distance between lay people and authorities representing them or experts that influence their life. In the described case, the actions of the government were seen as unclear and suspicious. It is especially problematic in the face of risk when people are expecting some kind of security and support. The unusual situation fueled citizens' distrust and actions what is described in this chapter later on.

6.5. Citizens' Role – Voice of Side-effects...

In the middle of November, the first article in *Gazeta Wyborcza* contrasted the mayor's explanation that traffic reducing measures can be introduced only when alarm levels are reached, with activists' (Krakowki Alarm Smogowy - KAS¹⁴) opinion that according to the regulations the mayor is "obliged" to act when the norms are "substantially exceeded" – he does not have to wait for the alarm level to be reached (GW 12). This event was the very first time when officials' explanations were directly opposed by a voice of a citizen. The unspecified exceedance opened a window in the newspapers to challenge the official norms. The topic was picked up by *Gazeta Krakowska* who noticed that alarm level should not be the only reason for actions:

"Officials had thought that these actions [traffic ban, stopping building sites, ban on fireplaces, free public transportation, wet cleaning of the streets]

¹⁴ Krakowski Alarm Smogowy (KAS) – Kraków's Smog Alarm, a social movement started in Kraków in 2011 focused on improving social awareness about the issue of air pollution

should be taken when the alarm level is reached. (...) It [the alarm level] has not happened yet, but it keeps on happening that we breathe in for weeks, day after day, poisonous air exceeding the norms by 400 percent. And this is a much worse situation and harm for health.”

(GK 15)

Challenging the levels was supported in the newspapers by citizens in the form of activists. Krakowski Alarm Smogowy (or its sister-organization Polski Alarm Smogowy – PAS) was the major source of information on this topic and played an important role in challenging the levels. KAS was sometimes described as a “citizens’ movement” (GK 15) and sometimes as an “ecological organization” (DP 29) – in both cases it remained a group of activists or a representative of vox populi. The officials’ lack of knowledge and actions was the reason for citizens to “take the matters into their own hands” – they “demand” a new information level (GW 14). “Acceptance of appropriate alarm level would imply that local authorities would inform residents about air pollution as soon as it becomes harmful for health. PAS activists would like for the level to be established at 100 µg” (GK 13; see also: DP 30). This statement shows the activists not simply protesting but making specific demands.

Most importantly, the media did not invent the topic of inaccurate levels themselves. Journalists from all three newspapers admitted in our conversations that they work closely with KAS when it comes to gathering data on air pollution. It was no coincidence that at the time of renegotiation of numbers, the NGO issued a report called “Alarm? What alarm? The iron lungs of Poles” (PAS 2015). The report described the liberal regulations in Poland and compared them to levels in other European countries. The activists confirmed that they, and the report, were the source of the topic and some of the data that were referred to in the articles. Still, in none of the analyzed articles was the report mentioned. In this sense the media were used or worked closely with activists on changing the official agenda, without making it clear in the texts. This supports the idea that activists are an important source of information and influence the content of the articles (Ashe 2013; Hansen 2013) and they can be seen as “sponsors” that “actively work to focus the attention of the media and general public on (...) crises” (Nohrstedt: 2010: 40). Although the newspapers were the tube for popularization of the topic (without popularizing the report) and actually took part in a debate that had an actual impact on the

regulations, they would not be able to tackle the problem so strongly without citizens' involvement. This shows that media in their agenda-setting role are not neutral. They are influenced by interest groups that want the public to focus on this specific aspect of the risk.

The citizens' engagement and lack of consent was stressed in the analyzed articles. A special event was a gathering on 14.11.2015 – the citizens were “protesting” (DP 33) and “appealing to the local authorities and government” to reduce air pollution (GW 19). KAS was the main organizer of the event but the protest was described mainly as a gathering of citizens, not activists. It was also the only episode when in such a clear way “the protesters were demanding a change in the regulations regarding the alarm level” (GK 18) – the protest and the demand was also reported in other two newspapers (GW 16; DP 33) that also related it to the fact that other European countries have lower limits. Moreover, the newspapers noted that the demands were given in a written form to representatives of the city and the voivodeship. The newspapers also took part in promoting the event – the journalists actively invited residents in their articles (GW 15; DP 25) or informed the public about the event ahead of time (GK 15). This means that the media were not a mere by-stander but they officially supported the protest.

The citizen's engagement visible in newspapers and work through NGOs can be described as the “voice of side effects” of modernization (Beck 1992: 61). In Beck's opinion people become “private alternative experts in risks of modernization” (Beck 1992: 61). Citizens educate themselves, share the knowledge and experienced results of risk, which has not always been scientifically linked to the issue at hand. They become capable of not only undermining scientific rationality standing behind established limits but also of challenging acceptable values armed with alternative knowledge, in this context self-researched data (Beck 1992: 61). In the described case, the people became, in the media, the force that dared the system. Beck calls this point a moment of creation of collective knowledge of the risk.

“The constructions for neglecting the danger collapse. The public gets a say in technical details. (...) Causes turn into causators and issue statements. ‘Side effects’ speak up, organize, go to court, assert themselves, refuse to be diverted any longer” (Beck 1992: 76-77).

