

IWPP3 2022 Workshop T01W03 “The politics behind problem structuring. Construction and effects of problem structures in policy design and implementation”

This paper reports on ongoing work, which has two aims: 1st to gain an overview on the issue of (not) addressing goal conflicts of sustainability transformation. In a consolidated version, this overview could be shared through a rather conceptual publication; 2nd aim of our current work is to generate ideas for future empirical research, analyzing concrete policy processes (not) addressing goal conflicts. We hope for feedback regarding these two aims during the workshop.

(Not) addressing goal conflicts of sustainability transformations

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1. Introduction

Next to uncertainty and complexity, conflict has been identified as a central dimension of wicked problems (e.g. Head 2008), i.e. problems that are difficult to define and to address. Conflicts are a constitutional characteristic of the political sphere itself – and also considered a core category of political sciences. Still, political science lacks genuine conflict theories, and therefore borrows from more general sociological conflict theory (Saretzki 2010). From a sociological perspective (in the tradition of Coser 1965 and Dahrendorf 1965), conflict can be interpreted as a symptom and catalyst of social change. Despite tendencies in democracies for consensus and cooperation, goal conflicts are a fundamental condition of pluralistic and highly differentiated (post-)modern societies. Political science has long been concerned with the analysis of goal conflicts and their (institutionalized) management, resolution and transformation in parliaments or between ministries. One example is the negotiation of compromises between economic policy and social policy. Still, for the field of environmental research, it has been observed that policy-analysis and conflict research are often still relatively unconnected (Saretzki 2010). In our contribution, we try to better understand goal conflicts – and the processes dealing with these – in the governance of sustainability transformations. The latter often requires fulfilling multiple goals (e.g., economic, ecological,

social, climate protection related) of different actors and sectors (e.g., water, energy, food) as well as on different geographic and temporal scales. Goals can be understood as potentially conflicting, if pursuing one objective hinders achieving others. Objectives show synergies, if moving towards one objective supports achieving others (e.g. Nilsson et al. 2012, Weitz et al. 2018).

Dealing with multiple, potentially conflicting objectives and their complex interactions is currently prominently discussed regarding the UN Sustainable Development Goals (SDGs) (Bennich et al. 2020 for an overview) and also concerning policy coherence for sustainable development (e.g., Nilsson & Weitz 2019, Koff 2020). Political science research on policy mixes also deals with this issue, considering not only interactions between objectives themselves, but also between policy tools, i.e. instruments or measures, to reach these objectives (e.g., Rogge and Reichardt 2016, Kern et al. 2019). This applies to policies within one sector (see for example the rising tensions between nature conservation and climate protection in the environmental sector), to policies of different sectors (e.g. agriculture vs. energy) as well as to cross-sectoral policies, and to the interplay between ‘old’ and newly implemented policies.

Still, goal conflicts of sustainability transformations are not always been proactively and openly addressed in public and political discourse, but rather covered under an apparent (expert) consensus on “sustainability” or more recently “transformation”. This can be illustrated by the example of the German “Energiewende” (energy transition) towards renewable energy sources (in the following abbreviated by ‘RES’) and nuclear phase out. But, as every political decision produces winners and losers, conflicts then find their way (back) into political arenas e.g., by local citizen protests against wind power plants or against the construction of power lines – and recently by the new assessment of nuclear power as a sustainable form of investment by the EU commission. In a first and broad approach to the issue, we ask: If, how, by whom, why and with what effects are goal conflicts (not) addressed in sustainability transformations? First, we define in more detail how to understand sustainability transformations (section 2) and goal conflicts (section 3). Then, we explore the state of literature from sustainability research and broader political science literature regarding the following sub-questions: What are the (typical) goal conflicts of sustainability transformations? (Section 4). How and how comprehensively, when, by whom and why are goal conflicts of sustainability transformations explicitly addressed or not addressed –

constructed or covered – in public policy processes? (Section 5). We illustrate our conceptual considerations with a concrete empirical phenomenon, namely the Germany energy transition (section 6). Finally, we discuss open questions regarding consequences of (not) addressing goal conflicts for the governance of sustainability transformations (section 7).

2. Sustainability transformation

The scientific study and conceptualization of sustainability transformations is a relatively recent phenomenon, but it builds on a long research tradition of analyzing social and environmental change (Salomaa & Juhola 2020). The concept of *sustainability* originates from a definition of sustainable development, which states that we should meet the needs of the present human population without compromising the ability of future generations to meet their own needs (United Nations World Commission on Environment and Development 1987). The *transformation* concept is used inconsistently, encompassing normative and analytical approaches, with some concepts emphasizing that transformations have an explicit purpose and others emphasizing the profound nature of change (Feola 2015). In the sustainability discussion, the term transformation was initially used as a description of biological-physical processes in the sense that the world is changing, and politics must find ways to deal with these transformations, i.e., how to build resilient structures, stop climate change, and protect biodiversity (Gunderson & Hollings 2002; Folke et al. 2002). Transformation can be defined as "[...] a fundamental alteration of the nature of a system once the current ecological, social, or economic conditions become untenable or are undesirable" (Nelson et al. 2007: 397).

Then, Pelling (2010) proposes socio-political responses to such profound natural and climate changes by means of three possible adaptation pathways: Resilience (maintaining the status quo), transition (incremental change), and transformation (radical change). For the term transition, he refers to transition studies, which analyze sustainability transitions for individual sectors (energy, agriculture, mobility, etc.). The interplay of ecological niche innovations, the persistence mechanisms of sociotechnical regimes, and the pressure for change from the so-called "landscape" (social and material structures) are examined.¹ Pelling points to the radical

¹ However, transition studies understand transition as the overarching concept, encompassing different possible transition pathways, one of which in turn has been characterized as transformation (Geels & Schot 2007).

and profound character of transformations that are also internally-cognitively directed to shift dominant cultural perspectives toward solidarity and collective action.

For a little more than ten years, the global discourse on the necessary socio-political responses to the challenges posed by climate change and environmental degradation has now been shaped by the concept of transformation, both scientifically and politically (Patterson et al. 2017). In this context, Blythe et al. (2018) speak of the "transformative turn" in sustainability science. They emphasize the need for the necessary changes to be profound and to affect not only individual sectors, but also economic, political, and social systems (Blythe et al. 2018). Sustainability transformations are fundamentally multisectoral, "...because the calls for a fundamental transformation require that sustainability changes in one sector do not cause negative spill-overs to other sectors or other dimensions of sustainability" (Salomaa & Juhola 2020: 2).

