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Landscape Conflicts—A Theoretical Approach Based on the Three Worlds Theory of Karl Popper and the Conflict Theory of Ralf Dahrendorf, Illustrated by the Example of the Energy System Transformation in Germany

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Received: 26 June 2020; Accepted: 13 August 2020; Published: 20 August 2020

Abstract: On the basis of Karl Popper's Three Worlds Theory, a theoretical approach to landscape can be derived, which includes the physical foundations of landscape (Landscape 1), the individual construction and emotions drawn from and placed upon landscape (Landscape 2), and social conventions regarding landscape (Landscape 3). These three landscape dimensions are connected via Landscape 2, which also provides an approach for the systematic investigation of the relations between the dimensions. Ralf Dahrendorf's conflict theory in turn serves as a theoretical framework for when the different connections develop in a conflictual way and how these can be regulated. Dahrendorf sees a principled productivity of conflicts, providing they are settled fairly. On the basis of the conditions he has developed for just such a conflict settlement, the implementation of the energy system transformation is examined against the background of its consequences for the landscape, with the result that essential conditions for an orderly settlement of conflicts are not fulfilled, thereby contributing to the polarization of society.

Keywords: Three Worlds Theory; conflict theory; energy system transformation; wind power; conflict; Karl Popper; Ralf Dahrendorf

1. Introduction

Landscape conflicts have been the subject of scientific research for quite some time (among many: [1–3]). Particularly with the physical manifestation of the energy system transformation, conflicts over landscape have taken on new topicality [4–9]. The present paper is concerned with the investigation of the origin, the course, and the intensity of landscape conflicts. In the following, landscape is first of all understood as a social construction (socially shared interpretations and evaluations), which is individually updated and projected by the individual into physical spaces. Landscape conflicts are understood to be conflicts that arise from different interpretations, evaluations, and demands on landscape, from the relationships between individuals and social interpretations and evaluations, between individual interpretations, evaluations and demands on physical spaces, and that are carried out between individuals (i.e., supra-individual). Conflicts arise when the physical manifestations of the energy system transformation deviate from collective or individual notions of landscape. In order to be able to understand the conflictive relationships between the material world and individual and societal ideas, two theoretical approaches will be used in the following: The Three Worlds Theory of the philosopher and science theorist Karl Popper (1904–1994; [10,11]) and the conflict theory of the sociologist, and Popper student, Ralf Dahrendorf (1929–2009; [12,13]). The Three Worlds Theory serves as a basis for the analytical differentiation of landscape into different levels as well as the

various connections of the different levels. The conflict theory of Ralf Dahrendorf, in turn, serves as a theoretical framework should the different connections develop in a conflictual way and illustrates how these can be regulated. The central approach of the essay is to emphasize in the first step in which form landscape conflicts within and between individual constructions and social conventions based on observation (especially changes) in material space develop. In the second step, the question of how landscape conflicts can be regulated is addressed. Since conflicts over landscape take place on the three levels mentioned above (and between them), the understanding of conflicts over landscape proposed here is a combination of the two theories. This involves a sociological operationalization of Karl Popper's philosophy, which follows in the tradition of Popper's student Ralf Dahrendorf, who in numerous publications classified Popper's world of thought into social and political science questions.

The presentation of landscape conflicts is based on the example of the energy system transformation in Germany, which has been pushed forward by changing governments at least since the reactor disaster in Fukushima [14,15]. Here the quintessence of numerous, mostly empirical studies on conflicts in the context of energy system transformation in Germany and their classification in the theoretical framework described above is presented. The conclusion deals with the question of the extent to which the chosen theoretical frameworks are suitable for contributing to the understanding of landscape conflicts, in particular, and landscape processes in general (with focused reference to Karl Popper's Three Worlds Theory).

2. The Theoretical Framework I: Landscape framed with Karl Popper's Three Worlds theory

When we speak of 'landscape', it is usually understood as an object, in the course of increasing significance of constructivist perspectives, but also as a social construction—and more rarely, an individual construction. The discomfort with this dualistic world view brought non-representational theories into landscape research, such as actor–network theory, assemblage theory, and even an update of phenomenology (among many: [16–18]). The following approach to landscape research based on Karl Popper's Three Worlds Theory can also be placed in this context [19,20].

Karl Popper describes 'World 1' as a world of living and non-living bodies. With 'World 2' he describes the content of consciousness, individual thoughts, and feelings. With 'World 3', "all planned or intended products of human mental activity" [11]. The 'reality' of these three worlds is not strictly separated, but rather hybrid, so a building is part of both 'World 1' and 'World 3'. With this approach, Popper sought to create an alternative to the materialistic worldview that only recognizes 'World 1', the immaterialistic worldview that only recognizes 'World 2', as well as the dualistic worldview that recognizes 'Worlds 1 and 2' as 'real', by adding 'World 3', "the world that anthropologists call 'culture' [11]. The abstract entities of world 3 (including scientific theories, concepts, mathematical formulas, but also socially shared ideas about certain "things") have an effect on world 2 (socialization) and, via the individual world 2, also on world 1 (see Figure 1). Karl Popper's Three Worlds Theory became partly the subject of fierce criticism. In the approach presented here, the division into three worlds (later three landscapes) serves as an analytical basis for understanding social conflicts, so the criterion for the use of the theory is less on ontological truth but rather on analytical suitability for explaining landscape conflicts (which ultimately take place between the worlds). The criticism that Popper's approach does not separate the worlds categorically enough can also be seen as of little relevance for landscape research, as this often deals with the hybrid formations of 'landscapes' (see in this complex of topics: [16–19]).

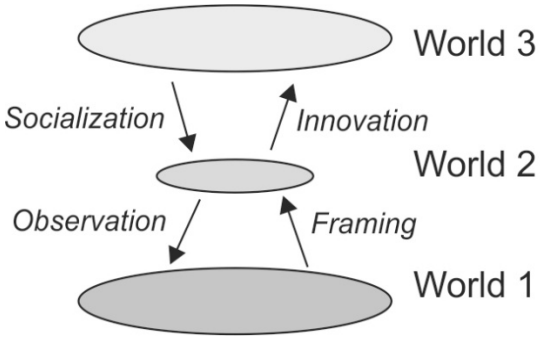

Figure 1. The three worlds of Karl Popper and their connections to each other. Central importance is therefore given to world 2 (own illustration).

