energies

MDPI

Article

Streams Analysis for Better Air Quality: The German Lead City Program Assessed by the Policy Package Approach and the Multiple Streams Framework

Lisa Schmieder [1,*], Dirk Scheer [1] and Chiara Iurato [2]

[1] Institute for Technology Assessment and Systems Analysis (ITAS), Karlsruhe Institute of Technology (KIT), Karlstr. 11, 76133 Karlsruhe, Germany; dirk.scheer@kit.edu
[2] Institute of Environmental Social Sciences and Geography, University of Freiburg, Tennenbacher Str. 4, 79106 Freiburg, Germany; chiara.iurato@envgov.uni-freiburg.de
* Correspondence: lisa.schmieder@kit.edu; Tel.: +49-721-608-23007

Abstract: Air pollution caused by traffic and other sources remains a challenge in big cities and urbanized areas in Germany and abroad. Nitrogen dioxide emissions, particulate matter, noise emissions, and ozone are still problematic issues with negative impacts on both the environment and human health. In 2018, the German Federal Government launched the "Lead City Program," a €130-million fund to support five selected so-called Lead Cities in developing and implementing air quality policies. This article comparatively analyzes the policy-making process and policy content for better air quality in the three (out of five) Lead Cities—Essen, Herrenberg, and Reutlingen. Conceptually, we rely on two theoretical frameworks—the policy package approach (PPA) and the multiple streams framework (MSF). The objective, thus, is an ex-post analysis of policy development by means of two policy science-based concepts. Based on document-based desk research and qualitative interviews with policymakers and stakeholders in each of the three cities, we identified a number of key variables that created a window of opportunity and paved the way for the selection of the policy packages. The resulting five key variables are direct interaction between the different governance levels, long-standing non-compliance with the European Union (EU) NO_2 limit values in many German cities, the resulting European and national infringement proceedings, the diesel scandal, and the Lead City Program as overall multiple stream-coupling facilitators. The results are then discussed regarding the explanatory power of MSF and PPA and the mutual potential linkages these concepts offer for future research.

Keywords: multiple streams framework; policy package approach; transport sector; air quality; Lead City Program

Citation: Schmieder, L.; Scheer, D.; Iurato, C. Streams Analysis for Better Air Quality: The German Lead City Program Assessed by the Policy Package Approach and the Multiple Streams Framework. *Energies* **2021**, *14*, 596. https://doi.org/10.3390/en14030596

Academic Editors: Robert H. Beach and Brent S. Steel
Received: 29 October 2020
Accepted: 14 January 2021
Published: 25 January 2021

1. Introduction

Air pollution caused by traffic and other sources remains a challenge in big cities and urbanized areas in Germany and abroad. Nitrogen dioxide emissions, particulate matter, noise emissions, and ozone are still problematic issues with a negative impact on both the environment and human health. The European Commission set limit values for air pollutants such as nitrogen dioxide and particulate matter in the Directive 2008/50/EC to address the improvement of air quality in Europe [1]. If these limit values are exceeded, member states are obliged to implement air quality plans for a rapid reduction of air emissions. Germany has a long tradition of exceeding the statutory limits for both nitrogen dioxide and particulate matter. As a consequence, the European Commission has sued Germany (and six other countries) in 2018 at the European Court of Justice for their inadequate air quality policies [2].

Thus, there is a need for quick policy action concerning air pollution in cities [3]. As a result, the German Federal Government launched the so-called Lead City Program in 2018,

a €130-million fund to support selected municipalities in developing and implementing coherent policy packages to improve local air quality. This initiative is the starting point for this article that comparatively analyzes the policy-making process and the policy content for better air quality. We focus on a case study approach that comparatively analyzes the three Lead Cities Essen, Herrenberg, and Reutlingen. Conceptually, we rely on two theoretical frameworks—the Policy Package Approach (PPA) and the Multiple Streams Framework (MSF).

In order to reduce air emissions from the transport sector, there is a call for policy measures that explicitly addresses the so-called ASI (avoid, shift, improve) approach. The approach stands for strategies to avoid, shift, and improve traffic [4–6]. First, "avoiding traffic" refers to saving transport trips by enhancing the transport system as a whole (e.g., compact development of cities). As such, the need for motorized travel and trip lengths can be reduced. Second, "shifting traffic" aims at a modal shift from energy-intensive to low-energy and less polluting transport modes. Third, "improving traffic" focuses on a particular transport mode (e.g., car) and considerably improves its environmental footprint by, for instance, fuel efficiency.

When looking for short-term success, in particular, the "shifting traffic" pillar seems to be promising. However, scholars argue that individual policy measures alone are not suitable for reaching the climate policy goals [4,7–15]. A coherent PPA is necessary to address the complexity of urban mobility, which is leading to short-term shifts in the modal split. PPA was mainly developed by Kessler et al. [8] and Givoni et al. [16–18], and it has been applied to some case studies (e.g., [19]). The approach comprises "a combination of individual policy measures, aimed at addressing one or more policy goals. The package is created in order to improve the impacts of the individual policy measures, minimize possible negative side effects, and/or facilitate interventions' implementation and acceptability" [16] (p. 3). In contrast, the MSF approach developed by Kingdon in the early 1980s [20] aims to explain the policy-making process, including the agenda-setting dynamics [21]. By differentiating between three independent streams—the problem stream, the policy stream, and the political stream—, the approach aims to explain how and when a policy change is taking place and, by bringing together these two concepts, fulfills a research gap with explanatory potential for better understanding policymaking.

Based on the two conceptual models PPA and MSF, the present case study research on Lead Cities pursues three main objectives: First, it aims to analyze the formation process of policy packages, including agenda-setting dynamics. A particular focus is on identifying the driving forces and political circumstances that influence the choice of measures to be included in a package. Second, it compares the ideal-type heuristic model of policy packaging with the empirically based process of the formation of policy packages in the Lead City Program. It thus integrates bargaining and muddling through issues into the rationalities of the packaging concept as a new research approach. Third, using MSF, the study examines whether windows of opportunity played a fundamental role in the formation of policy packages. The timing aspect is integrated to better understand the process of policy packaging itself. To our knowledge, the applied approach differs from previous studies (as laid out more in detail in the subsequent background section) in the following points: (1) it adds empirical research on real-world experiences of policy packaging and investigates the evaluation of policy mixes in a regional context that is often neglected [22], and (2) it integrates the policy package perspective with the MSF approach.

The paper is organized as follows: Section 2 presents the material explaining the legal background of air quality policies at the European and national level and outlines the research framework in which the theoretical components, i.e., both PPA and MSF, are explained. Section 3 describes materials and methods, including case study selection, data collection, and research process. In Section 4, we present the main findings of the comparative case study and its embedding into the conceptual approaches. Finally, Section 5 discusses the results, summarizes the focal point, and draws short conclusions.

2. Background

The analysis of the policy-making process and the policy content of the German Lead City Program is based on the impetus given by the regulatory framework for clean air policy and the conceptual approaches of PPA and MSF. In the following, we will briefly introduce the regulatory framework, the Lead City Program, and the two conceptual approaches.

2.1. Legal Framework

2.1.1. The Legal Air Quality Framework

The European Union sets the regulatory framework for air quality in Europe and its member states. The current legal framework is based, among others, on the Air Quality Directive 2008/50/EG adopted on 21 May 2008, which requires member states to transpose it into national law. In Germany, the directive has been transposed into the Federal Immission Control Act with a new legislative decree in June 2010 (39th BImSchV). In the preamble of the European Directive [1] (p. L 152/1), the link between problem identification and objective setting is clearly stated: "In order to protect human health and the environment as a whole, it is particularly important to combat emissions of pollutants at source and to identify and implement the most effective emission reduction measures at local, national and Community level. Therefore, emissions of harmful air pollutants should be avoided, prevented or reduced and appropriate objectives set for ambient air quality taking into account relevant World Health Organisation standards, guidelines and programmes." Consequently, two limit values for NO_2 in the ambient air have been applied in the directive, which have been effective since 2010: (1) the annual average must not exceed 40 $\mu g/m^3$ and (2) the maximum value of 200 $\mu g/m^3$ must not be exceeded more than 18 times per year. However, Article 22 (1) 2008/50/EG allows a postponement of attainment deadlines and an exemption from the obligation to apply limit values when developing an Air Quality Plan (Art. 23 (1) 2008/50/EG), which Germany (and several other member states) made use of and thereby extended the deadline to the beginning of 2015 [23].

2.1.2. The Federal Lead City Program

In 2017, the German Federal Government came under pressure from various directions. On the one hand, the European Union threatened to take legal action since Germany continuously was exceeding air pollution limits in various cities. On the other hand, several cities risked court decisions imposing bans for diesel cars. This led to a series of policy summits to tackle the problem (e.g., the municipality summits held on 4 September 2017 and 28 November 2017, and the National Forum Diesel held on 2 August 2017). As a result, the Federal Government launched the Immediate Action Program for Clean Air (2017–2020) with a budget of 1 billion euros for funding measures to improve air quality in German cities. The program aims to achieve percentage reductions in total national emissions of certain atmospheric pollutants (e.g., sulfur dioxide, nitrogen oxides, ammonia, and particulates). In August 2018, the Federal Government extended the program with the Lead City Program providing another €130 million of funding for measures to reduce air pollution in the public transport sector. Within the Lead City Program, five cities were selected for the program roll-out, namely, Bonn, Essen, Reutlingen, Mannheim, and Herrenberg. As a typical state-funded program, applicant cities were invited to submit proposals comprising ready-to-use policy packages that were co-financed up to 95% from federal funds for a limited period of two years (2019–2020).