The concept of transformation was quickly taken up by the political sphere. Calls for (major) transformation have been made both globally (UN 2015; 2017) and nationally (e.g., in Germany by WBGU 2011). While early studies only marginally considered the role of politics, in recent years, power and governance issues been systematically addressed: politics are at the center of research on sustainability transformations today (Patterson 2017; Stirling et al. 2015). Transformations are understood as "deliberate processes" (O'Brien 2012: 670) and purposeful (Feola 2015). The transformative turn thus gives the sustainability debate a more process- and implementation-oriented view on sustainability (Brand 2016). Bauriedl et al. (2021) understand sustainability transformations as a system transformation that involves two processes, namely an active phasing-out of unsustainability and an active phasing-in toward sustainable development. Policy-making is about accountability and participation, at the international, national and local levels. The role of participation and whether transformations towards sustainability can/should be managed top-down or bottom-up are the subject of scientific and political debates (Stirling et al. 2015).

However, the term sustainability transformation remains fuzzy, and all scientists dealing with it very clearly emphasize this. It is about profound change, but various actors understand it in very different ways. Different understandings of the concept also differ on the question (Hölscher et al. 2018) of whether the direction of change should be predetermined (Grin et al. 2010; Loorbach 2014), or whether transformation should be understood as a radical

democratization process. On the basis of such democratization, the actual depth and direction of sustainability transformations are then negotiated in a participatory manner (Stirling 2014). We note: The term sustainability transformation has now replaced the term sustainable development. Blythe et al. (2018) speak of mainstreaming and warn that politicians and practitioners understand the term differently from its use by the scientific community. In the same line, Amundsen and Hermansen (2021) formulate the thesis that sustainability transformation can be interpreted as boundary objects in the sense of Star & Griesemer (1989). Such boundary objects are plastic enough to be flexible to fit different actors' ideas and interests and at the same time robust enough to maintain a common identity between all parties involved (see *ibid.*) We note: the definition of sustainability transformation(s) is fluid.

Who defines the goals of sustainability transformations and in what arenas? The goals in the various sectors and the various sustainability dimensions are defined for instance by the UN and codified with the SDGs in the 2030 Agenda. The 2030 Agenda refers to the level of nation states and is also relevant for the regional and local level. Municipalities develop local sustainability strategies within the SDG framework. Indicator-based monitoring is planned for the implementation of the 2030 Agenda in municipalities in order to map and verify the achievement of the SDG on the basis of measured figures. Different actors such as scientists, economic actors, environmental associations, climate activists, citizens' initiatives, etc. (see also sections 5 and 6) formulate goals in connection with the stated social goal conflicts. These goals relate to the depth of the transformation, the speed of the transformation as well as the respective role of different actors in the context of the transformation.

3. Goal conflicts

Generally spoken, goals can be understood as potentially conflicting, if pursuing one objective hinders achieving others. Objectives show synergies, if moving towards one objective supports achieving others (e.g. Nilsson et al. 2012, Weitz et al. 2018). Dusseldorp (2017: 19 f.) proposes to distinguish two types of goal conflicts. Type 1 means that two or more goals cannot be achieved at the same time (apparently incommensurable goals, i.e. goal antinomy). We argue that a less absolute form of type 1 would be that two goals are in competition to each other (i.e. goal competition). Then, there is type 2, when we see diverging effects of actions on the achievement of two or more goals. While type 1 of goal conflict in the sense of

Dusseldorp rather focuses on conflict between norms, i.e. deontic conflicts, type 2 is indicative of potentially conflicting effects of actions taken to achieve different goals. Type 2 points at actors and their decisions, i.e. actions and (side) effects of these - and thus rather at social than deontic conflicts. Dusseldorp argues that social conflicts are more fundamental, as agreement on general norms does not imply consensus on how to act (cf. Dusseldorp 2017). Type 1 refers to ambivalence in the sense of Renn (2008) and to the “ought side” of problematcity in the sense of Hoppe (2011), i.e. there might be high or low agreement on norms, values, interests between people processing a problem. Type 2 rather points at complexity in the sense of Renn (2008) or at the “mess” of interactions in the sense of Ackoff (1974).

Weiss (2004: 21) distinguishes between *goal conflict*, which he defines as disagreement regarding goals between actors, and *goal-means conflict*, which occur when actors do not agree in what way and with what means a goal should be met. The later level seems important, especially for the (empirical) analysis of goal conflicts (type 2) as social phenomena: For instance, Oseland and Haarstad (2022) “understand goal conflicts as competing and incompatible objectives within currently existing policies”. This definition does not focus on the level of contradictions and trade-offs between goals themselves (type 1), but “examine[s] how conflicting goals are managed, discussed, or even evaded in concrete decisions”. The same shift considering goal conflicts on the level of means, i.e. policies to address these and the effects of policies on different goals (type 2) has been made by Kosow et al. (2022).

Goal conflicts are linked to other conflicts. Regarding conflicts related to sustainable development, Dusseldorp (2017: 16 ff.) identifies three main groups of conflicts, which can be analytically separated, but are linked: 1) Goal conflicts, with the two subtypes explained above, 2) Conflicts around how to define and detail sustainable development goals; 3) Conflicts around the distribution of benefits and burdens of realizing sustainability goals. In consequence, goal conflicts are not independent from conflicts of interests, of perceptions, of knowledge, of values and priorities, and of scales. This is also echoed by other authors: “Goal conflicts are not simply irrational misunderstandings but are related to fundamental conflicts in social structures” (Oseland & Haarstad 2022), as e.g. material conflict, divergent understanding of goals or mismatch of scales in policy making. Oseland and Haarstadt even

see the relation of goal conflicts to fundamental conflicts in social structure as “a prominent reason for a lack of general handling of (goal) conflicts“. For the analysis of goal conflicts, we thus propose to choose a moderate constructivist perspective, recognizing the social construction of goal conflicts as well as their (possible) material and social-structural foundations.