Popper's terminology applied to landscape can be understood as Landscape 3 as the social construction of landscape, Landscape 2 as individual conceptions and attributions, and Landscape 1 as the physical objects used for the social or individual construction of landscape. The three landscapes are interdependent: Essential components of Landscape 2 are conveyed from Landscape 3, since only in part do direct experiences of Landscape 1 form the basis for the formation of Landscape 2; rather, it is to a large extent the subject of the socialization of social ideas, interpretations, and evaluations (see here among many others: [21–23]). Through the mediation of Landscape 2, because only individuals have a body (as part of World 1), Landscape 3 also has an effect on Landscape 1; people inscribe their ideas onto physical spaces. Landscape 2 does not only act on Landscape 1 as a transmission belt of the patterns of imagination, interpretation, and evaluation of Landscape 3; Landscape 2 can act on Landscape 3 by formulating alternative interpretations, evaluations, and ideas, including the possibility of anchoring them there (see here in general: [24,25], illustration: Figure 2).

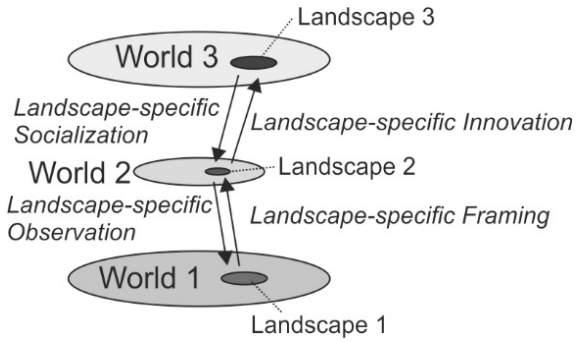

Figure 2. The landscapes 1, 2, and 3 as parts of the worlds 1, 2, and 3, as well as the landscape specific connections between the landscapes 1, 2, and 3 (own illustration).

As it turns out: Landscapes 1, 2, and 3 are not only changeable, they are constitutively dependent on change. Without natural processes and societal changes, there would be no Landscape 1, as Landscape 2 evolves and changes in relation to Landscapes 1 and 2, and in recent decades the processes of change as well as the differentiation of Landscape 3—not least in feedback with the processes of change within Landscape 1—have moved into the center of scientific interest (among many: [26,27]), whereby Landscape 3 is subject to clear cultural differences [28,29].

The Landscapes 1, 2, and 3 can be further differentiated in terms of their origin. They are designated with the suffix letters a, b, and c (in extension of [24,30]). The classification according to letters shown here is derived inductively from empirical studies (quantitative, but especially qualitative: [26,31–33]). These are the 'native normal landscape' (suffix a), the 'stereotypical' or 'common-sense landscape' (suffix b), and 'expert special knowledge' on landscape (suffix c). The 'native normal landscape', as Landscape 2a, is created in one's initial landscape experiences, but also in the form of an individual

'landscape biography' through different confrontations with different Landscapes 1, through changes of residence, travelling, and experiences in the virtual world, etc. [34–36]. If Landscape 2a is generalized, e.g., by sharing it with others, Landscape 3a' is created, the single apostrophe (') denotes the derivation, i.e., the creation of this sub-landscape does not occur primarily on this level. Landscape 2b' denotes the individual expression of the common-sense understanding that is Landscape 3b of landscape, which is conveyed in school lessons, through feature films and documentaries, literature, the Internet, and so forth. Here, the individual learns how to describe and evaluate World 1 as a 'landscape' without having to fear the loss of social recognition. [23,37,38]. A selective aspect of the individual development of Landscape 2 is the incorporation of 'expert special knowledge' in the form of vocational training and especially scientific studies (Landscape 3c; [35]), whereby Landscape 2c' is created. It is precisely in this context that persons as bearers of Landscape 2c' are able to influence Landscape 3c (this essay is an attempt to do so). According to the terminology used here, Landscape 2c" emerges from this feedback as a double derivation (Figure 3).

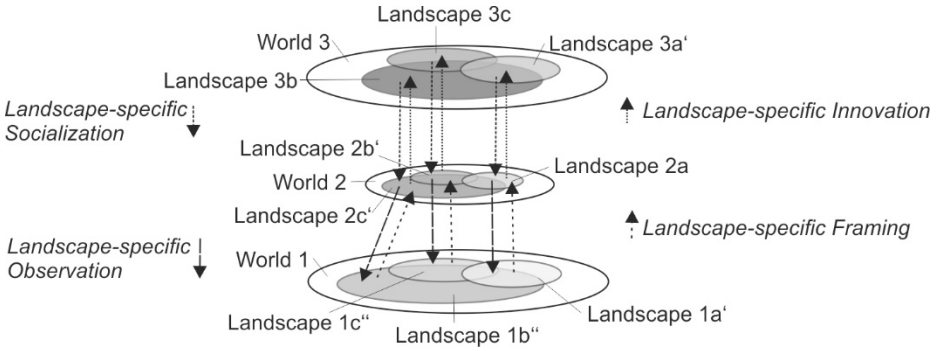

Figure 3. The differentiated construction of landscape from elements native normal landscape—a, stereotype—sustainability-915708 - added rev, and in relation to expert special knowledge—c on the levels of Landscapes 1, 2, and 3. Additionally, derivations (') and double derivations (") are listed, whereby also the constitutive levels become clear (own illustration).

Landscape 2 represents—in its various manifestations—the central element of the connection between Landscape 3 and Landscape 1, but also between Landscape 3 and Landscape 2a via Landscape 2, and Landscape 1 is only perceived by those who have learned to make it accessible to it, i.e., who have developed Landscape 2a, into which Landscape 3b and perhaps 3c have been introduced. However, the patterns of interpretation of Landscape 3 do not give birth to themselves but are dependent on the actualization generated by the bearers of Landscape 2.