2.2. Theoretical Framework

The combination of conceptual frameworks, theories, heuristics, or other models is widely applied in policy studies and is, according to Cairney [24] (p. 1), well suited as "new combinations of theories or concepts may produce new perspectives and new research agendas." In this article, we combined the insights of two heuristics (see Table 1) and applied these to our case study. The first framework, MSF, is rather descriptive; it focuses on the analysis of the policy process and aims at explaining the agenda-setting dynamics

and the time framing. The second one, PPA, is impact-oriented and focuses on an analysis of the policy content. PPA aims at analyzing the design, evolution, and content of specific policy packages.

MSF has been widely applied in political sciences to study agenda-setting and policy-making processes [25,26] and has been continuously extended by scientific research, e.g., [27–34]. Jones et al. [34] found more than 300 peer-reviewed articles published between 2000 and 2013. The identified studies cover a total of 65 countries across 22 different policy areas. PPA is more recent and has been mainly applied in the area of transportation policy, e.g., [18,35,36]. Both approaches fit well with our research objectives because our focus is on analyzing both the policy-making process and the content of air quality policies within the Lead City Program. Table 1 shows the explanatory patterns and the interplay between both conceptual approaches used.

Table 1. Interplay and description of selected theoretical frameworks.

Explanandum of the Framework	Explanans of the Framework
Policy Package Approach (PPA)	
• Analysis of the policy content • Supporting the development of effective and efficient interventions • How should policy instruments be designed to have a more effective impact?	• Policy packaging may enhance collateral effectiveness of primary measures together with ancillary measures through their ex-ante mitigation and/or management
Multiple Streams Framework (MSF)	
• Analysis of the policy process • Explaining agenda-setting dynamics • Why do some issues move up on the agenda of decision-makers and materialize into policies while others do not?	• Policy processes consist of three largely independent streams (problem, policy, politics) that may be coupled by policy entrepreneurs at the right time ("policy windows"), resulting in policy change

Source: adapted from [37] (based on the original source of [17,20]).

2.2.1. Policy Package Approach (PPA)

The standard practice in policymaking is often called "policy patching" [7,38,39]. Thus, empirical research on the design and content of national and/or international energy and climate policies rather shows an ad hoc policy patching pattern. This pattern implies an uncontrolled growth of local, regional, and federal state policies and interventions that are rarely consistent with each other [40]. The Organisation for Economic Co-operation and Development (OECD) [10] notes that the majority of the policy instruments developed are more likely to be the result of path dependencies and ad hoc decisions taken in isolation due to short-term political considerations and windows of opportunities. The accumulation or frequent change of policy instruments does not necessarily imply inconsistency, but it does point out the difficulties involved in designing, adopting, and implementing these instruments. PPA tries to tackle this problem by "a combination of policy measures by considering the interaction of the instruments in a bundle" [16].

The policy package design process starts with identifying the problem-solving objectives and the scope that should be addressed by the policy package. According to PPA, the following key elements define a package: (1) It includes one or more primary policy measure(s) in combination with (2) ancillary measures. The ancillary measures have three rationales. They shall either increase the effectiveness of the primary measure, strengthen the acceptance of the primary measure, or facilitate the political support for the primary measure [16–18,41]. The starting point for the design process is an inventory consisting of an impact matrix that outlines intended and non-intended effects. If possible, the inventory should be evaluated by expert examination. Subsequently, one or two core measures are selected from the inventory impact assessment based on key criteria of acceptance and effec-

tiveness. The primary measure(s) should either provide the greatest possible contribution to achieving the goal or be socially and politically as much accepted as possible. In the next steps, adequate ancillary measures are designed to support the core measures. The result is a policy package that is, ideally, as effective, efficient, and accepted as possible to cope with a given problem [19]. It mitigates possible unintended effects, increases legitimacy and acceptance of the measures, and/or facilitates their implementation [8,42].

In the literature, this heuristic is usually applied to the design of theory-based policy packages in scientific and teaching environments outside the real-world policy arena [19,42,43]. In a recent study [4], a policy package approach was developed that provides (political) decision makers with orientation knowledge via the three-step process of analysis, evaluation, and discourse. Analysis refers to an interdisciplinary impact assessment in which the various effects of policy packages are assessed ex-ante from different disciplinary perspectives. Evaluation means a multi-criteria assessment in which the individual impacts are brought into an integrated evaluation context. Finally, discourse describes a transdisciplinary exchange with actors in practice and decision makers in which the pros and cons of the individual policy packages are weighed and evaluated with regard to their practical implementation and conflicting objectives, and the policy packages are adapted where necessary.

2.2.2. Multiple Streams Framework (MSF)

The MSF was developed by Kingdon [20] in the early 1980s. It builds on the so-called garbage can model of organizational decision making [26], which was developed a decade earlier by Cohen et al. [44]. The garbage can stands as a metaphor for channeling organizational decision making within a chaotic reality in organized anarchy. The model describes the elements involved in the decision-making process, elaborates on the outcomes, and details the access of the interaction. The so-called streams play a key role in the model because the interplay in the garbage is marked by three independent streams. Kingdon [20] applied the metaphor of different streams for the analysis of public policies, making them the cornerstone of MSF. He defines public policy as "a set of processes, including at least (1) the setting of an agenda, (2) the specification of alternatives from which a choice is to be made, (3) an authoritative choice among those specified alternatives . . . , and (4) the implementation of the decision" [20] (p. 5). Inspired by the garbage can model, Kingdon distinguished three major process streams—a problem stream, a politics stream, and a policy stream.

(1) The problem stream refers to a given problem raising the concerns and attracting the attention of both policymakers and society entering the political agenda. However, this is not a linear but rather a random selection process. As pointed out by Cairney and Zahariadis [33] (p. 88), "there is an almost unlimited amount of policy problems that could reach the top of the policy agenda. Yet, very few issues do, while most others do not." According to Kingdon [20] (p. 119), "for a condition to be a problem, people must become convinced that something should be done to change it."
(2) The policy stream refers to problem-solving solutions that are subsequently embedded in policy instruments. The problem-solving process is somehow independent of the problem stream because it requires far more time and expertise compared to the sole problem identification domain. The policy stream focuses on the "policy primeval soup" in which ideas for suitable policy measures and problem-solving options are collected, selected, and revised.
(3) The politics stream covers the formal process of policymaking within the formal requirements of legislative decision making. In this stream, policymakers have the motive, power, and opportunity to turn solution proposals into legally binding policies. In addition, the politics stream refers to aspects such as the public mood, pressure group campaigns, election results, or changes in administration [20].

The three streams of the policy-formation process are independent of each other and may follow their own dynamics and rationales. According to Kingdon [20], a problem-

oriented (new) development of policy measures occurs, when, at a specific point in time, the three streams are successfully connected with each other. The so-called streams coupling links problems with solutions or proposals and reveals the power of politics in policy-making. This is only possible during an open policy window (also called windows of opportunity, e.g., [31,38,45–47]). "Windows" can be understood as a metaphor indicating a time period with a high potential for political change. In analytical terms, they indicate a starting point and an endpoint for successful action within the political system. However, windows of opportunities are "fleeting opportunities for policy entrepreneurs to push their pet proposals up the government's agenda. They may be predictable, such as annual budgets, or unpredictable, such as natural catastrophes" [33] (p. 100).

3. Material and Methods

The analysis of the policy-making process and the content presented in this paper focuses on three Lead Cities funded within the German Lead City Program, namely, Essen, Reutlingen, and Herrenberg, located in the west and southwest of Germany (see Figure 1). These three cities were selected to cover a wide range of differences regarding location, population, and emissions (see Table 2 for key figures). Reutlingen is interesting because it has the highest amount of NO_2 emissions compared to its relatively small area and population. Essen and Herrenberg were selected for this analysis because they are the most (Essen) and least (Herrenberg) densely populated areas in all of the five Lead Cities funded in the program. Besides, the three cities are characterized as follows:

- Essen is the fourth-largest city (after Cologne, Dusseldorf, and Dortmund) in the federal state of North Rhine–Westphalia with around 590,000 inhabitants on 210 km^2. Essen has a considerable environmental impact due to traffic emissions. The emissions are caused, among other things, by harmful noise and air pollution, which are recorded and documented in noise action and air pollution control plans [48]. Since 2012, the limit values for particulate matter have no longer been exceeded. Between 2009 and 2017, however, the EU NO_2 annual mean limit value of 40 micrograms per cubic meter ($\mu g/m^3$) was clearly exceeded at five measuring stations in Essen [49].
- Herrenberg exceeded the EU NO_2 annual mean limit value of 40 micrograms per cubic meter ($\mu g/m^3$) in the year 2017 [49]. The city is located in the federal state of Baden–Württemberg in Stuttgart's administrative district and the district of Böblingen with a population of 31,499. Although Herrenberg itself is not densely populated, it is located near the Stuttgart metropolitan area with its high population density and enormous economic activities, e.g., in the automotive and automotive supply industry.
- With an annual mean of 53 $\mu g/m^3$ in 2018, Reutlingen is also one of the most polluted cities [49] in Germany. The city is also located in the federal state of Baden–Württemberg and belongs to the administrative district of Tübingen. It has a population of 115,762 and covers an area of 87.04 km^2.