The activity of citizens, supported by the media, opened new opportunities for redefining what a risk is and what actions should be taken by the officials.

“‘Acceptable exposures’ turn into ‘intolerable sources of hazards’. What was recently beyond the possibilities of human intervention, now becomes part of the scope of political influence” (Beck 1992: 77-78).

Residents reclaimed their rights and embraced the performative vision of citizenship.

6.6. ...and a Sign of Counter-democracy

The organization of citizens, protest, formalized demands, and conscious usage of the media in the face of risk can be also seen as a sign of counter-democracy and as a result of the democratic distrust described by Rosanvallon (2008). The distrust emerged from the risk itself and state’s reaction to the risk. The problem was not that the state was reactive instead of being proactive – it was not reactive enough. People stopped seeing the officials as capable of managing the situation and started exercising their power. In the described case, the citizens made open suggestions and entered the political realm. It is important to notice that residents were well-educated about the issue and therefore they were never described as an irrational or emotional mob. They were a partner ready for discussion.

In this specific context, the media became a tool for executing citizenship and a facilitator for the counter-democratic engagement, just as in Peter Dahlgren’s perspective (2013; 2012; 2009). Newspapers carried the activists’ message – the alarm level has to be lower. The articles served as a channel for educating other citizens about the issue. The activists must have been skilled in influencing the content creation process. They managed not to influence one article but to put a new topic on the agenda. The process of making the issue public through well-established newspapers helped to turn the matter of acceptable levels into a public issue (Dahlgren 2009: 97-101). This was a case of participation *in* the media – the activists significantly influenced the reported content. At the same time the activists used social media, such as Facebook, to invite people to the protest or to collect signatures under the petition – this can be labelled as participation *via* the media (Dahlgren 2013: 22-23).

The civic engagement with its new postulates, as risk, became mediatized. The articles, their content can be described as participation. That is why participation is not

only about protests; it is also about communication and talk. The newspapers showed an alternative to the official perspective on the situation – although, according to existing levels, the situation was not that bad, in reality it was not good. Still, the talk was positioned within existing power structures (Dahlgren 2009: 52-54; 2013: 118-120) – proposed solutions fitted in with the established officials’ responsibilities, new limits were positioned on existing scale and possible actions were based on solutions present in other countries. Therefore, even the mediatized engagement reflected existing limits.

Again, why was the struggle for the numbers so important from the citizens’ perspective? In the case when risk can be assessed only through numbers, they become the signifier of seriousness of the situation and a weapon in forcing or pushing away responsibility. Aaron Wildavsky’s and Karl Dake’s (1990) analysis of risk perception can also help us understand the situation. The fixation on the state’s responsibility can be explained through the cultural theory of risk perception, especially the hierarchical approach. The hierarchical approach is related to people defending social structure from disruption (with strong focus on social deviance) – this is why they put stress on following the leaders, experts and defending the superior and subordinate division (Wildavsky & Dake 1990: 44-45). Although this situation was not related to social deviance, it still was a case where newspapers wrote about hierarchy in the system – the state, as having a special position in the social structure, was reminded about its duty to protect the citizens. The citizens, not feeling taken care of, discarded for a moment the role of subordinates and with the newspapers help exercised their power from below in relation to the state. In other words, they were trying to re-establish the structure with themselves as people under the state’s protection.

6.7. Outcomes

After the pressure from the media and KAS, a new significant number, $150 \mu\text{g}/\text{m}^3$, emerged. It was not a new number defining the alarm level (this one would have to be established by the Ministry of Environment) but a benchmark that the officials established as a limit value. Just to stress, before the newspaper’s intervention and the protest, the officials had made their actions conditional only on the existing limits – $200 \mu\text{g}/\text{m}^3$ and $300 \mu\text{g}/\text{m}^3$ (GK 15). There had been no mention that any steps could be taken below those numbers.

The first newspapers to notice the change in the benchmark were *Gazeta Krakowska* and *Dziennik Polski*. “First of all, Kraków will lower the tolerance level. If the average pollution during the day in town will reach $150 \mu\text{g}/\text{m}^3$ the information level will be called (so far it was by $200 \mu\text{g}/\text{m}^3$). This is also when the public transportation will be free of charge for drivers, after showing registration documents” (GK 21; see also: GK 22). The solutions were described as “work in progress” – proposal that still has to be voted on. In *Dziennik Polski* the new proposal has been described as a proposal of one of the city councilman and the choice of the number was described as “three times the acceptable norm” (DP 38; DP 49). Here we can see that even the new numbers depended on the norm established by the European Commission. Still, there was no explanation for why triple (not double) the norm should be the new benchmark – there was no argument supporting the decision.