Two things become clear from these remarks: Landscape change does not only take place on the three levels of landscape, but the changes in the relationships between Landscape 2 and Landscape 1, and between Landscape 2 and Landscape 3, also have a constitutive significance. These changes are not only normal, but often conflictual, as different norms, interpretations, and valuations of landscape compete with each other. The great importance given to the individual illustrates the liberal foundational position of the approach, combined with the preference for a society that is open to change [39] and open to the productivity of conflicts, thus anticipating a central element of Ralf Dahrendorf's conflict theory.

3. The Theoretical Framework II: The Conflict Theory of Ralf Dahrendorf

The conflict theory of Ralf Dahrendorf deals with social conflicts [12] "A conflict should be called social when it can be derived from the structure of social units, i.e., when it is supra-individual". Ralf Dahrendorf develops his conflict theory in contrast to the structural functionalism of Talcott Parsons [40] and the historical materialism of Karl Marx [41] as an operationalization of Karl Popper's remarks on the open society. The implied social model of structural functionalism—as Dahrendorf

criticizes [42]—is "a relatively stable system of parts whose function is determined in relation to the system", whereby it is critical of change and evaluates social conflicts as principally dysfunctional. The rejection of this position is based, following Karl Popper, on a socio-political basic position: "Liberalism is necessarily a philosophy of change" [25]. Dahrendorf associates the principally positive interpretation of conflictual social change with Marx, but he rejects Marx' focus on revolutions, as they are always associated with bloodshed, which—here he again follows Karl Popper —must be avoided. He also rejects Marx's teleological notion of a utopian final society. Referring to Karl Popper, he formulates the difficulty of designing the future as follows: Whenever human beings "design the future—and designing the future is perhaps one of the great human tasks—we make an attempt, which can also be a mistake" [43], which ultimately means that as many answers as possible to the questions of the time should be made available, both politically and scientifically [11,44].

Ralf Dahrendorf's conflict theory appears to be particularly suitable for the theoretical framing of landscape conflicts for several reasons: It focuses on social conflicts (i.e., supra-individual conflicts) within societies and deals with hierarchical conflicts as well as conflicts between groups with similar power structures. In doing so, it shows a high degree of actualization: Although the basic features of Dahrendorf's conflict theory date back to the 1950s, he updated it repeatedly until his death in 2009 and used it to interpret more recent conflicts (such as the Northern Ireland conflict). In addition, he anticipated aspects of more recent conflict theories (such as postmodern ones) by pointing out the creation of identity through conflict in the early stages of the development of his conflict theory (see in this context: [45–48]).

Dahrendorf recognizes a central element of society in social conflicts: "The thought that there is conflict may be unpleasant and disturbing wherever we find social life: it is nevertheless inevitable for our understanding of social problems" [42]. In this respect, social conflicts are embedded in a structure of social change, the possible influence of individuals and power, because:

1. Every society is subject to constant and universally present change (ubiquity of change).
2. Every society knows social conflicts (ubiquity of the conflict).
3. Each member of the society contributes to the change of the society (ubiquity of productivity).
4. Every society is characterized by power relations in which members of the society exercise power over other members (ubiquity of domination; e.g., [12,45,46]).

Social conflicts follow a regularity. Dahrendorf identifies three phases of conflict development [12]:

- The emergence of the structural starting position. Subsets in society, which he calls 'quasi-groups', have the same latent interests. By 'latent interests' he means "all position-related behavioral orientations (role expectations), which establish a contradictory relationship between two aggregates of positions without the bearers of the positions necessarily being aware of it" [49].
- The awareness of latent interests. Here a group formation takes place, which is coupled with an increasing presence to the outside, because "every social conflict pushes to the outside, to the visible precipitation" [12].
- The organized nature of the conflict. The organized parties to the conflict "with a visible identity of their own" [12] The conflict takes on a dichotomized structure, and the pros and cons do not tolerate differentiation.

Conflicts vary according to 'intensity' and 'violence' [12]. Intensity refers to the social relevance of the conflict: "It is high when a lot depends on it for the parties involved, i.e., when the costs of defeat are high" [12]. The degree of violence, on the other hand, ranges from a non-binding discussion to a world war. As explained above, Dahrendorf (following Popper) aims to keep the brutality of conflicts low on the one hand, and to increase their potential for enhancing life chances on the other hand, whereby he understands life chances "first of all as chances of choice, options. They demand two things, rights of participation and an offer of activities and goods to choose from" [21]. Those choices must be connected to meaning. With regard to dealing with conflicts, three possibilities can be found [12,13].

The suppression of conflicts is connected with the fact that the conflicts cannot be applied, which increases their intensity and subsequently they break out violently. The solution of conflicts would mean to eliminate their social causes (especially the unequal distribution of power), which would be utopian and therefore also rejected by Dahrendorf. Dahrendorf favors the third way of dealing with conflicts—their settlement. The successful resolution of conflicts depends on four preconditions and two institutional frameworks: Firstly, the conflict contradictions must be recognized as a legitimate dimension of normality, not as a state contrary to the norm. Secondly, conflict resolution refers to the characteristics of the conflict, not to its causes. The efficiency of conflict resolution is positively influenced by a high degree of organization of the conflict parties (third). Fourthly, the success of conflict resolution depends on compliance with certain rules. These rules must not favor any of the conflicting parties, i.e., the conflicting parties are to be regarded as equal (therefore certain pre-defined procedural rules must be observed). The institutional framework describes (firstly) the existence of a third party that, on the one hand, makes generally binding rules on how to deal with conflicts and, on the other hand, has the possibility of ending the conflict externally if necessary: Dahrendorf [50] describes this as "freedom under the protection of the law". A second institutional prerequisite is the imputation of responsibility for decisions, in liberal democracy in particular the regular review of the satisfaction of the elected representatives' management record by the electorate [51].

In the context of the modernization of society, marked by greater individualization and differentiation, the tendency to approach things rationally, the increasing appreciation of the person, the increase in social prosperity, and so forth, the reduction in the importance of 'great' social conflicts (such as the class struggle of Marx) that took place with great intensity and brutality, and a multitude of micro-conflicts with limited intensity and brutality ([13,52,53]; a more detailed presentation and classification of Dahrendorf's conflict theory can be found at: [48,54–56]).