Figure 1. Location of the three cities in Germany (Source: mixmaps.de).

Table 2. Characteristics of the three Lead Cities.

	NO_2 Annual Average (µg/m^3)						
Lead City	**2015**	**2016**	**2017**	**2018**	**Area (km^2)**	**Population**	**Density (pop/km^2)**
Essen [1]	50	50	50	48	210	583,393	2774
Herrenberg [2]	n/a	49	47	41	65	31,499	479
Reutlingen [3]	70	66	60	53	87	115,762	1330

Emission measuring stations: [1] Essen–Frohnhausen, [2] Herrenberg Hindenburger Straße, [3] Reutlingen Lederstraße Ost. Source: own illustration, based on data from the Federal Statistical Office and the Federal Environment Agency.

Due to a lack of systematically conducted empirical research analyzing the policy-making process and results in the field of air pollution, we used an explorative and qualitative research design. An explorative and qualitative design is reasonable if an object is under-researched and only basic knowledge of causes and effects is available [50–53]. The same applies to the use of a qualitative approach because hypothesis-testing methods require systematic knowledge to sharpen a set of clear hypotheses. Therefore, an explorative method was applied in which semi-structured interviews were conducted with experts related to the three cities. Table 3 gives an overview of the questionnaire used. Expert interviews are a permanent feature of the toolbox used in empirical social research [51,54–57].

Data were collected in a two-step approach: (1) a desk research-based analysis and (2) expert interviews to complement the analysis. During the desk research process, political as well as scientific documents related to the three cities were analyzed in order to identify knowledge gaps. The interviews aimed at verifying the data available from desk research and filling existing knowledge gaps. The interviews were conducted with policymakers and stakeholders at the municipal and city level, including administrative staff and representatives of business and environmental associations involved in the Lead City Program. The interviews were conducted face-to-face and lasted about 45–60 min. All interviews

were tape-recorded and subsequently converted into verbatim transcription. The data collection process took place between August 2018 and December 2018. The database consisted of a total of nine interviews (four for Essen, two for Herrenberg, and three for Reutlingen) plus a written statement (Herrenberg) by one interview partner who did not have the time to conduct the interview.

Following explorative and qualitative design, we selected a small sample of expert interviewees who were heavily involved in the Lead City policy formulation and implementation process. We are fully aware that the sample of 10 experts is not a broad empirical basis, but the inside knowledge we gained from the interviews justifies the approach for delivering important empirical indications revealing the insides of Lead City policies. The expert sample consisted of five interview partners who can be assigned to the political sphere in the urban context, four interview partners who were societal stakeholders with a special focus on both sustainability and mobility issues, and one interview partner who represented the business perspective. Since only a small number of actors in the three cities were involved in the Lead City Program and had the relevant knowledge of the processes, the interviews had to focus primarily on these actors. In addition, several interview requests were declined due to time constraints and workload among experts.

The qualitative content analysis of the material was conducted using MaxQDA software (VERBI GmbH, Berlin, Germany) that was used to systematically process the qualitative interview data. Content analysis was carried out using an inductive category development procedure as recommended in the literature [58,59]. For this purpose, the qualitative data were coded using categories derived from the theory of policy packages and the three streams approach. This was done by two researchers independently and iteratively. The section on PPA was divided into goals, measures, design, implementation, and impact, while the section on MSF was divided into challenges and problem framing, external conditions, policy emergence, policy window, actors, and evaluation.

Table 3. The questionnaire that was used for the semi-structured expert interviews.

Section 1: Agenda-Setting Dynamics and Narrative: Application as Lead City
• In your view, what are currently the greatest challenges of a "traffic turnaround" in your city?
• In your opinion, how did the application as Lead City in the Federal Government's program come about? Please briefly explain the reasons, the history of its development (e.g., master plan), its significance for transport policy, etc.
• To your knowledge, how did the idea, selection, and concretization of the measures for the Clean Air Package develop?
Section 2: The Clean Air Package of Measures: Objectives, Design, Participation, Impact, and Monitoring
• What will these measures look like exactly? When is their implementation planned? What is the planned duration of these measures?
• What is/are the objective(s) to be achieved by the introduction of the Clean Air Package? Are there any other goals per measure beyond NO_x reduction?
• Which actors were involved in the application as Lead City and/or in the selection of measures in your city? What involvement is planned in the implementation of the measures? In this context, has there been or is there a process of civil society participation? If so, what does this process look like?
• What do you expect in detail from the measures in the Clean Air Package? How do you assess the impact of the measures, such as effectiveness, efficiency, etc.?
• What changes and effects do you expect after the introduction of the measures (e.g., reduction of emissions, shifting of the modal split shares, etc.)? To what extent, to your knowledge, were possible changes caused by the measures identified, calculated, estimated, etc. in advance?
• Is continuous monitoring carried out during or after the introduction of the measures? If so, how will/should this, to your knowledge, look like in terms of method and content?

Table 3. *Cont.*

Section 3: Urban Transport Policy: Existing Mix of Instruments
• Do you know of any further adjustments to existing transport policy instruments in your city if the Clean Air Package is introduced? (e.g., increase in parking fees, expansion of sharing services, etc.)
Section 4: Recommendations: Future Development of Transport Policy
• How do you see a complete defossilization of transport in your city in the long term? What do you think about the idea of free public transport brought into play by the Federal Government?

4. Results

Within this section, we present the results and assessments of the analysis. The results are displayed in two parts: First, the qualitative case study data are clustered by the MSF streams, i.e., the problem stream, the policies stream, and the politics stream. This helps to break down the policy-making process and the content of the Lead City Program according to MSF. Second, the empirical results are classified and discussed against the conceptual and theoretical claims of MSF and PPA. This includes a short explanation of the theoretical claim followed by an assignment of the corresponding empirical quotation data.

4.1. The Problem Stream: Legal Pressure, Reputational Damage, and Pending Diesel Bans

MSF defines problems as an initial condition with the potential to become a problem. This is in line with the theory of social construction of reality [60]. To turn a condition into a problem, people must perceive it as a situation that urgently needs to be changed and solved [32]. Therefore, one of the key insights of the MSF approach is that problems are not objective and given facts but rather subjective attributions of mankind as an act of constructed and interpreted reality. The path from conditions to problems requires a certain problem awareness and perception by society and decision makers to put it on the political agenda. Following this argument, the main objective of applying MSF to the Lead City case study is to identify attention-grabbing and agenda-setting factors that turn conditions into policy problems.

As far as the three Lead Cities researched are concerned, the case of a continuous exceeding of the NO_2 limit values is not new and goes back to at least 2015 (see Table 2). In the words of MSF, breaching limit values remained a condition for several years, but turned into a policy problem only in 2018 after legal pressure from EU and national NGO lawsuits, international reputational damages caused by the "dieselgate" (i.e., the car emissions fraud scandal in Germany), and pending diesel bans in cities. In the following, we will shortly summarize the situation for both the Lead Cities and beyond.

In the recent past, the non-compliance with limit values has been put on top of both the European and the national political agenda. On the one hand, the diesel scandal, which began in September 2015 when the US Environmental Protection Agency (EPA) issued a notice of violation of the Clean Air Act to the German carmaker Volkswagen Group, caused considerable reputational damage to both German carmakers and public authorities. The path to solving this problem started with a series of five "Diesel Summits" between August 2017 and November 2018.

On the other hand, in May 2018, the European Commission decided to refer Germany (as well as other countries) to the EU Court of Justice for non-compliance with the limit values for NO_2 as stipulated by the Directive 2008/50/EG [1,61]. Kingdon [20] pointed out that activists and policy entrepreneurs are likewise important for problem perception at the public and governmental levels. In our cases, legal action has also been taken by the national NGO Environmental Action Germany (German: Deutsche Umwelthilfe, DUH) in cooperation with the international NGO Client Earth. In sum, 35 cases have been brought to court by DUH. In January 2019, the city of Stuttgart issued the first ban on diesel vehicles of the category Euro 4 and below. In February 2018, the Federal Administrative Court

ruled that health protection takes precedence over economic interest, thus clearing the way for diesel restrictions [62,63]. Of the three Lead Cities investigated here, this applies in particular to Essen and Reutlingen.

With regard to the Lead City of Essen, the problem stream became explicitly evident when a complaint lodged by DUH against the federal state of North Rhine–Westphalia was granted in court on 15 November 2018. As a consequence, a diesel ban for the Autobahn A40, which runs straight through the center of Essen, seemed probable. However, DUH and the German Federal State of North Rhine–Westphalia agreed on several air pollution measures in Essen, which have so far prevented the diesel ban on the A40. Similarly, implementing traffic bans in Reutlingen was a serious policy option. On 27 January 2012, DUH filed a lawsuit against the state of Baden–Württemberg in Reutlingen for exceeding the limit values of the 39th BImSchV. It was followed by a series of legal proceedings culminating in a court decision by the Federal Administrative Court in Leipzig in February 2020, ruling that, for reasons of proportionality, the city of Reutlingen must not impose diesel bans because it is expected that the policy measures undertaken will improve air quality in the near future.