A day later, the information was reported as certain – “Only after the pressure from local activists, the mayor (...) has decided to introduce the free public transportation and already when the level is $150 \mu\text{g}/\text{m}^3$. In most European cities the alarm state is called by 100 micrograms” (DP 40). What we can see here is that the officials were described not as front runners of the change but people who were pushed into it (see also: DP 49). A week later, the mayor stated in the article “We’ll not wait for the average numbers from WIOŚ (...) This information level will be called already by exceeding the level of $150 \mu\text{g}/\text{m}^3$ and alarm by 200” (GW 27). He also talked about how the information will be distributed to schools and how traffic reduction during the days of high pollution will look like. The final decision can be described as: “if the limits reach $150 \mu\text{g}/\text{m}^3$ public transportation is free of charge for drivers” (DP 49). Although new levels and actions were established, the risk management scheme remained the same – certain numbers provided by scientists implicate specific actions.

From an optimistic perspective, the new limit can be described as a sign of the officials rising up to the challenge. From a realistic perspective, the new benchmark should be interpreted as a fake compromise between the officials and KAS. This interpretation was put forward by *Dziennik Polski*. The officials “listened” to the public, went beyond their duty and lowered the level that made them responsible for counteracting the risk. Still, they did not meet the proposal of the NGO to go down to the “European average” $100 \mu\text{g}/\text{m}^3$ (DP 29; DP 33; DP 61; DP 40; GK 18; GW 19) although KAS claimed that otherwise the information system will “maintain [existing] pathology “

(DP 61). This struggle between officials and KAS was used for political gain – councilmen opposing the mayor positioned themselves as in favor of stricter numbers and acting not on the daily average but on an hour average (DP 62; DP 66). Therefore, the potential for challenging the numbers in the future remained.

7. Counting on numbers – Discussion

From the analysis above it might seem that the described case is a story of citizen empowerment, the role of the media as watch-dogs and their common victory. But one might ask, a victory over what? After all, the new regulations were related to actions in response to the pollution, not to preventing high pollution in the future. The struggle was not about sources of pollution or citizens' health as such but about acceptable levels. All in all, both the struggle and victory were symbolic – the debate came down to numbers as crucial in defining air pollution as a risk.

The importance of the numbers was stressed by all three sides of the discussion: the experts, officials and activists. The scientific organs of science played a significant role in the establishment of air pollution as a set of numbers – the experts were crucial in identification of the pollutant, its definition and management (Lupton 1999: 2). The numbers provided by WIOŚ were later benchmarked against official regulations. The official regulations gave the numbers a unique value and power to establish which level of air pollution could be considered as a risk. Moreover, playing with the numbers and benchmarks was a way of managing risk without tackling its sources.

The activist did not challenge the established order. They even promoted the existing way of looking at air pollution in the media by educating journalists about levels in other countries. Activists accepted the importance of the numbers and started attacking them, instead of looking at the issue from a different perspective. It was the empowered citizens that used the newspapers to reinforce the vision of air pollution as a countable issue. That is why the established agenda was not only set by the media but also by stakeholders that influenced its content.

The newspapers carried the trust that numbers actually say something meaningful. After all, media constructed and explained the situation through the numbers. The newspapers, fed by the activists, played an important role in educating other residents about current numbers, levels, and norms in other cities. They showed how to operate the numbers and understand them. In other words, media were the co-creators of numbers as the problem. Through the recurring question “Why less than $100 \mu\text{g}/\text{m}^3$ is considered a health risk in other cities/countries and not here?” the newspapers reinforced thinking about the problem through the numbers. To quote Beck again – “It ultimately comes

down to how long poisoning will not be called poisoning and when it will be called poisoning.” (Beck 1992: 65). And media openly asked why current levels are not called poisonous yet.

This visible fixation on numbers in relation to risk can be explained through the audit culture, described by Cris Shore and Susan Wright (2015; 1999). From this perspective numbers are fetishized – they are given a specific power and shape the reality around them. Accountability of the state or companies becomes dependent on the powerful numbers. Numbers are used as a reason for actions, funding etc. As we could see in the analyzed case, the numbers reported by WIOŚ and the numbers in the official regulations were seen as signifiers and guidance. Air quality became a quantified performance. The problem was that it was based on one indicator – amount of the pollutant in the air. Other indicators such as visibility, respiratory problems, allergies etc. have not been included in the official assessment of the situation. The issue of air quality became oversimplified – a description based on numbers that define is the situation is good or bad.

It is important to underline again that the reported levels were abstract. As we could see, the decision about what officially establishes risk was arbitrary and not open to public scrutiny (Shore & Wright 2015:23). Although the local border limit for air pollution was changed, this was not the case for the overarching regulation. The decision of the Ministry of Environment was not negotiable. In addition, there was no official explanation why those specific numbers should define the risk. The newspapers also did not report on how specific numbers relate to health effects, discomfort etc. What were the health implications for 150 $\mu\text{g}/\text{m}^3$ and for 200 $\mu\text{g}/\text{m}^3$? Why was the level of 50 $\mu\text{g}/\text{m}^3$ actually acceptable? To those questions readers would find no answer.