This theoretical framework for Landscapes 1, 2, and 3 (based on Karl Popper) and Ralf Dahrendorf's conflict theory will form the framework for the analysis of landscape conflicts in the context of the energy system transformation (especially in Germany).

4. Landscape Conflicts in the Energy System Transformation

In recent years energy landscapes have been [57], not only in Germany, the subject of intensive conflicts, which are often rooted in the different patterns of interpretation and evaluation applied to Landscape 1. But before these are subjected to a more intensive examination, it is necessary to outline some basic features of energy system transformation in Germany in order to establish the political context of the conflicts surrounding energy system transformation and their relation to landscape.

The concept of 'energy system transformation' was made discursive by a book from the Öko-Institut Freiburg in 1980 entitled "Energiewende: Growth and prosperity without oil and uranium" [58]. With the introduction of the Electricity Supply Act of 1990, the systematic expansion of renewable energies began, the Renewable Energy Sources Act in 2000 accelerated the expansion and the phase-out of nuclear energy, approved in the same year, making the expansion of renewable energies even more urgent [15,59,60] whereby nuclear power plant operators were granted an extension of the operating life of nuclear power plants in 2010 of 8 years (for older) and 14 years (for younger) [53,61,62]. Following the reactor disaster in Fukushima (Japan) in March 2011, it was decided to phase-out nuclear power as part of the energy supply by 2022, but the targets for implementing energy system transformation are more ambitious: renewable energies are to account for 40–45% of gross electricity consumption by 2025 and 55–60% by 2035 [63]. In the past 20 years, the share of renewable energies, especially wind power, has increased massively in Germany (Figure 4), which is associated with significant changes in Landscape 1.

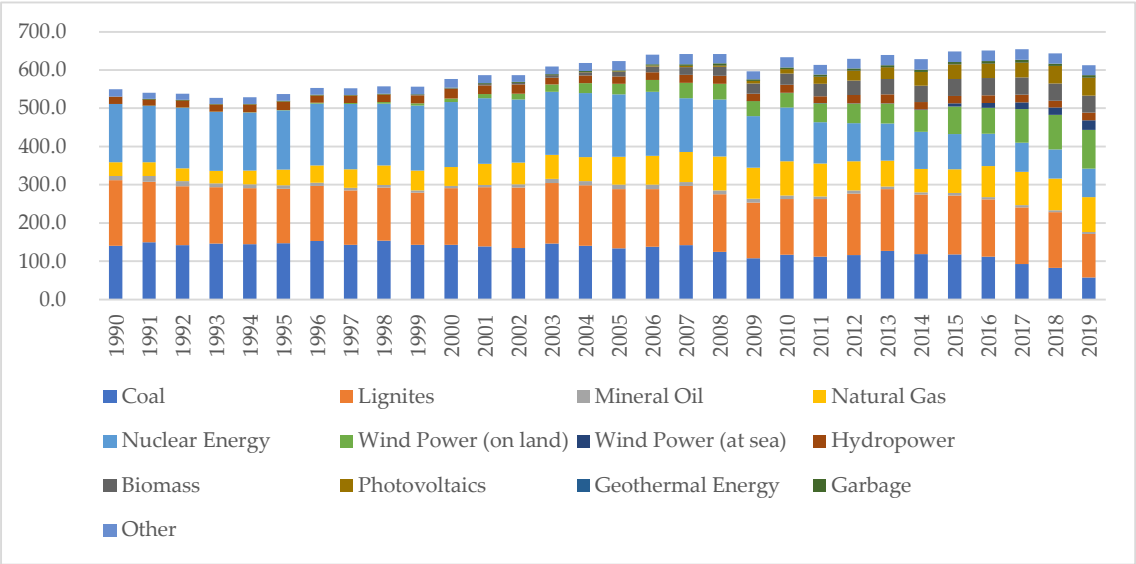

Figure 4. Gross electricity generation by energy source—in TWh in Germany between 1990 and 2019. (own illustration; data basis: Bundesministerium für Wirtschaft und Energie [64]).

However, these changes in Landscape 1 are not limited to the presence of wind power plants, because the energy transition means—after Fordist centralization to large power plants [65]—a renewed decentralization of energy production [66,67]. This is not evenly distributed according to renewable energy sources in Germany: In the windy north of the country, electricity generation from wind power plants dominates, while in the south, where the number of hours of sunshine is greater, there is an increased expansion of photovoltaic plants. Accordingly, the expansion of the electricity transmission networks is being driven forward, with around 8000 km of overhead or underground lines being implemented or planned as a result of the energy system transformation, combined with additional landscape-related conflicts (more [68–71]). As a result of the large physical presence in Landscape 1 of the plants for the generation and transmission of renewable electricity, the topic of landscape has a high presence in citizens' initiatives against these plants (Figure 5). The results presented here were each part of studies that dealt with the genesis, characteristics, and emergence of hegemonic discourses in relation to the expansion of plants for the generation and transmission of renewable electricity. These studies clearly show the importance of landscape norms (Landscapes 3a' and 3b) on the one hand, but also—on the basis of participant observation and qualitative interviews—the low level of political and legal operationalizability. This in turn leads to a sclerotization of the dichotomy of the conflict parties (this will be discussed in more detail later). Motives for the conservation of Landscape 1a' and 1b" are 'masked' by arguments that are accepted by the courts, especially with regard to species protection.

The changes of Landscape 1 in the context of the energy system transformation encounter not only differentiated aesthetic and normative implications, for example in Landscape 2a, 3b, and 3c, as discussed in the previous sections, but also increasing differentiation within them. In other words, demands on Landscape 1 differentiate themselves with social differentiation and individualization [65,72–74]. First to the different normative demands on Landscape 1: The normative content of Landscape 2a and—if validated by consensus—3a' is directed towards familiarity (Figure 6). The normative content of Landscape 3b and (if individually updated) 2b' is primarily directed at the observance of social aesthetic norms, secondarily at moral norms, such as 'what is good, what is natural' [75,76]. Thus, if landscape is evaluated in Landscape 2a (3a') mode, any change from and in Landscape 1 that is interpreted as significant is described as contrary to the standard. In the construction mode of Landscape 2b', however, this is only if these changes contradict stereotypical social expectations. From the perspective of Landscape 2a supra-individual Landscape 3a', the construction of a wind farm is therefore viewed critically, because it contradicts the normative stability expectations

of Landscape 1. If the interpretation is based on Landscape 3b or 3b', it does not contradict aesthetic preferences in large parts of the Central European population and is categorized as 'ugly' [77–79].