In summary, it can be stated that the problem stream was strongly triggered by the NGOs' legal actions and the EU's initiative to fine Germany for breaking the law on air pollution (see also quote #1 + 2 in Table 4). Currently, diesel cars are banned from certain roads in Berlin, Gelsenkirchen, Hamburg, Mainz, and Stuttgart, while there are still pending issues in Aachen, Bonn, Essen, Frankfurt, Köln, etc. The issuing of diesel bans is a much-contested policy issue in Germany and among its citizens. Surveys show that in 2018, there was a balance between advocates and opponents of traffic bans, while one year later, 68% of Baden–Württemberg respondents surveyed were against diesel bans and only 25% endorsed them [64].

The characteristics of the opening problem stream window are also reflected in the interview results. The reduction of NO_2 and particulate matter emissions, leading to an avoidance of diesel bans, was one of the main objectives in the design, selection, and implementation of policy options (see quote #3 + 4 in Table 4). As Knaggård [32] pointed out, in the course of the problem framing, the current state is compared with an ideal one. In the case of transport policy, this is associated at the European and national level with the corresponding policy objectives (quote #2 in Table 4), while interviewees at the city level referred to a broader understanding of transport policy as an ideal state (quote #5 + 6 in Table 4). Against the aforementioned background and based on the interview material, we argue that the NO_2 limit violation and related infringement proceedings and complaints at the European and national level created favorable conditions for opening a problem window (quote #1 in Table 4). The interaction of several decentralized factors at different governance levels, i.e., the pressure on the national level by the NGO DUH, the diesel scandal at the international and national level as well as the infringement procedure at the European level, have triggered a debate on objectives, targets, and the way forward for lacing policy packages. With regard to the specific goals of the policy packages, the interviewees emphasized that transport policy has to be understood as a broad-based urban policy focusing on less traffic and also on the functionality of the city (quote #5, 6, and 7 in Table 4), which relates to the broader concept of the "avoid-shift-improve" approach. Thus, legal pressure, international reputational damage, and pending diesel bans paved the way from conditions to problems.

Table 4. Quotes from the interviews outlining the problem stream in the three Lead Cities.

#	Quote
1	"This pressure behind it [authors' note: DUH complaint/exceedance of NO_2 limit values] actually makes you worry." (Interviewee 7)
2	" . . . Brussels really is the driver in the game. Interestingly, we Germans pushed for it to come so quickly. We wanted it, now we have to implement it." (Interviewee 4)
3	"So, right now, we do not have the conditions that we can conduct economic activity to the extent we are used to when an environmental zone is created somewhere. There are restrictions, one hundred percent . . . The alternatives are only slowly being created, and the discussion has overwhelmed us all, as a society I would say, to some extent. We have seen the limit values; we said yes, we want to have all that. The alternatives, which are expensive to implement, we have not developed them in time." (Interviewee 4)
4	"Yes, certainly the impending driving bans and the fact that the alternatives are not yet available." (Interviewee 4)
5	"So we want this emission reduction. By and large, you can achieve this through two things: First, through cleaner engines, and second, through less traffic. So that's a goal—we certainly derive from this—that we also want a reduction in traffic." (Interviewee 5)
6	"Urban policy is transport policy." (Interviewee 10)
7	"So achieving these goals, which you just mentioned, is a legal requirement. In any case, the desirable goal for us is to maintain the functionality of the city. That means shaping goods transport, passenger transport—the economic life as a whole—so that it can still take place in the future." (Interviewee 4)

4.2. The Policy Stream: Modal Shift Policy Packages Combining Reduced Mobility Costs with Increased Mobility Offers and Services

The coupling of the problem stream with the policy stream was realized in the Lead City Program that provided financial resources, a clear procedure for policymaking, and strong visibility of the willingness and ability to take political action. This was the first important step towards a successful coupling of the streams. The starting point was the increasing legal pressure from the European Commission's infringement procedure in 2017 after 66 German cities exceeded NO_2 limit values in 2017. The infringement procedure urged Germany to make appropriate adjustments to its transport policy to combat air pollution. The Federal Government requested all cities and municipalities to elaborate "Master Plans for the Design of Sustainable and Emission-Free Mobility" (Green City Plan). Environment Minister Hendricks and Transport Minister Schmidt emphasized this initiative in a meeting with the EU Environment Commissioner Karmenu Vella on 30 January 2018 regarding the improvement of air pollution. The German Lead City Program was established immediately afterward and played a key role in setting up the policy arena for developing and deciding on policy packages [65]. In March 2018, all cities that exceeded the limit values were invited to submit proposals outlining policy measures with NO_2 reduction potentials, while the program budget promised to cover 95% of the total costs of the implementation of the measure.

The program call initiated an inventory of suitable policy measures in related cities, preceding the preparation of the policy packages. Interestingly, we were able to observe that the elaboration and selection of policy measures followed the theoretical PPA with impact assessment of each measure regarding costs and effects.

The cities were able to draw on extensive preparatory work already carried out in existing Clean Air Plans (Luftreinhaltepläne) and thus picked up on measures that were already being discussed and prepared (quotes #9, 10, and 12 in Table 5). In the beginning, the applicant cities developed a comprehensive list covering a wide range of urban transport policies (quote #12 in Table 5). The city of Essen, for example, primarily compiled a comprehensive list of individual policy measures, each of which was qualitatively assessed in terms of feasibility in the time frame from 2018–2019, rapid effectiveness of emission

reduction, and information on impact forecasting. The list included a great variety of measures, such as employee loans for relocations to Essen, partnerships with business and industry associations, promotion of pedestrian traffic, winter service for cyclists, promotion of car-sharing services, further development of the Essen mobility app, etc.

Table 5. Quotes from the interviews outlining the policy stream in the three Lead Cities.

#	Quote
8	"There was no decree, there was no funding information, except that by 2020 it should lead to NO_x levels no longer being exceeded in the Lead Cities." (Interviewee 7)
9	"In part, the master plan includes the measures that were also mentioned in the Lead City [Program], but the master plan goes far beyond that, of course." (Interviewee 7)
10	"Together with the city, we had a catalog that ended up with 31 or 32 proposed measures." (Interviewee 8)
11	"The development toward a 'free' public transport system must be promoted much more. This is a nationwide project. There are feasible models for a general pay-as-you-go public transport system. It takes the courage and thus the primacy of politics over corporate interests, as well as a broad social debate, to implement this goal." (Interviewee 10)
12	"In the beginning, we of course had a much bigger approach. We really had all measures in that could somehow have something to do with air pollution control. And then, of course, you first have to sound out what has a possible effect, what has no possible effect at all. And it has always become clear, precisely in this public participation, that precisely the measures in the field of public transport, especially the promotion of foot traffic, that this is something the population wants." (Interviewee 5)
13	"I don't believe in free public transport. That's because I believe it will create, i.e., cause, false incentives." (Interviewee 1)
14	"And there was, among other things, this free public transport, I think it was point seven or something. But the press thought it was really great and jumped right on it. For us, or in general, all Lead Cities agreed that there is no point in making public transport free of charge if we don't turn the screws to make it better. And that's why we thought, okay, we'll see that we get it at a reduced price in order to make it more attractive." (Interviewee 3)
15	" . . . the Federal Government wanted free public transport in [anonymized city]. On the one hand, this could certainly help to get people to change their behavior. But on the other hand, if I do this free of charge without accompanying measures, that is, an improvement in services, it won't work either." (Interviewee 7)
16	"In the run-up, or I say, in the beginning of this discussion about the Lead City, the Federal Government made an approach toward the EU, where the topic of free public transport was raised." (Interviewee 8)
17	"And so we had to at least coordinate and parallelize these processes in terms of content." (Interviewee 7)

The basic inventory list stimulated further discussions, both within different units of municipal administrations and with Lead City Program officers in Berlin. During the discussion, the topic of public transport promotion—and in particular free public transport—quickly moved to the top of the agenda in all three cities (quotes #13–16 in Table 5). Interestingly, according to quotes from the interviews, this was mainly pushed and covered by the media and to a certain extent by the German government (quote #14 in Table 5). However, the Lead Cities did not favor a free public transport system, arguing that this would create tremendous disincentives (quote #13 in Table 5), even though one interviewee emphasized its huge potential for sustainable urban transport (quote #11 in Table 5). During the policy formulation phase, it also became clear that the primary measures under consideration, such as public transport restrictions, require substantial additional measures to become fully effective (quote #15 in Table 5).