The negotiation around the numbers was an example of pushing the boundaries of acceptable poisoning (Beck 1992: 64-65). The media became the arena for the negotiation of how much you can actually poison the public. The interesting idea is that the aim was not to stop poisoning the citizens but to lower the levels acceptable by the state. According to World Health Organization (WHO 2013: 6) “there is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur” for particulate matter, therefore a demand to stop the pollution would not be unreasonable. Still, the idea that there should be no poisoning at all, that the acceptable level should

close to zero, has not even once been raised by the media. Maybe it was so because pollution became such an inseparable element of living in industrialized society? In this context it could possibly be still excused as a price that we have to pay for development and living in a city (Allan, Adam & Carter 2003).

The measurement, the numbers and levels of only one indicator were a way of not only managing the risk but also the residents. The acceptable levels were supposed to give the residents a feeling of security and certainty. Numbers became a relief system – a clear sign that somebody is assessing and analyzing the situation and managing the risk. Still, it turned out that one set of numbers was not enough. Once the faith in the expert system has been challenged, the levels that were supposed to legitimize the risk were undermined. Still, there was no change of the system but a change in the system. One number (alarm level at $200 \mu\text{g}/\text{m}^3$) was replaced with a new one (border limit at $150 \mu\text{g}/\text{m}^3$). The way of managing the situation through numbers remained.

Another issue is that the focus on numbers related to PM10 in the newspapers narrowed down the issue of air pollution. In November 2015 another signifier of air quality was exceeded as well, the particulate matter 2.5 (PM2.5). PM2.5 is much more harmful to human health than PM10 – it includes smaller particles that infiltrate quicker into the blood-stream and attack the heart and lungs much faster. Exposure to PM2.5 causes higher mortality than exposure to PM10 (WHO 2013: 6). Moreover, the masks that protect from PM10 have too loose filters to stop PM2.5. While the average concentration of PM10 in November was 1.86 times the norm, the average concentration of PM2.5 was 2.64 times the norm. If the highest concentration of PM10 in that time was 5.3 times the norm, in the case of PM2.5 it was 7.44 times the norm. But why did the media not report on the exceedance of the much more harmful PM2.5? Because in case of this pollutant there just the norm – there is no alarm or information level. The state did not foresee any actions in relation to high concentrations of PM2.5 and there was no easy way of managing it. Therefore, the “fight for better levels” seen as concentration of PM10 was also a smokescreen masking a more harmful pollutant.

The fixation on the one set of numbers had another side-effect. The focus on empowered citizens fighting with unreasonable limits of PM10 overshadowed their role as creators of the pollution. The main topic of the articles was that the “state should protect its citizens”, not “stop using coal, choose public transportation instead of your car

and talk to your neighbors about what they put into their stove”. Why did the media not tackle the citizens’ responsibility for the state of air? I simply think it was easier to position them as victims of loose regulations, fighting for their right to be protected by the state, rather than acknowledge their role as the source of the problem. Moreover, the officials functioned as an easier target, although they were not the only cause of the situation.

8. Summary and Conclusion

How is the response to risk described by the local media?

Looking at the risk from the reflexive modernization perspective, risk was constructed in the local media through the numbers produced by scientists. The response to risk was focused on risk management that was seen in newspapers as crucial at that moment. The vision of risk management was built around officials as responsible for controlling the situation. Because of the stress on the officials, the risk management took the form of new regulations. The risk management itself was reduced in the media to controlling numbers related to the amount of pollutant in the air, not to health effects or main sources of the pollution.

What is the role of counter-democracy in risk-construction in the local media?

The analysis presented in this thesis shows how local newspapers supported by activists constructed the risk and positioned citizens and officials in the face of the threat. It was the civic engagement in the form of activists (a counter-democratic movement) that brought the issue of insufficient regulations, framing the reported numbers, to media attention. Due to the citizen's involvement in content creation, the stress in the articles was put on existing regulations and the state's responsibility in the face of risk. Confronted with insufficient management, empowered citizens in cooperation with newspapers became watch-dogs and successfully tried to influence the bad situation and regulations. The main motor for their action was distrust towards the officials that were seen as incapable of protecting the residents. The problem was that the counter-democratic activities took place within existing structures of defining air pollution through one set of numbers. The numbers allowed the citizens to symbolically win with the officials – still, the fights did not address the actual risk.

What role do numbers play in the construction of air pollution as a risk in the local media?

As described in the thesis, the struggle in the local media was about the numbers, not about residents' health as such. The focus was not even on the sources of the pollution. The numbers played a vital role in describing the situation, establishing the risk and defining reaction to the pollution. This is how the media constructed and supported the vision of air pollution as narrowed down to statistics (as a signifier of performance)

and levels (as benchmarks). The newspapers used the multiplication of the norm as a tool for showing how bad the situation is, and the alarm limit and limits in other countries for underlying how absurdly high the numbers would have to be to make the officials responsible for the situation. In this sense, they showed that officials' lack of response was not excused by existing regulations. The media never actually challenged the norm ($50 \mu\text{g}/\text{m}^3$), they only focused on the "information level" and "alarm level" that were positioned as one of the main problems. At the end of the day, all the numbers were quite abstract – as already said, little has been reported on the exact link between specific numbers and health implications. The consequences of the abstractness of numbers was that the issue became detached from its roots and therefore from actual consequences of pollution.