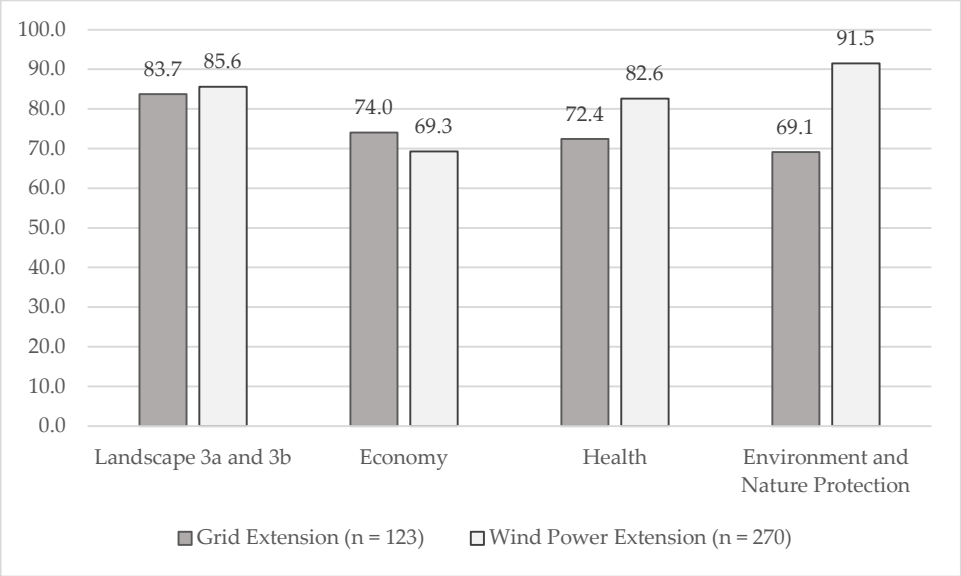

Figure 5. Percentage shares of the arguments of citizens' initiatives against the plants for the generation and transmission of renewable electricity in their websites (homepage or Facebook, own presentation based on: Kühne et al. [65]).

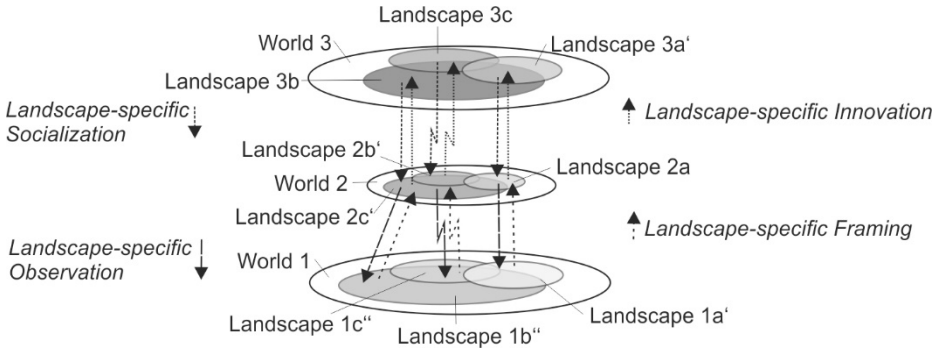

Figure 6. The difference between one's own normative conceptions (Landscape 2a) of the observation of Landscape (1a'), caused by the change of material objects. This can become a trigger for a social landscape conflict (own illustration).

The example of the physical manifestations of the energy system transformation shows very clearly how changeable the Landscapes 2a and 2a' as well as the Landscapes 3b and 3b' are [24]. The generation of Landscape 2a is based on the respective current object arrangements of Landscape 1. If wind turbines are part of these object arrangements, they become part of the individual native normal landscape and successively become part of Landscape 3a'. However, Landscapes 3b and 2b' are also subject to change, which in turn has a coupling between the aesthetic and moral content of these landscapes: A positive moral connotation means that the facilities of the energy system transformation are framed with the aesthetic evaluation pattern of 'sublimity' or cognitively attributed modernity, significantly more often by younger, non-conservative, and female sections of the population [24,79]. The different interpretation and evaluation of the facilities for the production and distribution of renewable energy is not limited to the Landscapes 2a, 3a', 3b, and 3b', but extends to the Landscapes 3c, 2c', and 3c' (Figure 7). For example, the expert advocates the erection of a wind power plant, because

the location is suitable from his scientific understanding, while the local person rejects the erection as 'destruction of the home'. A common understanding of 'desirable Landscape 1' does not exist, the goals are incompatible, a landscape conflict arises, which in future (not shown) will involve many more people. Additionally, in technical discourses these facilities are considered to be 'harmful to the landscape' (e.g., [31,71–82]), whereby often an essentialist interpretation of Landscape 1 is used, up to the recognition of the necessity to reinterpret the contents of Landscape 3b by new patterns of interpretation and evaluation in Landscape 3c (for example [83,84]; Figure 8). In comparison to the representations of opponents (in Figure 6), there is a very low representation of Landscape 3a and 3b, an indicator of the low level of agreement between Landscapes 3a and 3b compared to 3c, as shown in Figure 7. In the terminology chosen here, the study was to examine the characteristics of landscape 3c, in contrast to Landscapes 3b and 3a'. The graphic representation of the conflicts thus established is shown in Figures 7 and 9. Even if it becomes clear from this that the number of patterns of interpretation and evaluation as well as the relations between the Landscapes 2a, 2b, and 2c as well as 3a, 3b, 3c and derivations is considerable, the resulting conflicts, and these will be the subject of the following, can be discussed with Ralf Dahrendorf [49] in terms of the antagonism between forces of persistence and progression: In other words, the division of groups "who have, so to speak, an interest in the existence of order or a progressive interest in the change of order" [49]. They can show a different degree of intensity and brutality, so that conflict can range from a technical dispute about landscape understanding [85–91] to bloody fights. Landscape conflicts are more likely to reach this level of brutality when they are also intense (in Germany, for example, in the disputes over the Stuttgart 21 railway station project [92,93]), an intensity that conflicts over the physical manifestations of energy system transformation do not usually reach, as they usually remain local and only a comparatively small number of people are affected [94,95]. These conflicts are also subject to the risk that their intensity (and also brutality) will increase if they are not regulated, and there is a tendency to expand geographically (e.g., national associations of local conflict participants).