Can goal conflicts be resolved? Literature provides no clear answer. If for instance economic growth and environmental protection are a dichotomy or if it is possibility to reconcile both is an open debate (Kopfmüller 2001). Some argue that resolution always implies prioritizing one over the others and others argue that with innovative and synergetic solutions, achieving both goals is possible. Underlying, there are diverging positions one also finds in general conflict theory (for an overview see Bonacker 2005) and conflict management theory (for an overview see Axt, Milosoki & Schwarz 2006). Early approaches of conflict management focus on “conflict settlement” in a neo-realist perspective considering conflict as zero-sum games (e.g., Bercovitch 2019, Zartman 1985). Competing approaches focus on “conflict resolution” (e.g. Burton 1990) in a social-psychological perspective, they consider synergetic solutions, fostering several goals at the same time, as possible. Currently, the focus often is on “conflict transformation” (based on fundamental work by Lederach 1996 and Galtung 1999), where all solutions to conflicts are considered as being only temporary. This approach follows sociological perspectives emphasizing the role of conflict for social change and governance as a central means for conflict transformation (e.g. Houdret 2011, Taylor & Sonnenfeld 2008). Campbell (2016) argues that the contradictions of sustainability cannot be balanced but that we need to accept them as “a kind of truce, a working contradiction, a stalemate, a temporary armistice” (2016, p. 396). This final understanding of conflict transformation shows a close conceptual relation between conflict and transformation: conflicts cause change, which causes conflicts, which cause change etc. We propose to base the analysis of goal conflicts of sustainability transformations on the basic assumption that these conflicts can be addressed (or not) and transformed – but can be maximally temporarily solved. Open questions are, how transparent policy processes are in addressing a conflict, who is involved, in what arena and with what impact. And what types of approaches (not) addressing goal conflicts lead to transforming goal conflict and which types could – or not – contribute to sustainable transformations?

4. Typical goal conflicts in sustainability transformations

Based on the state of literature, we propose to distinguish five characteristics that account for the fundamental social goal conflicts and goal-means conflicts of sustainability transformations: 1. changes in one sector have potentially conflicting effects in other sectors (Salomaa & Juhola 2020); 2. addressing one of the sustainability dimensions (social, ecological, economic) or one of the (e.g. SDG) targets can potentially have conflictual effects on the other sustainability dimensions or targets (Spaiser et al. 2017 Weitz et al. 2018); 3. simultaneous phasing-in and phasing-out (Bauriedl et al. 2021) produces winners and losers and thus assigns very different roles and positions to different players in the transformation process. Those who will lose out as a result of the transformation, will try to reinvent themselves and, by means of new business ideas, will take over phasing-in processes and finally drive the original niche players of phasing-in out of the market again (Kungl 2015); 4. different actors have different target perceptions about the necessary depth (Blythe et al. 2018; Stirling 2014) and in particular also about the 5. speed of transformation (temporal dimension). Table 1 summarizes these different social goal conflicts and goal-means conflicts. It characterizes whether they are mainly linked to issues of ambivalence (in the sense of plurality of values and norms) or complexity (in the sense of interlinkages, feedbacks and side-effects).

Table 1: Five central goal conflicts of sustainability transformations

Type of (social) goal conflicts / goal-means conflicts	Main associated problem characteristic	
	ambivalence	complexity
Inter-sectoral conflicts: Changes in one sector have potentially conflicting effects in other sectors		X
Inter-dimensional/ Inter-target conflicts: Addressing one sustainability dimension/ target with conflictive effects on another dimension/ target		X
Conflicts about actors' roles and positions (simultaneous phasing-in and phasing-out produces winners and losers)	X	
Disagreement on necessary depth of transformation (goal conflict and/or a goal-means conflict)	X	
Disagreement on necessary speed of transformation (agreement on goal, but disagreement on speed, i.e. goal-means conflict)	X	

5. (Not) Addressing goal conflicts in policy processes

A first scan of literature suggests that we see empirically a diversity of different approaches to (not) addressing goal conflicts in the political sphere and in particular in policy processes. Goal conflicts that are not addressed, i.e. not made explicit or explicitly dealt with, can be considered *latent* or potential, those that are addressed as *manifest*. Reflections on wicked problems (Rittel & Webber 1973, Head 2008) in general have stated that “[...] problems were merely *resolved* (contained within acceptable limits), *dissolved* (redefined or lowered in priority) or *absolved* (temporarily settled, but accepted as never going away)” (Hoppe & Turnbull 2022, our emphasis). And instead of “perfect solutions” (s. also Kirschke et al. 2022), we rather should look for “small wins” (Termeer & Dewulf 2019), or for “imperfect responses” (Bannink & Trommel 2019). Hoppe’s (2011) typology from unstructured to fully structured problems suggests a) that goal conflicts play a particular role in unstructured and moderately structured problems (type ambivalence) and b) that the respective politics are marked by unstable issue networks and unstable political arenas.

Focusing more specifically on goal conflicts of sustainability transformations, approaches dealing with them range from ignoring, over displacing and redefining to addressing them by prioritizing, package dealing, negotiating etc., as we will elaborate in the following (see also Figure 1). (Not) addressing takes place in the different arenas, which in turn also strongly depend on the political-institutional and political-cultural contexts, e.g. the type of democracy (e.g. Lijphart 2012). In addition, media, science and the extra-parliamentary opposition, for example in the form of social movements, are important actors for (not) addressing goal conflicts.

It seems that in ‘standard mode’, goal conflicts of sustainability transformations are not addressed or made transparent, but instead are either *ignored, evaded, denied or covered* – at least, whenever possible (e.g. Oseland & Harstad 2022). This often happens under the (apparent) societal consensus on the boundary object of sustainability transformation (cf. Amundsen & Hermansen 2021) which is unquestioned: ‘Nobody can be against sustainability’. Still, when it comes to the implementation of more concrete policies, often at the local level (because that is where the SDGs are to be implemented), counties, municipalities and bureaucracies need to deal with the inherent tensions need to be dealt with by counties and municipalities, bureaucracies and in particular during planning processes.