The final policy packages of the Lead Cities, shown in Table 6, illustrate the principle of policy packaging, which is based on the interplay between the promotion of public

transport by supporting and reinforcing cost-reducing measures and improved services. This approach is in line with the specification of a policy package called "public transport offensive," as described in the literature by Arnold et al. [4]. According to this approach, a "public transport offensive" policy package combines the design principles of reducing mobility costs and increasing mobility offers and services. The shift from motorized individual transport to public transport is encouraged by modal shift-related changes in behavior stimulated by cost savings and greater attractiveness for users. The cost reduction is achieved by lowering the access fees for public transport (ticket). The reduction should result in noticeable cash relief. Accordingly, a tariff reduction of at least half of the ticket prices should be aimed for. The accompanying increase in attractiveness should, on the one hand, result in the hoped-for higher passenger numbers; on the other hand, it should also help to reduce the currently perceived obstacles to the use of public transport, such as low reliability, long journey times, and the need to change trains.

Table 6. Final policy packages related to the core measure of public transport promotion.

Lead City Essen	
24-month subscription	– Bonus for new customers with a 24-month subscription. Also included: use of bike and/or car-sharing facilities
Monthly ticket	– Bonus for buyers of monthly tickets in digital distribution via the "ZÄPP" app
Company ticket	– Bonus for newly acquired company ticket customers (reimbursement of the basic price) – Additionally: bike and/or car-sharing offers
Combined ticket	– Bonus for contractual partners (sports/cultural facilities) upon conclusion of a combined ticket agreement: use of admission tickets as tickets for public transport
Taster weekend public transport	– Issue of vouchers worth a 24-hour ticket for the use of public transport on weekend
Marketing	– Creation of marketing concept and IT costs
More frequent tram services	– Tram No. 103: all-day extension (from 6:00 to 19:00) of the 10-minute interval between the Hollestraße and Steele S stops.
More frequent bus services	– More frequent services: Lines SB15, Bus 146, Bus 160/161, Bus 169, and Bus 170
Expansion of the bicycle road network	– Conceptual design and successive installation of the following bicycle routes: District connection Rüttenscheid—Holsterhausen—Frohnhausen, Rüttenscheider Straße, and from the Ruhr to the Rhine–Herne Canal
Lead City Herrenberg	
City ticket	– Lower prices for monthly/day tickets in the city of Herrenberg: (1) day ticket for €3 instead of €7, and (2) a monthly ticket for €47.20 instead of €67.20

Table 6. *Cont.*

Third city bus and scheduled taxis	–	Use of a third public bus and "scheduled taxis" (mini-buses)
City Mobility App	–	Bundling, simplification, and user-friendly design of mobility offers (motorway, public transport, rental bicycles, Stadtmobil car sharing) within a mobility app for Herrenberg
Dynamic speed reduction	–	Consolidation of the traffic flow through speed reduction by means of dynamic speed control systems (on central federal highways and traffic axes in the city center)
Structural adjustment of main transport axes	–	Structural adjustment of the main traffic axes to reduce disturbing factors (longitudinal parking spaces, left-turning vehicles without sufficient storage space, delivery traffic on the carriageway or driveways on the periphery) and to accelerate bus and bicycle traffic (e.g., by common bus and bike lanes)
Traffic-dependent control light signals	–	Traffic-dependent dynamic control of the light signals (green wave, dynamic display at how many km/h a passage is possible without stop-and-go, request loops for bicycle traffic) and dynamic traffic control through truck passage bans (>7.5 t)
Improvement of bus transit times	–	Improvement of transit times for buses (also as necessary compensation for the speed reductions on longer route sections), e.g., by bus lanes
Lead City Reutlingen		
Day and annual eco tickets	–	€365 annual ticket for adults (valid in zone 220), an additional price reduction of 20% (adults) and 31% (children) for day tickets for the same tariff zone
Operating subsidies	–	Operating subsidies for the new city bus network Reutlingen with 10 new bus lines, 100 new stops, more frequent services, line extensions, and new tangential lines
Construction of local main transport axis	–	Construction and adaptation measures for the introduction of a new central public transport route (Gartenstraße) between the old town and the east town. In the future, the route will be served by twelve bus lines at short intervals.
Construction of further stops	–	Reserve measure

Source: Own compilation based on [66].

4.3. The Politics Stream: The Lead City Program as a Multiple Streams-Coupling Arena

The characteristics in the problem and policy streams were favorable for opening an institutional window [20] in the politics stream for developing and implementing policies. First, a (random) problem window opened in the problem stream through legal pressure, reputational damage, and pending diesel bans. The problem stream analysis outlined the steady increase from both supranational EU policymakers and national environmental stakeholders. The continuing failure to comply with the NO_2 value limits was obvious and predictable; the diesel scandal, however, was a sudden event for society and policymakers alike with impacts that could hardly be predicted. These predictable and unpredictable coinciding events paved the way for a window of opportunity in the politics stream, in which the interplay of federal and city governance levels forced the creation of a stream coupling arena. The Lead City Program perfectly matches the coupling of streams because it provides excellent framework conditions for merging the problem, the policy, and the politics stream.

The politics stream of decision making is characterized by a repeated coordination and negotiation process between the Lead Cities and the federal states' policymakers. Cities, as local authorities, were primarily responsible for drawing up measures and, subsequently, for their implementation in the respective Lead Cities. The first impetus for the creation of the three policy packages in the Lead Cities came from the Federal Government. This is unusual because transport policy is mainly conducted at the municipal level in Germany (see also quote #18 in Table 7). Particularly striking in this process is the direct exchange between the Federal Ministry of Transport and the cities themselves and the provision of direct budget support by the Federal Government (quote #20 in Table 7). Thus, the allocation of funds has been the primary regulatory approach of the German Federal State. This implies a certain and unusual "decision-making sovereignty" of the Federal Government over the selection and promotion of measures. The Lead City Program approach itself is the main reason for framing the multiple stream coupling mechanism (quote #19 in Table 7).

The policy-making process was a process of mutual ping-pong coordination between policymakers from Lead Cities and federal states. In the beginning of the process, the three cities submitted an extensive list of measures to the Federal Ministry and asked for further prioritization and sharpening—and the exclusion of certain measures, such as cycling-related policies (quotes #24, 25 in Table 7).

Table 7. Quotes from the interviews outlining the politics stream in the three Lead Cities.

#	Quote
18	"The fact is that we've been approached by the Federal Government." (Interviewee 7)
19	Interviewer: "But this selection process is not that familiar to you now, it was done in Berlin at the Ministry, so to speak?" Interviewee: "Exactly." (Interviewee 7)
20	"The state of North Rhine–Westphalia was very interested to see what the Federal Government had done, because the Federal Government did not talk about it with the federal states beforehand but simply clarified it directly with the cities." (Interviewee 7)
21	"To my knowledge, there was a kind of appeal by the administration to the classic municipal offices, Environmental Office, Road and Traffic Office, Planning Office, which are ultimately responsible for these issues somewhere or have touchpoints. And the individual offices then proposed and developed measures, so to speak, and this was then put together." (Interviewee 7)
22	"Masterplan has identified these 34 [measures], then I think two more have been added, so 36 measures in total have been identified, which were also evaluated with this benefit analysis." (Interviewee 7)
23	"Yes, there was again a requirement to set priorities, and priorities were also set during the process. I'd say, the request from the direction of Berlin was then: Hello, City of [anonymized], this will also have applied to the others: Please prioritize again your measures. And then there was again a prioritization . . . , for example, in terms of feasibility." (Interviewee 8)
24	"I am not one hundred percent sure that this complete package was submitted in Berlin in the first step. And Berlin then said: 'Sort out, look what you want. Here, all this, this is far too much.' And then you've sorted in a way that, I'd say, a measure would come out that does not hurt anyone and the two public transport measures. And the bicycle traffic . . . has been completely eliminated, except for the bicycle road." (Interviewee 7)
25	"And that's why bicycle traffic has been dropped because apparently not so much NO_2 can be reduced in the short time available, for whatever reason." (Interviewee 3)
26	"And a massive change in transport policy is not possible without hurting a certain clientele, in this case mostly car drivers." (Interviewee 7)

Table 7. *Cont.*

#	Quote
27	Policy Package extension planned: "We may have to develop something further on one side or the other. For example: How do we bring this to the customer? The colleagues from my marketing field here in the house are working hard on that, for example." (Interviewee 8)
28	Time pressure and parallel design of transport policy measures: "But the master plan was only completed on 31 July, and the Lead City measures were already submitted in Berlin in March or February." (Interviewee 7)
29	"The whole thing that you have discussed here now, what lies behind the subject of the Lead City was really created in a very, very short working time . . . Normally, something like this would take much more time. Nonetheless, we think it's good. We fully support it. It supports our goals in our institution. We want to do more in the sector. We definitely want to support the issue of a traffic turnaround, and I hope we will succeed in doing so next year." (Interviewee 8)
30	"A very short-term deadline was set. That started in March, I think? February, March 2018, where we should send a corresponding statement, [a] first list, to the Federal Government by Easter, I think, and therefore there were expert meetings within the administration, including the transport company." (Interviewee 9)
31	"Very tight deadlines." (Interviewee 2)
32	Continuation of the measures is important: "But public transport expansion or ticket price reduction, if this no longer applies after two years, then it goes back to zero, so to speak." (Interviewee 7)
33	Accompanying measures are necessary: "But on the other hand, if I do this free of charge without accompanying measures, that is, an improvement in services, it won't work either." (Interviewee 7)
34	"The measures to reduce public transport fares and expand services will only have a noticeable effect on the modal split if we also advertise them accordingly and if there is a change in the way citizens think." (Interviewee 10)
35	Ex-ante assessment: "There was only one assessment of the measures, whether they are effective in the short term, medium term, [and] long term." (Interviewee 7)

When finalizing the packages (see Table 7), two aspects were exclusively considered as decision-making criteria—the potential for NO_2 reduction (quote #25 in Table 7) and the feasibility of implementation including budget assessment (quote #23 and #35 in Table 7). The interviews did not reveal any further criteria to be considered. The Federal Ministry decided on the final policy packages for funding purposes (quote #19 in Table 7). On the part of the cities and the Federal Government, NO_2 reduction potentials and costs were considered as two primary dimensions in the selection of the measures. With the exception of Essen, no publicly published data on NO_2 reduction potentials or the assessment of costs per measure are available. With regard to the detailed design, the cities emphasized the need to continue the measures in order to generate a long-term impact (quote #33 in Table 7). Although the final selection of policy packages was made under considerable time pressure, not least due to the developments in the problem stream, all three cities highly welcomed the opportunity provided by the Lead City Program (quote #28 and 29 in Table 7).