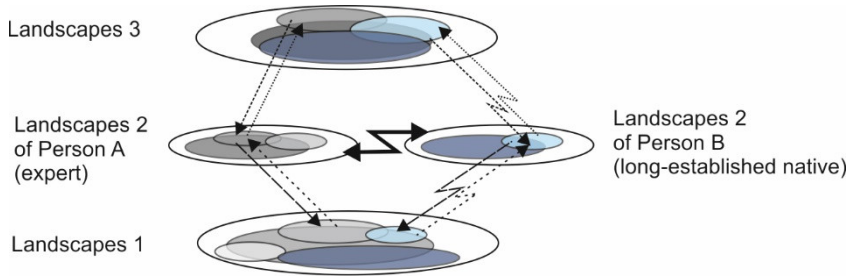

Figure 7. Example of a supra-individual landscape conflict. The interpretations and evaluations of a person (A) with expert special knowledge and a longtime resident (B) contradict each other. (For the sake of clarity, no captions have been added to the graphic, which are based on the previous illustrations. Own illustration).

Landscape conflicts can be dealt with in various ways, but it seems impossible for democratic states to suppress landscape conflicts permanently, on the one hand, because the electoral population can use them as a basis for their electoral decision, and on the other hand, because the participation of different actors in planning projects is legally prescribed. The solution of landscape conflicts is meant to maintain a social status quo; after all, changes of Landscape 1 are based on changes in society. This, however, means a restriction of life chances, since the modernization of society is directed towards maximizing life chances, with the energy system transformation of future generations as well [65,97,98]. A further strategy for dealing with landscape conflicts, which lies beyond the Dahrendorf triad of suppression, solution, and regulation, is the avoidance of landscape conflicts through 'desensitization' [99,100]. Here, changes in Landscape 1 are carried out below the 'perception threshold' or are withdrawn from perception by 'camouflage'. In the context of the energy system transformation, these attempts have

had varying degrees of success: While conflicts can be avoided by underground cabling, the camouflage of wind power plants—because of their dimensionality—is hardly a feasible undertaking. [101–103]. Ultimately, in democratic societies, most landscape conflicts are resolved by efforts to find a solution. A successful settlement of conflicts is—as described in the previous section—not without prerequisites. In the following, current studies on (landscape-related) conflicts over energy system transformation in Germany will be used to examine the preconditions and institutional framework conditions for conflict resolution using Germany as an example (especially [96,104–122]):

- In most cases, landscape conflicts (in this case in the context of the energy system transformation) are not accepted as normal by the parties involved, but are regarded as a state contrary to the norm that runs counter to the desired 'harmony'.
- In the process of negotiation, the parties to the conflict are often rather diffuse in terms of their level of organization, with actors joining in, others withdrawing, and others changing positions. The legitimacy of spokespersons is often called into question by the other conflict party. This has the following consequences: In particular, the interest groups representing citizens (e.g., organized in citizen's initiatives or movements) are struggling for recognition as an organized conflict party. In the struggle for this recognition, they often resort to strongly polarized and moralizing arguments [123].
- Polarizing and moralizing communication is contrary to the rules of fair communication.
- The state, which according to Dahrendorf should have the role of an independent authority to monitor compliance with rules, has itself become a party to the conflict in numerous current expansions of facilities for the production and management of renewable energies. The problem is documented by the fact that on the one hand it is promoting energy system transformation institutionally and financially, and on the other hand is also responsible for its regulation via planning. The legal framework for dealing with landscape conflicts is also ambiguous and can be interpreted in contradictory ways. The Federal Nature Conservation Act, for example, calls for the preservation of the 'beauty' of the landscape, but without clarifying what is meant by either 'beauty' or 'landscape' [124–126].
- The imputation of decisions is made more difficult, or externalized to the judicial system, because of the low degree of organization regarding the conflict parties, the large number of actors from politics, business, planning, citizens (initiatives), and so forth. Thus, a task of an administrative handling of Landscape 1, via the detour of an aesthetic, moral, and political transformation, becomes a question of binding jurisdiction (cf. [127,128]).

With regard to the organizational capability of the parties to the landscape conflict, quite different developments can be found in recent years: Firstly, the ability for self-organization has increased as a result of the expansion of education since the late 1960s [129,130]; secondly, the speed of organizing a position is increasing rapidly through the use of new media [131,132]. Thirdly, however, the number of special interests is also increasing (for example, species protection, geotope protection, landscape aesthetics, interests of dog owners, hang-gliders, geocachers, people interested in bathing, walkers, hobby farmers, and many more), which counteracts the formation and organization of conflict interests [65].

A major challenge for the regulation of conflicts over energy system transformation is the frequent lack of agreement on the subject of communication. The communication of 'affected persons' is dominated by references to Landscapes 2a and 3a', sometimes Landscapes 3b and 2b', while expert communication is carried out at Landscape 3c level. Regarding arguments made with reference to landscape, planning is often directed more towards World 1 and not Landscape 1. For example, in the 'expert' communication in Internet videos on network expansion, questions concerning technical, planning, and economic aspects dominate [132], while citizens in general and citizens' initiatives in particular are strongly oriented towards the preservation of the current state of Landscape 1; in this case, they tend to show emotional ties or aesthetic affections, and use or imitate Landscape 3c

communication at best for strategic reasons (since it can be used in court) in order to lend significance to their concern [96,133–136]. Against this background, landscape conflicts (strongly generalized) can be interpreted with the combination of Popper's Three Worlds Theory and Dahrendorf's Conflict Theory—as shown in Figure 9.