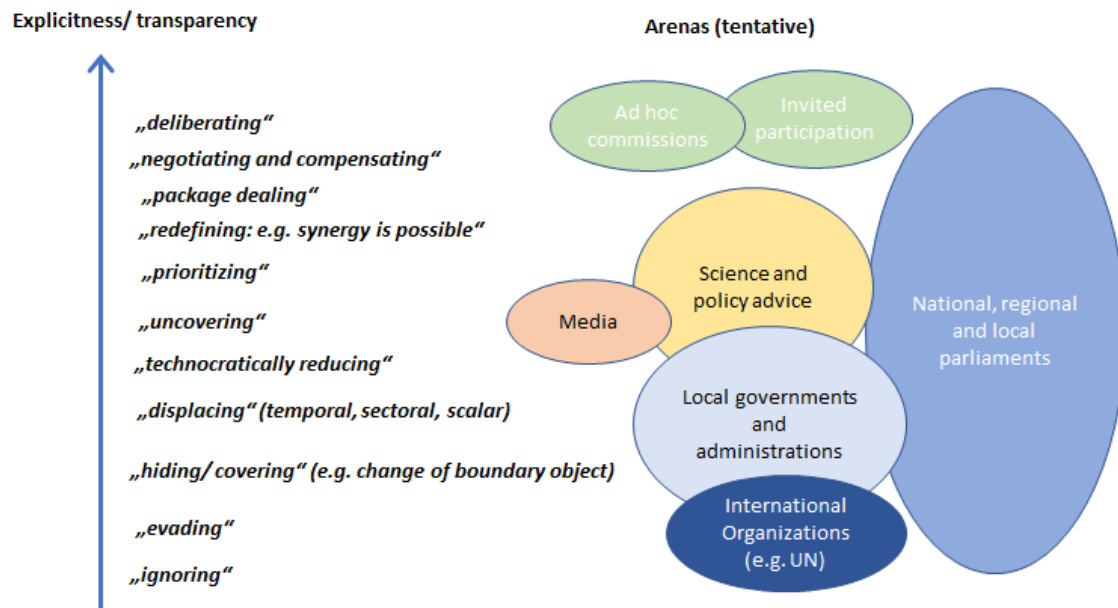


Figure 1: Approaches (not) to address goal conflicts in different arenas (first tentative overview)

Literature on spatial planning shows that conflicting interests are obscured and managed within the contemporary bureaucratic and depoliticized understanding of planning (Swyngedouw 2010). Goal conflicts are “handled by being obscured and hidden in political and planning processes” (Oseland & Haarstad 2022) and remain unresolved (Kenis & Lievens 2017, Bohman et al. 2020). One could even suppose that once goal conflicts become too visible, the consensus-building boundary object changes, as it happened with the shift from ‘sustainability’ to ‘transformation’ (see section 2).

Uncovering goal conflicts then can happen in various arenas: In parliament, the classic task of the opposition is to scrutinize government actions for its negative consequences, as well as to search for and to address conflicting goals. As a rule, however, the conflicts between goals and means tend to be fought out there rather than the fundamental conflicts between goals of sustainability transformations being called into question. Populist parties may aim to fundamentally challenge sustainability transformations. But the majority of political parties do support sustainability transformations and only define and redefine the boundary object according to their own priorities. Secondly, goal conflicts of sustainability transformations are *negotiated and compensated* in policy networks with organized stakeholders and/or in multi-level systems and then translated into policy and concrete measures (Musch 2019).

Setting up *ad hoc commissions* as ethic commissions is another opportunity to give goal conflicts an arena – but a temporary arena which has no political mandate and only weak resolution capacity regarding the social dimension of goal conflicts (Czada 2019).

Participation, civil society engagement and dialogue can be read as another strategy of (post) modern democracies to address goal conflicts. Invited participation could be interpreted as an acknowledgement of conflict potential and of ambivalence. It values conflicts and the creation of (mostly temporary) ‘mini-arenas’ to address goal conflicts through (forms of) *deliberation*. Still, the ‘success’ of participation in overcoming or transforming these seems limited (e.g. Flyvbjerg 1998; Holgersen & Haarstad 2009). Such invited participation has either no or a very weak mandate and its deliberative and direct democratic elements can be in tension to representative institutions. In addition, participation can create new or additional goal conflicts, e.g. through the sheer possibility of unpopular results and its tendency to reduce the possible speed of change (Jager et al. 2020). Both, invited participation as well as ethic commissions can be read as forms of unstable political arenas.

Another approach is the *technocratic reduction* of sustainability transformation to low carbon transition (Stirling 2014). Academia as well as the extra-parliamentary opposition play an important role in *uncovering* this technocratic reduction: For example, Fridays for future confront the current economic system, corresponding policies and consumptive lifestyles with the fact that they are in conflict with climate protection goals. This uncovering might happen, when tensions are getting too tight to be covered and cannot be displaced over the long run.

Then, there is clearly a role for science and media to make goal conflicts explicit and to explore side-effects and unintended consequences of different policy options: An example of *uncovering* are the goal conflicts of the UN SDG that seem to have become so visible that they can no longer be ignored or concealed. Instead, they are quite prominently addressed, in particular by science and policy advice (e.g. Weitz et al. 2018, Nilsson & Weitz 2019). Still, they are not only made explicit or uncovered, but also *re-defined* under the aim of “policy-coherence” (e.g. Nilsson et al. 2012) and the assumption that it *is* possible to reduce their trade-offs and to seize synergies. The problem of goal conflict is thus re-labeled under the credo of ‘*synergies are possible*’. An example from policy-advice is the Stockholm Environment Institute (SEI) with its SDG synergies approach: (<https://www.sdgsynergies.org/>, last access 31.05.2022) offering a free software tool for “understanding how groups of policy areas and

targets interact, using “systems thinking” (ibid.) and with the aim “to support governments in implementing the SDG” (ibid.).

When uncovering in the political arenas happens, we often find it in combination with *prioritization*. This is particularly possible when reference can be made to constraints and world situations (such as the current war in Ukraine or the Corona pandemic in the last two years). Furthermore, a solvability narrative prevails, i.e., as a rule, uncovering takes place in combination with *temporal, sectoral or spatial displacement* (Oseland & Haarstad 2022). We suppose that the specific characteristics of goal conflicts of sustainability transformations identified above (see section 4) allow, foster, or even take advantage of/for moving their social dimension between scales (temporal and administrative) and sectors. A typical strategy is the bet on the future, often in the form of hoping for new technological solutions, while ignoring potential side-effects of these (see also Oseland & Haarstad 2022). Another is to displace responsibility across scales. This is especially possible if accountabilities and procedures are not (yet) coherently codified within multilevel governance arrangements (e.g. Dombrowsky et al. 2022).