5. Discussion and Conclusions

In this study, the policy-making process and the policy content of the German Lead City Program were empirically analyzed using MSF and PPA. In short, streams analysis for better air quality was center stage in the present research. In the following, we discuss the main findings according to two main perspectives—the explanatory power of MSF and PPA approaches in the context of the case study carried out and the potential mutual linkages these concepts can offer. Figure 2 summarizes the findings by applying both the MFS with its policy window approach and the PPA with its policy packaging process to the Lead City Program.

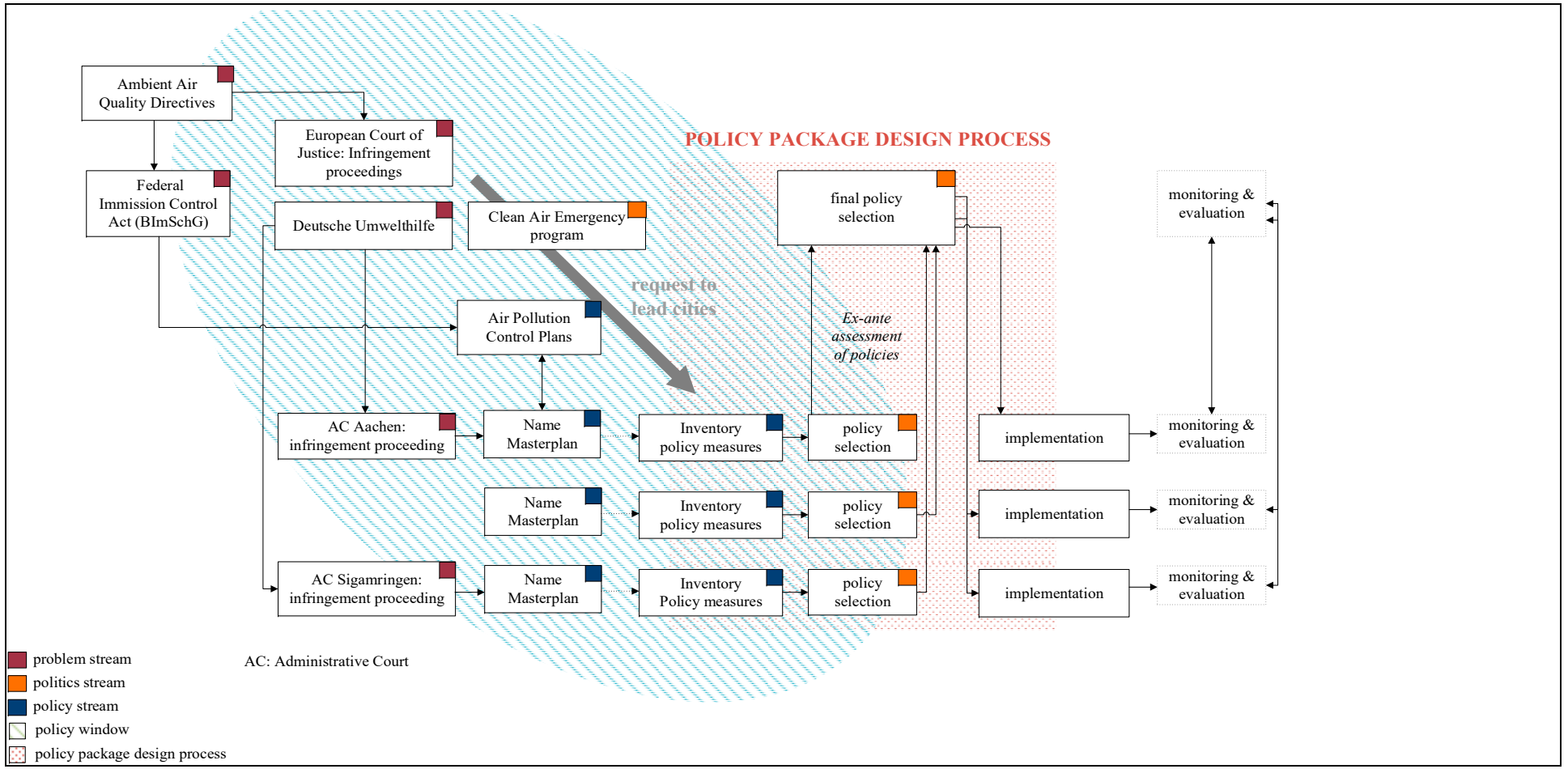

Figure 2. Multiple streaming and policy packaging in the Lead City case study. Source: own compilation.

First, the two approaches are suitable to better understand and explain the policy-making process and policy content within the Lead City Program established by the German Federal State in Berlin and the three cities of Essen, Herrenberg, and Reutlingen. Viewing the case study of the Lead Cities through the MSF lens, we identified a number of key variables that paved the way for the exploration, prioritization, and selection of the policy packages. These include direct interaction, communication, and negotiation between the different governance levels (federal, regional, and local level); long-standing non-compliance of many German cities and municipalities with EU NO_2 limit values; the resulting European and national infringement proceedings; as well as the diesel scandal and the Lead City Program as multiple stream-coupling facilitators. All these features created a window of opportunity for the evolvement, selection, and implementation of policymaking and policy content.

The analysis shows that the three streams were gradually linked. The starting point for the problem stream was the exceedance of the NO_2 threshold and the subsequent legal proceedings initiated by the EU and environmental NGOs against the German Government and German cities. Based on the empirical analysis, we argue that the violation of NO_2 limits and related infringement proceedings and complaints at the European and national level created favorable conditions for a problem window in the problem stream. In addition, an open search process for suitable measures (inventory of policy measures) was encouraged in the policy stream when the Federal Government decided to launch the Lead City Program. Thus, the problem stream has paved the way for the politics stream, in which the entire policy window opened through the interplay of federal and city governance levels, which both have stimulated the policy packaging process. Within the program, the Federal Government played a special role as a dominant and leading decision-maker. As a leading actor, it shaped the bundling process of the policy package and the prioritization and selection of the individual policy measures. In summary, the analysis showed that MSF, in combination with PPA, accurately captures several key issues and mechanisms of policymaking and the policy content in the Lead City Program.

Second, the analysis revealed interesting overlaps and interlinkages of both conceptual approaches, which have not been covered by literature so far. Focusing on the design and ex-ante evaluation of the policy packages, the study sheds light on the complexity of actor involvement in the policy-making process. The ex-ante evaluation of primary measures and the subsequent selection of ancillary measures was influenced by many actors within and beyond municipalities and federal state-level organizations. The policy package process reveals a channeling pattern where actors having very different interests and expertise are streamlined by setting, assessing, and evaluating impact criteria for policy measures. MSF, in parallel, helps to identify driving forces and limitations by analytically separating the streams in order to be able to better identify stream-related actors involved as well as enabling certain issues during the agenda-setting and policy-selection process. Our approach of combining MSF with PPA seems a convincing research design to better understand the dynamics and complexities of real-world policymaking in a multi-level governance environment. At a practical level, the analysis provides lessons for the further conceptual development of PPA and for the process of policy packaging itself. Therefore, the combined approach may provide essential scientific policy advice for decision makers in order to achieve evidence-based and socially responsive policymaking.

Third, the study revealed that the Lead City Program provided the perfect framework conditions for streams analysis for better air quality. It needs to be stressed that the Lead City Program basically served as a multiple-streams-coupling facilitator. The Lead City Program provided the basic starting conditions for a stream-coupling mechanism. It provided a showcase for publicly handling air pollution problems in much-affected cities, it gave the Lead Cities the freedom of choice regarding the best suitable policy packaging measures, the Lead Cities' decision makers were able to choose policy options at almost no costs, it provided federal policymakers with the opportunities to set up a policy program without legislative action, and it made the policy window foreseeable

and risk-free by limiting it to a manageable time frame of two years. As such, the Lead City Program can also be seen as a rather symbolic policy initiative with very limited problem-solving capacity and short time intervals. Only if policy activities are continued, an actually sustainable long-lasting impact can be expected in terms of emissions savings.