Looking again at the research reviewed in chapter 2, this thesis supports the existing idea that the content of the articles about environmental risks is still strongly linked to the political situation and officials' responsibility. Although state's officials are still an important actor in the debate, their agenda was not openly supported by the journalists in the analyzed case. As other papers, this analysis also shows a link between published content and a citizen's engagement. Still, this thesis claims that the media are not only a tool for citizen stimulation but also a sign of already ongoing processes. The activists served as a viable source of information and successfully influenced the explanation of the situation. The thesis is an example of how the media in cooperation with citizens can successfully influence existing regulations. Finally, this thesis underlines also that the issue of schematic thinking and questionable accuracy of information in published reports remains current.

The presented analysis can hopefully raise awareness among citizens, journalists and officials about the dangers of oversimplification of air pollution. I am not claiming that simplification as such is not welcomed. On the contrary, it helps to grasp the difficult reality around us. Still, we should be aware that there is more than what we see at first glance. Even a victory of citizens supported by journalists should be a reason for deeper reflection on what could have been missed on their way to success. Especially when talking about a risk that carries a certainty of real harm. Existing interpretations of air pollution delimit understanding of the situation and narrow down the way the issue is tackled. Therefore, they need to be challenged.

The questionable aspects of the media's representation (presented in the discussion part) opened new areas that should be explored by further research. Departing from the results of this analysis, an in-depth research on residents' and officials' perception of the situation is in place. What did they actually do with the construction of risk proposed by the media? How did they position themselves in the situation? What, according to them, was the biggest problem in relation to air pollution? Moreover, research on other local media, such as radio and TV, would give a more coherent understanding of the situation. Since the problem of air pollution is unfortunately not going to be solved any time soon, the topic can be continued by other researchers.

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Appendix 1. Interviews – Questionnaire

Introduction: Thank you for agreeing to talk to me. As you already know, I am researching the topic of air pollution in local newspapers in Kraków. The interview is anonymous, you have a right to stop the conversation at any given time and withdraw your answers. Can we begin?

- How many years have you been working as a journalist?
- What topics have you been mainly working with during your career?
- When did you start writing about air pollution? What was the trigger?
- When did the topic become more popular in the city?
- How would you describe current situation (reg. air quality) in the city?

- How does the process of gathering the materials for an article look like?
- What are the sources of information/knowledge?
- Who are the people/institutions you mainly cooperate with?
- Which of the people/institutions are most helpful?
- How does the cooperation with the city officials look like?
- How does the cooperation with NGOs look like?
- How does the cooperation with experts look like?
- What are the biggest challenges when writing about air pollution?
- What messages are you trying to convey to the residents?

- Does cooperation between editorial boards exist?
- Do you read articles written on the topic by other journalists?
- Do you read articles published on the topic in other cities?
- Has the newspaper given its patronage to events related to combating air pollution?

- Would you like to ask me any questions related to the research?

Again, thank you for the interview. If you will have any follow up comments or questions, feel free to contact me.

Appendix 2. List of publications

List of publications Dziennik Polski

Code	Date	Author	Title
DP 1	3.11.2015	Agnieszka Maj, Piotr Tymczak	<i>Koniec z paleniem drewnem w kominkach w Krakowie</i>
DP 2	3.11.2015	Agnieszka Maj, Piotr Tymczak	<i>Palenie w kominku przejdzie w Krakowie do historii</i>
DP 3	3.11.2015	Agnieszka Maj	<i>Awarie pyłomierza</i>
DP 4	3.11.2015	Agnieszka Maj	<i>O wymianie pieców poczytasz na placu Szczepańskim</i>
DP 5	4.11.2015	Agnieszka Maj	<i>Pyłomierze się psuły, bo pyłu było za dużo</i>
DP 6	4.11.2015	Agnieszka Maj	<i>Mieszkańcy Krakowa są za zakazem dla węgla</i>
DP 7	5.11.2015	Agnieszka Maj	<i>Kraków: powietrze fatalne, ale urzędnicy tego nie czują</i>
DP 8	5.11.2015	Agnieszka Maj	<i>Krakowowi grozi alarm smogowy, a urzędnicy nie wiedzą co robić</i>
DP 9	5.11.2015	Czytelnik	<i>Forum czytelników</i>
DP 10	6.11.2015	Agnieszka Maj	<i>Ogromny smog w Krakowie i chaotyczne działania władz</i>
DP 11	6.11.2015	Agnieszka Maj	<i>Groźba alarmu smogowego nie zmusiła władz Krakowa do działania</i>
DP 12	6.11.2015	Damian Nejman	<i>Kontrole nie wyeliminują palenia śmieciami</i>
DP 13	7.11.2015	Maciej Pietrzyk, Urszula Wolak	<i>Krakowianie sami bronią się przed trującym powietrzem</i>
DP 14	7.11.2015	Andrzej Kaczmarczyk	<i>Smog Wawelski</i>
DP 15	7.11.2015	Agnieszka Maj	<i>Bardzo dobrej jakości powietrze tylko na tablicach przy przystankach</i>
DP 16	7.11.2015	MM	<i>Antysmogowa jazda prezydenta. Jego zastępcy też zrezygnowali z auta</i>
DP 17	7.11.2015	Grzegorz Skowron	<i>Potrzebny nowy szewczyk dratewka</i>
DP 18	7.11.2015	Piotr Tymczak	<i>Ograniczenie ruchu aut nie wystarczy</i>