What we still do not understand very well is *why* goal conflicts are addressed or not addressed. Ignoring, evading and covering might be standard approaches because political/societal debates and also scientific analyses of sustainability transformations are organized by sector. This corresponds to the functional differentiation of society. The respective ministerial and administrative responsibilities are organized accordingly to narrow down a governance issue. Recognizing high levels of complexity and social goal conflict could hinder both agency *and* the possibility of societal and political consensus. Are conflicting goals disguised in order to remain capable of action? Given the complexity of the tasks involved in sustainability transformations, it may be expedient for a long time not to uncover conflicting goals and to prioritize or displace them unnoticed, as otherwise paralysis could occur. The actors in the political system must prioritize, and this is easier to do if their prioritization initially goes unnoticed, otherwise resistance might become too important. Only the extra-parliamentary opposition and academia seem to be able to afford to formulate or reveal deep complexity. Addressing or not addressing might both have benefits and costs. The choice of an approach might depend on whether temporal solutions in the sense of synergies of

compensations are seen as possible and prioritized politically – or not. We further discuss these issues in section 7.

6. Illustration: The German „Energiewende“

In the following, we will use the example of the German Energiewende (i.e. energy transition or energy turnaround) to illustrate how goals were formulated, how over time some goal conflicts were addressed, others not, by whom and why they were addressed and in what arenas. The case has been chosen because it is particularly interesting and well researched.

6.1 Goals of the “Energiewende” over time

Figure 2 summarizes central actors, goals and means of the German Energiewende over time. The Energiewende initially has been a bottom-up project that emerged with the anti-nuclear movement in the 1970s and the first RES pioneers in the 1980s (Geels et al. 2016). The phase-out of nuclear power demanded by these actors, as well as the expansion of RES, was guided by environmental policy goals. After 1998, when the Green Party was represented in a government coalition at the federal level for the first time and was able to take over the Ministry of the Environment, the decision was made to phase out nuclear and the Renewable Energy Sources Act (Erneuerbare Energien Gesetz EEG) was passed in 2000 (Geels et al. 2016). In addition to the goals of environmental and climate protection explicitly formulated in this law, it also contains other goals: the expansion of RES is intended to strengthen industrial sectors and create jobs and the decentralized expansion of RES should provide impetus for sustainable regional development. In 2010, the Conservative-Liberal government decided to extend the operating time of nuclear power plants by an average of twelve years and to further accelerate the expansion of RES. Their goal was to ensure an environmentally friendly, reliable and affordable energy supply (Bundesregierung 2010). After the Fukushima reactor accident in 2011, the German government reversed the extension of the operating time of nuclear power plants, which had been decided the year before, and antedated their phase-out to 2022 already. The aim was to counter the considerable social pressure, which was reflected, among other things, in an election win of the Green Party in the German state of Baden-Württemberg. In the Climate Protection Act of 2019, the German Bundestag formulated the goal of reducing CO₂ emissions by at least 55 percent by 2030 (compared to 1990) and achieving climate neutrality by 2050. In addition to the expansion of RES, the goal

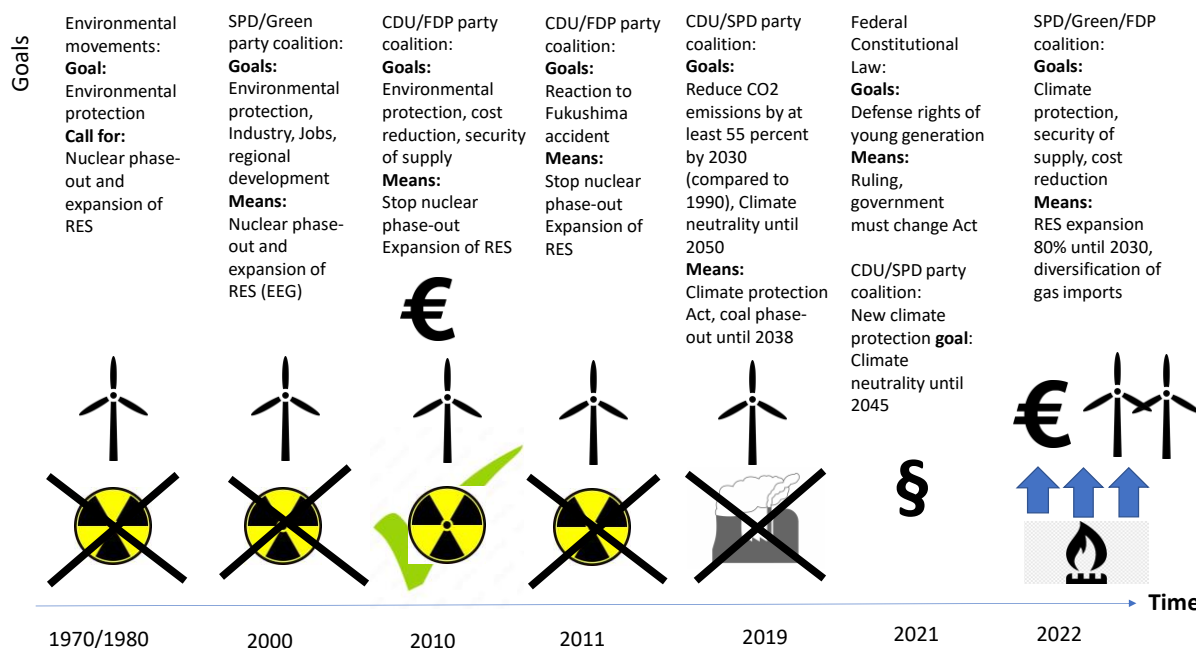


Figure 2: Core actors, goals and means of the "Energiewende" over time

of phasing out coal-fired power generation by 2038 was also set as part of the climate neutrality target. In 2021 then, the Federal Constitutional Court ruled that the previous regulations and planned climate protection measures of the German government were incompatible with the fundamental rights of younger generations: they would be curtailed in their civil liberties if high emission reduction burdens were irreversibly postponed to periods after 2030 (BVerfG 2021). The German government has now formulated the goal to achieve climate neutrality in 2045. But with the Ukraine war and the awareness of being very dependent on Russian gas, new goals have recently been added: a 'turnaround' of the energy transition has been proclaimed, and gas imports are to be diversified to secure their supply. Also, the expansion of RES has to be further accelerated: by 2030, the share of RES in gross electricity consumption should be increased to at least 80 percent (Bundesregierung 2022).