In summary, we propose a combination of MSF and PPA for the analysis of evolving policy measures (and packages). The findings have shown that PPA is used by Lead Cities to bundle policy packages for the practical implementation of urban transport policy. In contrast to the theory, however, the empirical data shows that no systematic ex-ante assessment of the measures took place. The analysis of the problem stream illustrates that program-related time pressure due to tight submission deadlines was the main reason for this. However, it becomes clear that MSF and PPA are mutually linked with the streams approach indicating the polity need for action and the PPA approach indicating the policy need for action. The resource for problem-solving is closely linked to the instrumental policy dimension of the PPA approach. The process-oriented MSF approach is, in our opinion, enriched with the PPA approach by focusing on the perspective of problem-solving policy options, which focuses on increasing the impact of packaging procedures. This also needs to be theoretically considered in future research.

Author Contributions: Conceptualization: L.S.; theory and methodology: L.S. and C.I.; collection of interview materials: L.S., C.I., and D.S.; empirical data analysis: L.S., C.I., and D.S.; writing—original draft preparation: L.S., C.I., and D.S.; writing—review and editing: L.S., D.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the German Ministry of Education and Research (BMBF) through the project ENavi (grant number 03SFK4P1).

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Acknowledgments: We are grateful for the financial support of this work from the German Ministry of Education and Research (BMBF) through the ENavi project (grant number 03SFK4P1), and we acknowledge support by the KIT-Publication Fund of the Karlsruhe Institute of Technology. In addition, we especially thank all interview partners for their willingness to participate in this study. The sole responsibility for this paper lies with the authors.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study, collection, analyses, interpretation of data, writing of the manuscript, or the decision to publish the results.

References

1. European Commission (EC). Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air for Europe. 2008. Available online: https://eur-lex.europa.eu/legal-content/de/ALL/?uri=CELEX:32008L0050 (accessed on 8 October 2020).
2. European Commission (EC). Air quality: Commission Takes Action to Protect Citizens from Air Pollution. Press release from 17 May 2018, Brussels. Available online: https://ec.europa.eu/commission/presscorner/detail/en/IP_18_3450 (accessed on 10 October 2020).
3. SRU. Time to Take a Turn: Climate Action in the Transport Sector. Summary, November 2017. 2017. Available online: https://www.umweltrat.de/SharedDocs/Downloads/EN/02_Special_Reports/2016_2020/2018_04_special_report_transport_sector_summary.pdf?__blob=publicationFile&v=20 (accessed on 8 October 2020).
4. Arnold, A.; Bangert, A.; Dreyer, M.; Schmieder, L.; Scheer, D.; Schmidt, M. *Die Transformation des Verkehrssystems mit Fokus auf Policy Packages*; Scheer, D., Ed.; KIT: Karlsruhe, Germany, 2019; Available online: https://publikationen.bibliothek.kit.edu/1000100204/48898878 (accessed on 8 October 2020). [CrossRef]
5. Banister, D. Cities, mobility, and climate change. *J. Transp. Geogr.* **2011**, *19*, 1538–1546. [CrossRef]
6. Schippl, J.; Arnold, A. Stakeholders' Views on Multimodal Urban Mobility Futures: A Matter of Policy Interventions or Just the Logical Result of Digitalization? *Energies* **2020**, *13*, 1788. [CrossRef]
7. Kern, F.; Kivimaa, P.; Martiskainen, M. Policy packaging or policy patching? The development of complex energy efficiency policy mixes. *Energy Res. Soc. Sci.* **2017**, *23*, 11–25. [CrossRef]
8. Kessler, F.; Vesela, J.; Vencl, V.; Strnadova, D.; Sørensen, C.H.; Schippl, J.; Longva, F.; Ramjerdi, F.; Osland, O.; Givoni, M.; et al. Best practice in policy package design. In OPTIC. Optimal Policies for Transport in Combination: 7th Framework Programme:

Theme 7 Transport (Chapter Deliverable 4). 2010. Available online: http://optic.toi.no/deliverables/category1186.html (accessed on 10 October 2020).
9. Meckling, J.; Sterner, T.; Wagner, G. Policy sequencing toward decarbonization. *Nat. Energy* **2017**, *2*, 918–922. [CrossRef]
10. OECD. Instrument Mixes for Environmental Policy. 2007. Available online: http://www.oecd-ilibrary.org/environment/instrument-mixes-for-environmental-policy_9789264018419-en (accessed on 8 October 2020).
11. Pahle, M.; Burtraw, D.; Flachsland, C.; Kelsey, N.; Biber, E.; Meckling, J.; Edenhofer, O.; Zysman, J. Sequencing to ratchet up climate policy stringency. *Nat. Clim. Chang.* **2018**, *8*, 861–867. [CrossRef]
12. Rogge, K.; Reichhardt, K. Policy mixes for sustainability transitions: An extended concept and framework for analysis. *Res. Policy* **2016**, *45*, 1620–1635. [CrossRef]
13. Sørensen, C.H.; Isaksson, K.; Macmillen, J.; Åkerman, J.; Kressler, F. Strategies to manage barriers in policy formation and implementation of road pricing packages. *Transp. Res. Part A* **2014**, *60*, 40–52. [CrossRef]
14. SRU. Umweltgutachten 2008—Umweltschutz im Zeichen des Klimawandels. 2008. Available online: https://www.umweltrat.de/SharedDocs/Downloads/DE/01_Umweltgutachten/2008_2012/2008_Umweltgutachten_BTD.html (accessed on 8 October 2020).
15. Tønnesen, A. Policy packages and state engagement: Comparing car-use reduction policy in two Norwegian cities. *J. Transp. Geogr.* **2015**, *46*, 89–98. [CrossRef]
16. Givoni, M.; Macmillen, J.; Banister, D. From Individual Policies to Policy Packaging. Submission to European Transport. Conference 2010. Available online: https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.683.1293&rep=rep1&type=pdf (accessed on 10 October 2020).
17. Givoni, M.; Macmillen, J.; Banister, D.; Feitelson, E. From policy measures to policy packages. *Transp. Rev.* **2013**, *33*, 1–20. [CrossRef]
18. Givoni, M. Addressing transport policy challenges through Policy-Packaging. *Transp. Res. Part A* **2014**, *60*, 1–8. [CrossRef]
19. Justen, A.; Fearnley, N.; Givoni, M.; Macmillen, J. A process for designing policy packaging: Ideals and realities. *Transp. Res. Part A* **2014**, *60*, 9–18. [CrossRef]
20. Kingdon, J.W. *Agendas, Alternatives, and Public Policies*; Longman: New York, NY, USA, 1984.
21. Cairney, P.; Zahariadis, N. Multiple streams approach: A flexible metaphor presents an opportunity to operationalize agenda setting processes. In *Handbook of Public Policy Agenda Setting*; Zahariadis, N., Ed.; Edward Elgar Publishing: Cheltenham, UK, 2016; pp. 87–105.
22. Magro, E.; Wilson, J.R. Policy-mix evaluation: Governance challenges from new place-based innovation policies. *Res. Policy* **2019**, *48*, 1–10. [CrossRef]
23. European Commission (EC). Beschluss der Kommission vom 4.8.2014 Betreffend die Erneute Mitteilung der Bundesrepublik Deutschland über die Verlängerung der Frist für das Erreichen der NO2-Grenzwerte in fünf Luftqualitätsgebieten. 2014. Available online: https://ec.europa.eu/environment/air/quality/legislation/pdf/NO2_DE3_DE.pdf (accessed on 8 October 2020).
24. Cairney, P. Standing on the Shoulders of Giants: How Do We Combine the Insights of Multiple Theories in Public Policy Studies? *Policy Stud. J.* **2013**, *41*, 1–21. [CrossRef]
25. Ackrill, R.; Kay, A. Multiple streams in EU policy-making: The case of the 2005 sugar reform. *J. Eur. Public Policy* **2011**, *18*, 72–89. [CrossRef]
26. Zohlnhöfer, R.; Rüb, F.W. Decision-making under ambiguity and time constraints. In *Assessing the Multiple-Streams Framework*; ECPR Press: Colchester, UK, 2016.
27. Béland, D.; Howlett, M. The Role and Impact of the Multiple-Streams Approach in Comparative Policy Analysis. *J. Comp. Policy Anal. Res. Pract.* **2016**, *18*, 221–227. [CrossRef]
28. Blum, S. The multiple-streams framework and knowledge utilization: Argumentative couplings of problem, policy, and politics issues. *Eur. Policy Anal.* **2018**, *4*, 94–117. [CrossRef]
29. Derwort, P.; Newig, J.; Jager, N. Using the Multiple Streams Framework and the Multi-Level Perspective on Sustainability Transitions to Explain Policy Transformation: The Case of the German Energiewende. 2018. Available online: https://ecpr.eu/Filestore/PaperProposal/20728672-5a59-4619-9f87-073020a7375f.pdf (accessed on 8 October 2020).
30. Herweg, N.; Huß, C.; Zohlnhöfer, R. Straightening the Three Streams: Theorizing Extensions of the Multiple Streams Framework. *Eur. J. Political Res.* **2015**, *54*, 435–449. [CrossRef]
31. Howlett, M.; McConnell, A.; Perl, A. Moving Policy Theory Forward: Connecting Multiple Stream and Advocacy Coalition Frameworks to Policy Cycle Models of Analysis. *Aust. J. Public Adm.* **2017**, *76*, 65–79. [CrossRef]
32. Knaggård, Å. The Multiple Streams Framework and the problem broker. *Eur. J. Polit. Res.* **2015**, *54*, 450–465. [CrossRef]
33. Zahariadis, N. The multiple streams framework: Structure, limitations, prospects. In *Theories of the Policy Process*, 2nd ed.; Sabatier, P.A., Ed.; Westview Press: Boulder, CO, USA, 2007; pp. 65–92.
34. Jones, M.D.; Peterson, H.L.; Pierce, J.J.; Herweg, N.; Bernal, A.; Raney, H.L.; Zahariadis, N. A River Runs Through It: A Multiple Streams. Meta-Review. *Policy Stud. J.* **2016**, *44*, 13–36. [CrossRef]
35. May, A.D.; Kelly, C.; Shepherd, S.; Jopson, A. An option generation tool for potential urban transport policy packages. *Transp. Policy* **2012**, *20*, 162–173. [CrossRef]
36. Tuominen, A.; Tapio, P.; Varho, V.; Järvi, T.; Banister, D. Pluralistic backcasting: Integrating multiple visions with policy packages for transport climate policy. *Futures* **2014**, *60*, 41–58. [CrossRef]