DP 19	7.11.2015	Agnieszka Maj	<i>'Nie' dla zakazu palenia drewnem w kominkach</i>
DP 20	9.11.2015	Dorota Dejmek	<i>Smog niebezpieczny dla zwierząt</i>
DP 21	9.11.2015	Czytelnik	<i>Forum czytelników</i>
DP 22	9.11.2015	Anna Agciak	<i>Zalesienie Krakowa lekiem na smog?</i>
DP 23	9.11.2015	Piotr Drabik	<i>Pod Wawelem w końcu można odetchnąć</i>
DP 24	10.11.2015	Piotr Tymczak	<i>Polewczaki i zamiatarki do walki z pyłem</i>
DP 25	12.11.2015	Agnieszka Maj	<i>Antysmogowy protest</i>
DP 26	12.11.2015	Czytelnik	<i>Forum czytelników</i>
DP 27	13.11.2015	Agnieszka Maj, Iwona Krzywda	<i>Kuracja, czyli jak leczymy smogiem</i>
DP 28	13.11.2015	Sylwia Nowosinska	<i>Walczy o czyste powietrze dla swoich dzieci</i>
DP 29	14.11.2015	Agnieszka Maj	<i>Manipulacja normami była sposobem rządu na smog</i>
DP 30	14.11.2015	Agnieszka Maj	<i>Antysmogowi działacze domagają się europejskich norm alarmowych</i>
DP 31	14.11.2015	Arkadiusz Maciejowski	<i>Już w PRL-u ograniczono ruch aut, aby oczyścić powietrze w mieście</i>
DP 32	16.11.2015	X	<i>Tysiąc krakowian w ekologicznym SOS</i>
DP 33	16.11.2015	Agnieszka Maj	<i>Wielkie, antysmogowe SOS z Krakowa</i>
DP 34	16.11.2015	Czytelnik	<i>Forum czytelników</i>
DP 35	17.11.2015	Piotr Tymczak	<i>Darmowa komunikacja by zmniejszyć smog</i>
DP 36	18.11.2015		<i>W piątek dodatek antysmogowy</i>
DP 37	18.11.2015	Agnieszka Maj	<i>To będzie budżet antysmogowy. Znikną piece i powstaną parki.</i>
DP 38	19.11.2015	Piotr Tymczak	<i>Domagają się instrukcji antysmogowych</i>
DP 39	19.11.2015	Czytelnik	<i>Forum czytelników</i>

DP 40	20.11.2015	Agnieszka Maj	<i>Ćwierć wieku ze smogiem</i>
DP 41	20.11.2015	Agnieszka Maj	<i>Trujące powietrze w kurortach</i>
DP 42	20.11.2015	Agnieszka Maj	<i>Tak europejskie metropolie walczą z zanieczyszczeniem</i>
DP 43	20.11.2015	Majka Lisińska-Kozioł	<i>Pył zawieszony szkodzi zdrowiu krakowian na wiele sposobów</i>
DP 44	20.11.2015	Piotr Tymczak	<i>Z rur wydechowych ulatują wyjątkowo niebezpieczne trucizny</i>
DP 45	20.11.2015	Agnieszka Maj	<i>Zaczyna się boom na maski antysmogowe</i>
DP 46	20.11.2015	Agnieszka Maj	<i>Kraków może być pierwszym miastem w Polsce bez pieców i kominów</i>
DP 47	20.11.2015	Paulina Szymczewska	<i>Spacer? Jazda na rowerze? Bieganie? Najpierw sprawdź, czy nie ma smogu</i>
DP 48	20.11.2015	Paulina Szymczewska	<i>Jak pozbyć się starego pieca i zdobyć na to dofinansowanie</i>
DP 49	20.11.2015	Piotr Tymczak	<i>Sposób na smog. Zostawisz auto na parkingu, dostaniesz darmową komunikację. Rodzina też.</i>
DP 50	21.11.2015	Piotr Tymczak	<i>Podróż bez biletu. Tylko dla kierowców czy dla wszystkich?</i>
DP 51	21.11.2015	Agnieszka Maj	<i>Krakowiaczek jeden miał maseczek siedem, czyli jak internauci odreagowali zagrożenie alarmem smogowym</i>
DP 52	21.11.2015	Grzegorz Skowron	<i>Diabeł tkwi w szczegółach</i>
DP 53	21.11.2015	Agnieszka Maj	<i>Krakowiaczek jeden miał maseczek siedem, czyli jak internauci odreagowali zagrożenie alarmem smogowym</i>
DP 54	23.11.2015	Aleksander Gąciarz	<i>Napaleni na 'Kawkę'</i>
DP 55	25.11.2015	PD	<i>Wykryli trucicieli</i>
DP 56	25.11.2015	MST	<i>Do galerii handlowych po dotacje do wymiany pieca</i>
DP 57	26.11.2015	Grzegorz Skowron	<i>Kraków rezygnuje z taksy klimatycznej</i>
DP 58	26.11.2015	Grzegorz Skowron	<i>Pobieranie taksy klimatycznej tam gdzie jest smog może zakwestionować każdy turysta</i>