6.2 What are the current conflicting goals of the German energy transition?

As we have outlined, the German energy transition project has been driven by different actors and the associated goals have changed over time. Thus, goal conflicts also have changed. In the following, we will highlight those current and potential conflicts that we have been able to identify based on existing research literature on the topic.

Conflicts between sectors

RES are generally considered climate-friendly. However, such decentralized energy generation technologies require considerably more land than large, centralized fossil-fuel power plants. In Germany, the new government elected in fall 2021 plans to designate 2% of the country's land only for the expansion of wind energy (SPD; Bündnis 90; Die Grünen; FDP 2021). The construction of wind turbines in forests and landscape conservation areas will also be made easier, as the species protection assessment, which was previously regulated on a regional basis, will be standardized nationwide and thus accelerated (Bundesregierung 2022). Here, conflicting goals are apparent with the federal government's land-saving target (net zero by 2050) and with species and nature conservation goals.

Conflicts between sustainability dimensions

However, conflicting goals related to RES can also be demonstrated within the energy sector (Frank et al. 2022). Classically, energy policy is based on the so-called triangle of goals of security of supply, economic efficiency, and environmental friendliness. Although RES are significantly more environmentally friendly than, for example, coal-fired power, they are fluctuating and have significantly higher system costs than controllable fossil-fuel power plants (Hirth et al. 2015). Their economic sustainability will only become visible over time. In addition, especially the expansion of wind energy is characterized by considerable local conflicts. Residents and citizens' initiatives fear noise, shadow flicker and serious impacts on the landscape (Reusswig et al. 2016). Depending on the site selection, conflicts around wind energy can be minimized. But as the maps of figure 3 (UFZ 2022) show, optimization strategies contradict each other depending on the criterion that is applied. Residents' protests can be minimized, for example, at the sites located on the second map from the left (indicated by red dots), but then the conflicts related to species protection, fourth map from the left (indicated by green dots) become bigger. Only five percent of the sites plotted on the four maps overlap – and there is no social consensus on which criterion is most important.

Optimal spatial distribution of onshore wind energy development with generation of 200 TWh and minimization of

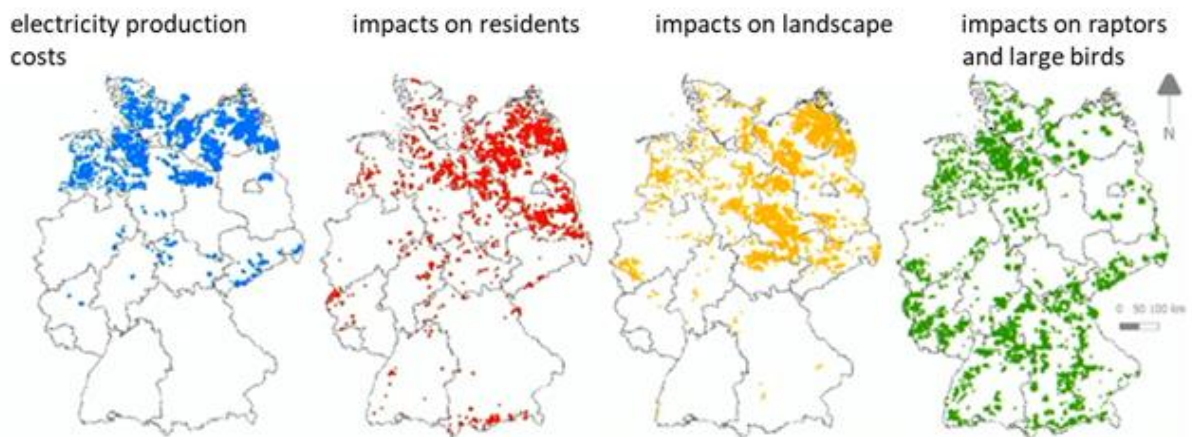


Figure 3 Spatial goal conflicts of wind energy expansion (Source: UFZ 2022)

Conflicts about actors' roles and positions

The energy transition is producing winners and losers, and there is a struggle over which actors take which roles and positions in the energy transition (Kungl 2015). In connection with the expansion of RES, it can also be shown how significant the differences are in the expectations of various actors regarding their role in the transformation. Some players hope that the phasing-in of the new technologies will not only lead to a phasing-out of the old technologies, but also to a phasing-out of the old players, i.e. especially the large energy corporations (Geels et al. 2016). In contrast, the regions, companies and employees affected by the coal phase-out fear the negative consequences of structural change and ask what their future role in a climate-neutral energy system could be.

Conflicts about the speed of transformation

For the same reason, expectations diverge regarding the speed of both phasing-in and phasing-out. For years, the timing of the coal phase-out has been just as controversial among various actor groups as has the speed of the expansion of RES.

Conflicts about the depth of the transformation

Finally, the depth of transformation is controversial, too. Some actors, as Fridays for Future and academia, are hoping for an energy transition that will take place primarily through general energy savings, significant changes in behavior and a fundamentally new way of doing business (Kropp 2018). They criticize the ecological modernization approach of the energy

transition as it is designed today. Instead, they call for significant behavioral changes and a fundamental shift toward a post-growth economy, without which the energy transition cannot succeed.

Not yet at all in the focus of the public and political debates around the expansion of RES are future conflicts in connection with resource scarcities, questions of disposal, as well as the question of how fluctuating power generation can be stored and balanced, e.g. via power-to-gas. In connection with the Ukraine war and the efforts to become independent of Russian gas (in spring 2022, Germany still obtains over 50% of its gas from Russia), new conflicting goals are emerging: alternatives to Russian gas include fracking gas from the USA, which is highly controversial from an environmental point of view, or LNG (Liquefied Natural Gas) imports from Qatar. In addition, there are contradictory statements about whether the planned LNG terminals, of which there are currently none in Germany, could also be used for hydrogen in the future, and about the length of the supply contracts currently being negotiated for LNG. In sum, it is unclear whether the new gas infrastructures might not lead to further fossil path dependencies.

The illustration of manifest and latent conflicting goals of the Germany's energy transition shows how complex they already are. The expansion of RES is guided by the political will for a low-carbon transition in the energy sector. Still, this does not address CO₂ emissions in other sectors. Moreover, the concept of sustainability transformation is explicitly not limited to combating climate change but covers broad social, economic and environmental goals (Stirling 2014).