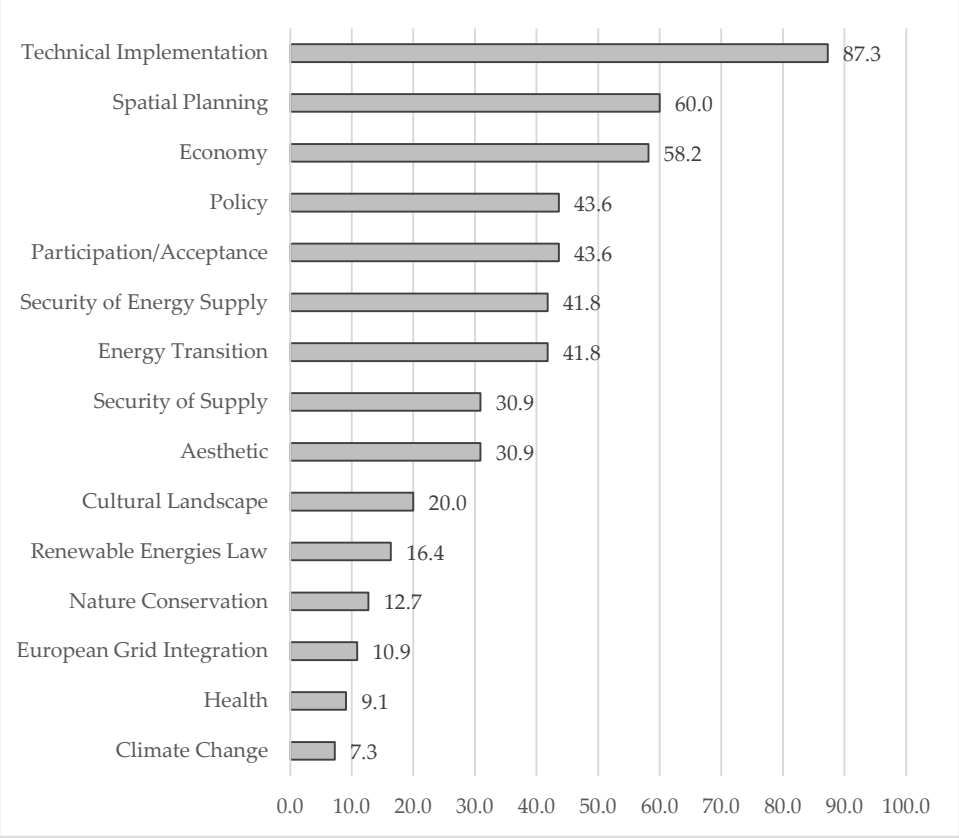

Figure 8. Topics dealt with in the analyzed Internet videos (n = 55). The Internet videos were almost exclusively representations of an expert discourse (in relation to Landscape: 3c); only one of the videos contained the views of people who opposed the physical manifestos of the energy system transformation (own illustration based on Kühne and Weber [96]).

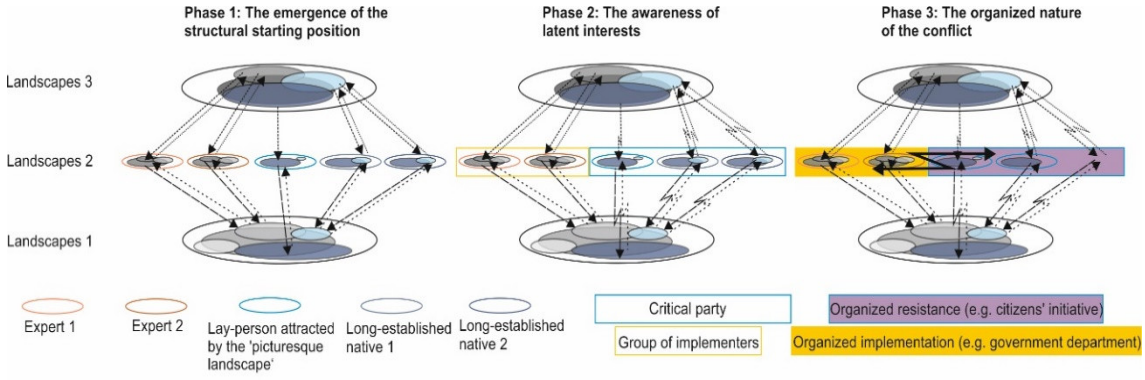

Figure 9. The development of a (local) landscape conflict, in the light of the combination of Popper's Three Worlds Theory and Dahrendorf's Conflict Theory (own illustration).

As a result of the widespread impression that one's own ideas on Landscape 2a, 3a', 3b, and 2' cannot be heard, either in relation to Landscapes 3c and 2c' or in the political–administrative system, the protest against the changes in Landscape 1 is often transformed into an opposition to liberal democracy,

while populist interpretations of the world are updated [137–139], which in turn is connected with a further (political) polarization of society. This can also be interpreted as an indicator for the high degree of intensity of landscape conflicts around the energy system transformation and illustrates the necessity of its rational regulation [140–143].

The complexity of landscape conflicts in the context of energy system transformation is illustrated by the fact that the conflicts develop differently at local level, while the conflict phases shown in Figure 9 run locally asynchronously. In the first phase, the conflict is structurally designed, in the different interpretation of Landscape 1, from an expert perspective (suffix: c), stereotypical perspective (suffix: b), and home-normal landscape perspective (suffix: a, the suffixes have not been included in the figure for reasons of clarity; they are intended to be similar to Figure 7). In the second phase—for example, in the case of a planned change to landscape 1 through the construction of a wind farm—the quasi-groups of change (here: group of implementers) and persistence (here: critical party) become aware of their latent interests. In the third phase they are organized and have dichotomous identities. Different perspectives on landscape (as in a and b) are abandoned in favor of a dichotomous world view. The conflict parties are strongly institutionalized. However, the degree of institutionalization changes at different levels of scale and between different local contexts, which—beyond the dominance of moral communication—is detrimental to conflict resolution. The connections to supra-local levels are also differentiated. The result is a simultaneity of the different conflict phases, different conflict coalitions, different intensities, and brutalities of conflicts on and between spatial levels (Figure 10). The simultaneity of different conflict phases in the local context and their feedback with the supra-local level illustrates the complexity of the conflict events. The parties to the conflict also exhibit very different degrees of organization, especially those who oppose the physical manifestos of energy system transformation (sometimes against energy system transformation as a whole). This makes rational conflict resolution less likely, as does the intensive involvement of state representatives in the conflicts on and between spatial levels. This diversity of conflicts over energy system transformation makes rational regulation difficult.