DP 59	26.11.2015	Piotr Tymczak	<i>Rok Prezydenta Krakowa: ospała walka ze smogiem i afera Tajstera</i>
DP 60	26.11.2015	Arkadiusz Maciejowski	<i>Smog wraca do Krakowa. W grudniu będzie jeszcze gorzej.</i>
DP 61	27.11.2015	Agnieszka Maj	<i>Urzędowa aplikacja poinformuje o smogu</i>
DP 62	27.11.2015	ARM	<i>Komunikacja za darmo tylko przez cztery dni?</i>
DP 63	27.11.2015	BCA	<i>Ludzie podpowiedzą jak chronić powietrze</i>
DP 64	28.11.2015	Iwona Krzywda	<i>Krakowianie dyskutują, jak walczyć ze smogiem</i>
DP 65	28.11.2015	Agnieszka Maj	<i>Mandat za spalanie oleju</i>
DP 66	28.11.2015	Agnieszka Maj	<i>Platformie potrzebne jest odświeżenie</i>
DP 67	28.11.2015	Grzegorz Skowron	<i>Bez opłaty miejscowej. Sukces czy porażka?</i>
DP 68	30.11.2015	Anna Agciak	<i>Relaks bez smogu w Krakowie? W zoo, na kopcach, w fortach</i>
DP 69	30.11.2015	Agnieszka Maj	<i>Wymień piec w galerii handlowej</i>

List of publications Gazeta Krakowska

Code	Date	Author	Title
GK 1	4.11.2015	Dawid Serafin	<i>Kraków. Pyłomierze psują się od smogu? Komunikaty znikają z tablic</i>
GK 2	4.11.2015	Piotr Rapalski	<i>Za fatalne powietrze winią brak wiatru, znicze i Wszystkich Świętych</i>
GK 3	5.11.2015	Dawid Serafin	<i>Smog w Krakowie. Prezydent chce ograniczyć ruch samochodów</i>
GK 4	5.11.2015	Red.	<i>Smog w Krakowie. Normy wielokrotnie przekroczone ZDJĘCIA INTERNAUTÓW</i>
GK 5	5.11.2015	PB	<i>Rekordowy smog nad Małopolską ZDJĘCIA INTERNAUTÓW</i>
GK 6	5.11.2015	Piotr Rapalski	<i>Smog w Krakowie to wina braku wiatru i zniczy na cmentarzach?</i>
GK 7	5.11.2015	Michał Gąciarz	<i>Smog Wawelski. I jak tu oddychać?</i>

GK 8	5.11.2015	Przemysław Franczak	<i>Krakowski Bal Maskowy</i>
GK 9	5.11.2015	Katarzyna Kojzar	<i>Smog? Jak na spacer to tylko za Kraków</i>
GK 10	6.11.2015	Red.	<i>Kraków. Prezydent Jacek Majchrowski do pracy przyjechał tramwajem. Apeluje do mieszkańców</i>
GK 11	6.11.2015	Dawid Serafin	<i>Krakowianie duszą się smogiem</i>
GK 12	7.11.2015	Marta Paluch, Dawid Serafin	<i>Małopolska na mapie smogu cała czerwona. Najgorzej było w Krakowie i Nowym Sączu</i>
GK 13	7.11.2015	Red.	<i>Smog w Krakowie. Internauci reagują [MEMY]</i>
GK 14	9.11.2015	Dawid Serafin	<i>Urzednicy twierdzą, że smogu w Krakowie było... za mało</i>
GK 15	12.11.2015	Piotr Rapalski, Marcin Karkosza	<i>Kraków. Urzednicy obudzili się i chcą walczyć ze smogiem. TIR-y przez Aleje nie pojadą</i>
GK 16	13.11.2015	Marcin Karkosza	<i>Smog nas zabija, urzednicy o tym nie informują</i>
GK 17	14.11.2015	Piotr Rapalski	<i>Antysmogowe SOS dla Krakowa. Apel mieszkańców o czyste powietrze [ZDJĘCIA, WIDEO]</i>
GK 18	16.11.2015	Piotr Rapalski	<i>Smog w Krakowie. Mieszkańcy protestowali przeciwko opieszałości władz</i>
GK 19	16.11.2015	Red.	<i>Czytelniczka: Celowo nie ma informacji o smogu. MPK odpowiada</i>
GK 20	17.11.2015	Piotr Rapalski	<i>Kraków. Smog pomoże pokonać lepsza komunikacja</i>
GK 21	19.11.2015	Piotr Rapalski	<i>Smog w Krakowie. Darmowa komunikacja dla kierowców</i>
GK 22	20.11.2015	Piotr Rapalski	<i>Kraków walczy ze smogiem. Komunikacja za darmo</i>
GK 23	21.11.2015	Czytelnik	<i>Czytelnik: Bezpłatne przejazdy tylko dla kierowców?! A rowerzyści?</i>
GK 24	23.11.2015	Dawid Serafin	<i>Sąsiedzi zatrują Kraków</i>
GK 25	24.11.2015	Marcin Karkosza	<i>Co trzeci skontrolowany samochód nie spełnia norm jakości spalin</i>
GK 26	25.11.2015	Dawid Serafin	<i>Prezydent Majchrowski: Zaproponowany przeze mnie program jest realizowany</i>