6.3 How and how comprehensively, when, by whom and why are these goal conflicts explicitly addressed or not addressed in public policy processes?

Overall, fundamental goal conflicts of the German Energiewende seem to have been merely addressed in institutionalized arenas, but rather in unstable political arenas (see Hoppe 2011). Still, more detailed questions regarding the design of concrete policies have been negotiated in parliaments and interest group hearings, as we will explain in the following: As we have shown, the Energiewende has been formulated as a goal by various governments and involved parties and is supported by a broad majority of political actors. The only critic of the energy transition is the right-wing populist party AfD (Alternative für Deutschland). The broad

political consensus also enjoys social support, with surveys on the energy turnaround regularly showing approval ratings of around 80% (Wolf et al. 2021). However, political science research on the energy transition questions whether there is actually a consensual understanding of the energy transition at all and calls it “a myth” (Chemnitz 2018).

In Germany, as a negotiation democracy, party competition and majority procedures are overlaid by a network of decision-makers from politics, administration and interest groups oriented toward negotiation and consensus-building. Three forms of negotiation democracies are inherent in the German political system: Corporatism, coalition governments, and policy interdependence in the federal multi-level system (Benz 2019). But the energy transition and especially its design were neither negotiated in a multi-level system (Chemnitz 2018) nor decided as a consensus in institutionalized arenas with organized stakeholders (Czada 2019). Instead, key decisions of the Energiewende were made in ad hoc commissions (Ethics Commission on the Nuclear Phase-Out, Coal Commission, and many more), whose members were appointed ad personam and mostly were pro-government experts or activists (Czada 2019). Unlike actors in institutionalized negotiating arenas, bringing together corporate association actors, these commission members did not represent interest groups and it was therefore not possible for them to formulate any voluntary commitment for the respective groups in the sense of a consensus on action.

Due to its decentralized character, the expansion of RES in particular is a local and regional task that can be supported by the federal government (e.g. through the EEG), but which must be implemented locally. The 16 federal states have their own goals and priorities for the expansion of RES, depending on their geographic characteristics, but also according to the preferences of the respective state governments. The designation of site options is carried out by the regional planning authorities. The concrete planning then finally takes place at the municipal level together with the project developers. Depending on the federal state and the region, different participation formats are used in planning processes. Such close federal-state linkages are usually discussed closely in the Mediation Committee between the Parliament and the Federal Council (in German: Vermittlungsausschuss), and compromise solutions are sought. But the energy transition has never been negotiated in the Mediation Committee (Chemnitz 2018). Hence, the complexity of the Energiewende and the associated conflict situations and conflicting goals were not systematically addressed and dealt with. Energy

transition policy thus became a cross-cutting task and the negotiating arenas formed in the process are only loosely connected and not institutionalized.

If not in the institutionalized arenas of the German political system, *where* are the conflicting goals of the Energiewende addressed at all and by whom? Table 2 summarizes the different approaches of (not) addressing the different types of goal conflicts we found for the case of the German energy transition.

Table 2: Goal conflicts of the German energy transition and forms of (not) addressing them

Type of (social) goal conflict/ goal-means conflict	Main approach of (not) addressing	
	(related to ambivalence)	(related to complexity)
Inter-sectoral conflicts: Changes in one sector have potentially conflicting effects in other sectors		Ignoring ⇒ uncovering (local disputes) ⇒ displacing by re-defining sectors, claiming possible synergies, hoping for solutions in the future ⇒ prioritizing & hiding future conflicts
Inter-dimensional/ Inter-target conflicts: Addressing one sustainability dimension/target with conflictive effects on another dimension/target		Ignoring ⇒ uncovering ⇒ displacing & claiming possible synergies
Conflicts about actors' roles and positions: Simultaneous phasing-in and phasing-out produces winners and losers	Negotiating in ad hoc commissions & hearings with interest groups	
Divergent perceptions on necessary depth of transformation (goal conflict and/or a goal-means conflict)	Ignoring & technocratically reducing	
Disagreement on necessary speed of transformation (agreement on goal, but disagreement on speed, i.e. goal-means conflict)	Negotiating in parliaments & spatially displacing, local participation formats	

Intersectoral conflicts of objectives in connection with the expansion of RES were *ignored* for many years. The reason is that the energy transition in Germany started as a bottom-up project and was mainly driven by roof-top photovoltaic systems and small wind turbines by energy cooperatives, farmers and other pioneers (Geels et al. 2016). At the beginning, mainly

unproblematic locations could be chosen, goal conflicts with land take or with nature and species conservation were not yet virulent. But over time, these have been *uncovered* at the local level by citizen initiatives and conservation groups (Reusswig et al. 2016). For many years, the expansion of RES was in the political responsibility of the Ministry of the Environment. In 2013, there was a *sectoral displacement* to the Ministry of Economics. There, and especially for the subordinate authorities, it might have been easier to *ignore* conflicts of objectives with environmental protection than in the Ministry of the Environment and its subordinate environmental authorities. Thus, *possible synergies* between climate protection, innovation and economic development could be claimed instead. In the latest amendment to the EEG, which was formulated with the aim of significantly accelerating the expansion of RES, the federal government is now *prioritizing*: “In order to accelerate expansion in all legal areas, the EEG enshrines the principle that the use of RES is in the overriding public interest and serves public safety. This means that until greenhouse gas neutrality is achieved, RES are to be given priority in the consideration of protected interests” (Bundesregierung 2022: 10, our translation). This prioritization is legitimized by the statement of the European Commission that wind farms are in the interest of public health or public safety and therefore exemptions from species protection are possible (Bundesregierung 2022: 185). Thus, the *responsibility* is *displaced to another level*. Future intersectoral conflicts, such as those related to resource scarcity, rare earth mining conditions, or new dependencies on countries like China, are currently *not addressed but hidden from* the visible political discourse.