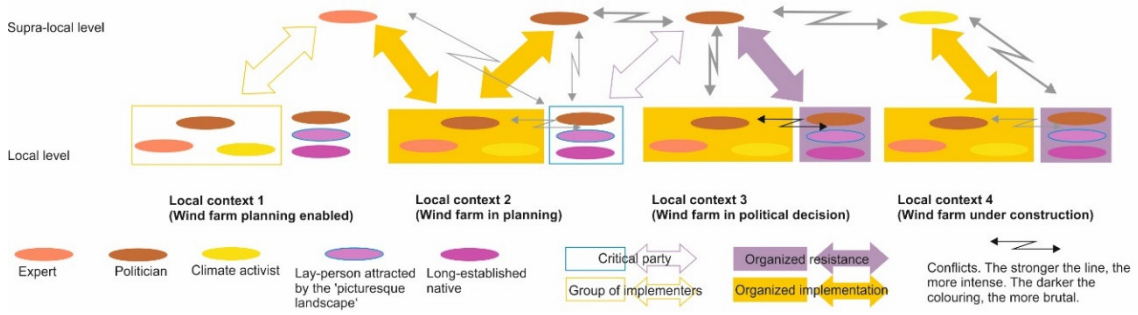

Figure 10. Exemplary presentation of landscape conflicts in the context of the energy system transformation, here on the level of Landscapes 2, subdivided according to different local conflicts and their supra-local connection (own illustration).

Attempts to solve or suppress landscape conflicts are not very appropriate for a democratic and pluralistic society [144,145]. The solution of landscape conflicts intends to eliminate their social causes, but these lie in the plural and differentiated society, whose parts congruently have different demands on landscape and its physical foundations while becoming increasingly diverse with regard to landscape interpretations and evaluations. Thus, the solution of landscape conflicts would mean a unification of society. The suppression of landscape conflicts would mean a disregard for landscape needs, interpretations, and evaluations of the citizens, which would be enforced by mechanisms of domination and could ultimately be broken up by eruptive social events alone. In this respect, in a democratically constituted society the way of settling landscape conflicts seems to be the appropriate one (see also [140,141,144–148]).

5. Conclusions—Possibilities and Limits of the Theoretical Framing of Landscape and Landscape Conflicts

The case study of landscape conflicts in relation to the energy system transformation in Germany has demonstrated the analytical potential of the theory of the three landscapes as derived from Karl Popper's Three Worlds Theory. The division into "Landscape 1, Landscape 2a, 2b, and 2c, and Landscape 3a', 3b, 3c, and 3c'" allows a clear designation of the level at which landscape is communicated. The connections between the levels can also be addressed, allowing research on the individual levels and relations to be classified. Although only marginally addressed in this essay, this theoretical framework also allows the integration of research from different research paradigms (for example, positivist research on Landscape 1 or social constructivist research on the relation of Landscape 2 and 3). As regards landscape conflicts, this terminology could clearly identify the levels and conflictual relations of landscape. Although the very formal naming facilitates conceptual clarity, it is spontaneously not very catchy as it is not self-explanatory. The terminology of the three landscapes has inherited a limit from Karl Popper's theory of the three worlds: it is strongly related to ideas and not to people, actors, society, and so forth.

This limit can be extended, at least in part, by combining the Three Worlds Theory with Ralf Dahrendorf's conflict theory. However, this extension also seems possible and reasonable for other reasons: Firstly, Dahrendorf not only follows Popper in his work, but operationalizes his considerations in relation to sociological and political as well as political–theoretical questions; secondly, he follows Popper's liberal world view of an 'open society', in the tradition of which his conflict theory and in particular his considerations on conflict regulation can be placed; thirdly, the three worlds can be assigned to individual people as well as social structures, so that conflicts in and between Worlds 2 and 3 as well as in relation to World 1 (here Landscapes 1, 2, and 3) can be made accessible to a social science scientific investigation. Ralf Dahrendorf's conflict theory can be used to frame the phases of landscape conflicts, and the conditions for conflict regulation can also be transferred to landscape conflicts, here using the example of the energy system transformation, thus also creating a framework for assessing conflicts in terms of their intensity and brutality. The conflict analysis according to Dahrendorf is based on the social macro-level, here especially the meso-level. Aspects of the conflicts, such as individual motives for protesting against the physical manifestos of the energy system transformation, remain outside the theoretical framework, such as the individual search for new social capital and meaning in protest, as is frequently observed [127,148].

Following on from Ralf Dahrendorf's comments on conflict theory, it can be assumed that landscape conflicts can also have a productive effect, providing that they are not being suppressed nor is an attempt made to find a solution. The strategy of desensitization can only lead to the goal in a few cases, even a normalization of the facilities for the production and management of regenerative energy in Landscape 2a and 3a' has a more long-term effect. The strategy of a positive moral connection as 'good landscape' also drives the party of the opponents into moralization, here the 'destruction of the homeland' is then cited. In this respect, the effort and regulation of conflicts remains a great challenge. A prerequisite for this is the recognition of landscape conflicts as a normality in a developing society that generates life chances, but also the observance of fair procedures in dealing with conflicts, as well as the recognition of the fundamental legitimacy of the position of the other party. Essential for the success of the energy system transformation without too many unintended side effects is the imputation of responsibilities in the regulation of conflicts and third parties, setting a framework for action, ensuring that it is observed (without getting into conflicts of interest) and, in cases of doubt, making and enforcing decisions, even against the will of the conflict parties.

Funding: This research received no external funding.

Conflicts of Interest: The author declares no conflict of interest.

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