GK 27	25.11.2015	Katarzyna Janiszewska	<i>Truje nas smog. Urzędnicy z nim walczą teoretycznie</i>
GK 28	26.11.2015	Marta Paluch	<i>Oplaty klimatyczne za szkodliwy smog?</i>
GK 29	30.11.2015	Piotr Rapalski	<i>Kraków. Eksperti wymyślą jak walczyć ze smogiem?</i>

List of publications Gazeta Wyborcza

Code	Date	Author	Title
GW 1	2.11.2015	Dominika Wantuch	<i>Nowa Huta dławiła się w sobotę w smogu</i>
GW 2	3.11.2015	Dominika Wantuch	<i>Zepsuty pyłomierz, czy jednak smog?</i>
GW 3	4.11.2015	Dominika Wantuch	<i>Kraków dusi się od zanieczyszczeń,, a urzędnicy... Udają, że smogu nie ma</i>
GW 4	5.11.2015	Dominika Wantuch	<i>Alarm! Tylko jaki?</i>
GW 5	5.11.2015	Dominika Wantuch	<i>Blokada informacji już nie przejdzie</i>
GW 6	6.11.2015	Michał Olszewski	<i>Smog i polityka</i>
GW 7	6.11.2015	GG	<i>Amsterdam albo śmierć!</i>
GW 8	6.11.2015	Dominika Wantuch	<i>Tiry na objazdy, ale jak i kiedy</i>
GW 9	6.11.2015	Unknown	<i>Awaria w Hucie</i>
GW 10	7.11.2015	Dominika Wantuch	<i>Wojewoda ze smogiem nic nie może</i>
GW 11	7.11.2015	Paweł Figurski	<i>Prezydent do pracy przyjechał tramwajem</i>
GW 12	10.11.2015	Dominika Wantuch	<i>Prezydent wyrzuci ciężarówkę z centrum</i>
GW 13	10.11.2015	UMK	<i>Uwaga, zły piec</i>
GW 14	13.11.2015	Unknown	<i>Zalety i Wady. W masce przeciw smogowi.</i>
GW 15	13.11.2015	Michał Olszewski	<i>Ułóżmy się w SOS dla Krakowa</i>

GW 16	13.11.2015	PIL, Kuba	<i>Pogoda z Parkomatu</i>
GW 17	13.11.2015	Ada Chojnowska	<i>Z maską ruszamy na smog</i>
GW 18	14.11.2015	Dominika Wantuch	<i>Krakow chce alarmu</i>
GW 19	16.11.2015	Dominika Wantuch	<i>Smog dusi miasto, krakowianie wolają o pomoc</i>
GW 20	16.11.2015	MPEC	<i>Walka o likwidację palenisk węglowych trwa</i>
GW 21	16.11.2015	Renata Radlowska	<i>Panie Prezydencie, zadbamy o Pana</i>
GW 22	21.11.2015	Renata Radlowska	<i>Wsiedli na rowery i 10 ton CO2 nie poszło w powietrze</i>
GW 23	23.11.2015	Waldemar Domanski	<i>Uderzmy w tę plagę jak w smog!</i>
GW 24	26.11.2015	Dominika Wantuch	<i>Ofiary smogu bezwzględne dane</i>
GW 25	27.11.2015	Dominika Wantuch	<i>Kraków rezygnuje, a Rabka podnosi</i>
GW 26	27.11.2015	Dominika Wantuch	<i>Szkoły wiedzą co robić, gdy jest smog</i>
GW 27	27.11.2015	Dominka Wantuch	<i>Nie będziemy jak Paryż</i>
GW 28	28.11.2015	Dominika Wantuch	<i>Zwolennicy zakazu kontra przeciwnicy ustawy antysmogowej</i>
GW 29	28.11.2015	Dominika Wantuch	<i>Klimat w stolicy polskich Tatr nie sprzyja opłatom?</i>

Appendix 3. Codes

<u>Numbers Reporting</u>	<u>Numbers Source</u>	<u>Alarm level 300 µg/m³</u>	<u>Protest</u>	<u>Tolerance level</u>	<u>Health</u>
Presenting numbers	Source of the numbers	Positive description	Invitation	New tolerance level - implications	Health implication of air pollution
Comparing the numbers to the Polish norm	Challenging the source of the numbers	Neutral description	Officials incompetency	Officials - reaction	Health implications and relationship to numbers
Comparing the numbers to the information level		Negative description	New alarm levels	Activists - reaction	
Comparing the numbers to the alarm level		Comparison to other countries	KAS		
Comparing the numbers to levels in other countries		Demand new levels			
		KAS			
		Officials' response			
		Arguments			