Interdimensional economic goal conflicts have long been *ignored*. The rising electricity prices caused by the EEG were denounced by the right-wing populist opposition, but this *uncovering* was accompanied by the goal of stopping the energy transition instead of finding solutions. However, with the recent plan to significantly expand RES, the government has also agreed on a new form of financing. The so-called EEG surcharge, which until now had to be paid by the majority of electricity customers (but not by energy-intensive companies), will be abolished. But how costs develop in the future, will also crucially depend on how new technological developments in the field of storage technology and hydrogen production become available. Here, actors are hoping for future solutions, so that a *temporal displacement* of the conflict takes place. Current energy scenarios used for policy advice use cost-optimization and assume a full grid integration at the European level (Lux et al. 2021). This means that currently, economic and technical feasibility conflicts are also *spatially*

displaced. Inter-ecological and social conflicts of objectives, which are particularly evident in connection with wind power, but also with grid expansion, were *ignored* for a long time. Now, with the latest amendments to the EEG, these are being addressed with the *synergy claim* that environmental and climate protection are compatible and that nature conservation can be better considered and acceptance increased by accelerating planning approval procedures and standardizing participation processes (Bundesregierung 2022).

Questions of winners and losers and the different actors' roles and positions in the energy transition are being *negotiated* in different policy arenas. However, not – as described above – in institutionalized fora, but on the one hand in *ad hoc commissions*, such as the Coal Commission, which negotiated the year 2038 for the coal phase-out as a compromise. In return, the affected regions receive a lot of financial support to accompany the structural change. Nevertheless, the conflict has not been resolved, as the coalition agreement of the new government elected in fall 2021 set an earlier phase-out in 2030 as the target. The design of the energy transition, expansion rates of technologies, investor types, but also the availability of reserve power plants, depend decisively on the regulations of the EEG and the electricity market design. The latter was developed by the ministry of economy, heavily supported by academic policy advice, in a *hearing process* (called white paper /green paper process) with various lobby groups and interest groups. Comments from the different associations were also included and considered in the regular revisions of the EEG.

In addition, there is a latent conflict over the depth of transformation, i.e., whether the energy transition can be *technocratically reduced* to one technological project (i.e. the transition, in singular), as it is currently often done by policymakers or whether it is a larger societal project, as activists, such as Fridays for Future, point out. They argue that sufficiency strategies and behavioral changes are also urgently needed, otherwise the 1.5° target cannot be achieved. Conflicts over speed are primarily goal-means conflicts. After all, politicians and society are largely in agreement on the goal, but not on the speed (see also the conflict on the phase-out date for coal). The goal and means of increasing the pace of expansion of RES are being *negotiated* in parliament. However, each state has its own ideas about suitable rules. Ignoring this, could be interpreted as a partial *spatial displacement* to the level of the states. And ultimately, conflicts over speed of expansion are *spatially displaced* to the local level, where approval processes are currently often protracted by complex *participation* procedures.

7. Open questions regarding consequences of (not) addressing goal conflicts of sustainability transformations

To conclude, we propose a first selection of theses and open questions regarding the consequences and effects of (not) addressing goal conflicts of sustainability transformations. Our literature review shows, that we do not yet know much about the consequences and effects of explicitly addressing or not addressing goal conflicts in policy-processes related to sustainability transformation processes. We assume that there might be consequences for the respective policies in terms of the coherence of policies within sectors, coherence of policies between and across sectors, synergy of policy-mixes, political and social acceptability as well as implementation of the policy solutions, and finally ‘success’ of sustainability transformations.

Literature suggests that there might be strong reasons for the emergence of different approaches that do or do not explicitly address goal conflicts. On the one hand, Oseland & Haarstad are in favor of addressing: “Moving forward, goal conflicts should be more explicitly recognized in planning processes. Rather than displacing goal conflicts, planners might work to systematically identify and transparently discuss conflicting goals. [...] Also, as part of a more systematic and transparent approach to managing conflicting goals, planners and other governance actors should develop and use concrete tools to aid the decision-making processes” (Oseland & Haarstad 2022). In the same line, Weitz et al. (2018), SEI (see above) and Kosow et al. (2022) argue, that making goal conflicts explicit is a precondition to support potential synergies and are providing tools at that aim. Thus, in academia, we clearly see the ‘synergies-are-possible claim’, identified as one of the approaches above (section 5). Furthermore, Blythe et al. (2018) warn that conflicts and resistance to sustainability transformations are systematically underestimated, unspoken, and thus dragged out, risking that these conflicts could eventually become entrenched at very high levels.

On the other hand, authors like Blühdorn (2007) suggest that sustainability transformations reveal “simulative politics” that help maintain the unsustainable status quo of our socio-technological environmental systems. Not addressing its inherent goal conflicts maintains the apparent consensus and finally, prevents radical transformation – or, turned positively, maintains the systems’ current functioning. In a system-functionalist perspective, further research would need to ask for the functions of addressing or not addressing goal conflicts for

the ability of the political system to realize goal attainment. Amundsen & Hermansen (2021) state that the use of sustainability transformations as a boundary object both masks conflicting goals and enables communication between different social worlds that has not previously occurred. In a more realist perspective, one would need to consider benefits and costs of different approaches addressing and not addressing goal conflicts of sustainability transformations. One could formulate the following theses:

- a) Addressing goal conflicts has the benefits of making the big picture of complex interrelations and multiple values related to sustainability transitions visible. It could foster systemic thinking among various actors and allow using institutionalized arenas as well as (new, regular and repeated) participatory formats to deliberate about plural values and balance interests. Still, addressing (and negotiating) goal conflicts among the multitude of diverse actors, who are concerned and needed in and for sustainability transformations, requires considerable time and resources. Inclusion could delay the decision and implementation of transformative policies. In addition, the compromises found could lower the effective depth of transformations and thus, hinder their 'success'.
- b) Not addressing goal conflicts could increase the initial ability of societies to decide about and to implement policies rather sector wise – without explicitly considering their goal conflict potentials. On the downside, due to quick prioritizations, conflictive problem areas (side effects and conflicts of interests and values) might be identified later on. If no future innovations or solutions to these are available then, ongoing transformation processes may be halted or impeded.

To study these theses, comparative studies across time and across countries seem necessary. Regarding the energy transition, it would be interesting to compare the policy process in Germany for example with the case of the Netherlands, which was set up later and differently and also seems to have different outcomes.

Overall, the most interesting questions about consequences also seem to be the most difficult to study, as they require deep immersion in the policy-processes themselves (in stable and unstable arenas) and also measurement of their outcomes to make effects comparable. As sustainability transformations seem to encompass the local to the global level, we recommend focusing on processes at the different levels (not) addressing goal conflicts and, in turn, considering effects at all other levels.

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