37. Storch, S.; Winkel, G. Coupling climate change and forest policy: A multiple streams analysis of two German case studies. *For. Policy Econ.* **2013**, *36*, 14–26. [CrossRef]
38. Howlett, M.; Ramesh, M. *Studying Public Policy: Policy Cycles and Policy Subsystems*, 2nd ed.; Oxford University Press: Oxford, UK, 2003.
39. Rosenow, J.; Kern, F.; Rogge, K. The need for comprehensive and well targeted instrument mixes to stimulate energy transitions: The case of energy efficiency policy. *Energy Res. Soc. Sci.* **2007**, *33*, 95–104. [CrossRef]
40. Hansjürgens, B. Instrumentenmix in der Klima-und Energiepolitik: Welche Herausforderungen stellen sich? *Wirtschaftsdienst* **2012**, *92*, 5–11. [CrossRef]
41. Taeihagh, A.; Bañares-Alcántara, R.; Givoni, M. A virtual environment for the formulation of policy packages. *Transp. Res. Part A* **2014**, *60*, 53–68. [CrossRef]
42. Justen, A.; Schippl, J.; Lenz, B.; Fleischer, T. Assessment of policies and detection of unintended effects: Guiding principles for the consideration of methods and tools in policy-packaging. *Transp. Res. Part A Policy Pract.* **2014**, *60*, 19–30. [CrossRef]
43. Wicki, M.; Fesenfeld, L.; Bernauer, T. In search of politically feasible policy-packages for sustainable passenger transport: Insights from choice experiments in China, Germany, and the USA. *Environ. Res. Lett.* **2019**, *14*, 084048. [CrossRef]
44. Cohen, M.D.; March, J.G.; Olsen, J.P. A garbage can model of organizational choice. *Adm. Sci. Q.* **1972**, *17*, 1–25. [CrossRef]
45. Garrelts, H.; Birner, R.; Wittmer, H. *Policy-Windows for the Declaration of Protected Areas—A Comparative Case Study of East Germany and Guatemala*; Markussen, M., Ed.; Valuation and conservation of biodiversity, Interdisciplinary perspectives on the convention on biological diversity; with 34 tables; Springer: Berlin, Germany, 2005; Volume 17, pp. 65–83.
46. Howlett, M. Predictable and unpredictable policy windows: Institutional and exogenous correlates of Canadian federal agenda-setting. *Can. J. Political Sci.* **1998**, *31*, 495–524. [CrossRef]
47. Howlett, M.; Rayner, J. Patching vs packaging in policy formulation: Assessing policy portfolio design. *Polit. Gov.* **2013**, *1*, 170–182.
48. Falkenberg, E. Luftreinhalteplanung in NRW und Beispiele für PM10 und NO_2. In *Gesellschaft für Umweltrecht (Hrsg.): Dokumentation zur 29. Wissenschaftlichen Fachtagung der Gesellschaft für Umweltrecht e. V. Berlin 2005*; Erich Schmidt: Berlin, Germany, 2006; pp. 107–122.
49. Umweltbundesamt (UBA). NO2-Grenzwertüberschreitungen 2017. 2018. Dessau-Roßlau. Available online: https://www.umweltbundesamt.de/sites/default/files/medien/2546/dokumente/no2-ueberschreitungen_staedte_stand_18.01.2019.pdf (accessed on 8 October 2020).
50. Glaser, B.G.; Strauss, A.L. *The Discovery of Grounded Theory: Strategies for Qualitative Research*; Aldine De Gruyter: New York, NY, USA, 1967.
51. Patton, M. *Qualitative Evaluation and Research Methods*, 2nd ed.; Sage: Newbury Park, CA, USA, 1990.
52. Reiter, B. Theory and Methodology of Exploratory Social Science Research. *Int. J. Sci. Res. Methodol.* **2017**, *5*, 129–150.
53. Stebbins, R.A. *Exploratory Research in the Social Sciences*; Sage: Thousand Oaks, CA, USA, 2001.
54. Meuser, M.; Nagel, U. Das Experteninterview—Wissenssoziologische Voraussetzungen und methodische Durchführung. In *Handbuch Qualitative For-schungsmethoden in der Erziehungswissenschaft*; Friebertshäuser, B., Prengel, A., Eds.; Opladen: Westdt. Verl, Germany; Basel, Switzerland, 1997; pp. 481–491.
55. Merton, R.K.; Fiske, M.; Kendall, P.L. *The Focused Interview: A Manual of Problems and Procedures*; The Free Press: Glencoe, Illinois, USA, 1956.
56. Dorussen, H.; Lenz, H.; Blavoukos, S. Assessing the reliability and validity of expert interviews. *Eur. Union Politics* **2005**, *6*, 315–337. [CrossRef]
57. Bogner, A.; Littig, B.; Menz, W. (Eds.) *Interviewing Experts*; Research Methods Series; Palgrave Macmillan: London, UK, 2009.
58. Kuckartz, U.; Rädike, S. *Analyzing Qualitative Data with MAXQDA*; Springer International Publishing: Cham, Switzerland, 2019.
59. Mayring, P. Qualitative content analysis. In *A Companion to Qualitative Research*; Flick, U., Kardorf, E.V., Steinke, I., Eds.; Sage: London, UK, 2004; pp. 266–269.
60. Berger, P.L.; Luckmann, T. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*; Anchor Books: Garden City, NY, USA, 1966.
61. European Commission (EC). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Europe that Protects: Clean Air for All. 2018. Available online: http://ec.europa.eu/environment/air/pdf/clean_air_for_all.pdf (accessed on 8 October 2020).
62. Deutsche Umwelthilfe (DUH). Legal Actions for Clean Air. Background Paper. Klagen für Saubere Luft. Hintergrundpapier | 25.11.2019. 2019. Available online: https://www.duh.de/fileadmin/user_upload/download/Projektinformation/Verkehr/Luftreinhaltung/Right-to-Clean-Air_Europe_Backgroundpaper_EN.pdf (accessed on 8 October 2020).
63. Deutsche Umwelthilfe (DUH). Saubere Luft in Reutlingen: Deutsche Umwelthilfe gewinnt Klage Gegen Land Baden-Württemberg–Gericht Hält Diesel-Fahrverbote zur Schnellstmöglichen Grenzwerteinhaltung für Notwendig. Berlin. Resch, Jürgen; Klinger, Remo. 2019. Available online: https://www.duh.de/presse/pressemitteilungen/pressemitteilung/saubere-luft-in-reutlingen-deutsche-umwelthilfe-gewinnt-klage-gegen-land-baden-wuerttemberg-gericht/ (accessed on 8 October 2020).
64. Stuttgarter Zeitung. Verdruss über Fahrverbote wächst: Umfrage von STZ und SWR, article published 28. March 2019. 2019. Available online: https://www.stuttgarter-zeitung.de/inhalt.umfrage-von-stz-und-swr-verdruss-ueber-fahrverbote-waechst.a6e41660-b2ff-4b22-9b66-6b60253828ee.html (accessed on 8 October 2020).

65. BMU. Meldung "Treffen von Bundesumweltministerin Barbara Hendricks mit EU-Umweltkommissar Karmenu Vella am 30. Januar in Brüssel". 2018. Available online: https://www.bmu.de/meldung/treffen-von-bundesumweltministerin-barbara-hendricks-mit-eu-umweltkommissar-karmenu-vella-am-30-jan/ (accessed on 8 October 2020).
66. BMU. Übersicht zu den übermittelten Projektskizzen der Modellstädte. Stand: 10.08.2018. 2018. Available online: https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Luft/modellstaedte_projektsskizzen_uebersicht_bf.pdf (accessed on 8 October 2020).