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B) Projektübersicht

1 Kurzfassung

Das Forschungsprojekt RIPA (Roadmap to the Implementation of the Paris Agreement) verwendet anstelle eines Top-down Ansatzes und einer „One Size fits all“-Denkweise einen neuen Ansatz, der auch mit dem Pariser Übereinkommen assoziiert wird (Verweij M. et al., 2006): Die Involvierung unterschiedlicher Haltungen und Perspektiven sowie die Förderung der Zusammenarbeit unterschiedlicher Stakeholder und Gruppen. Basierend auf der „Theory of Plural Rationality“ von Michael Thompson (auch als „Cultural Theory“ bekannt) untersucht RIPA, welche Perspektiven es im Klimadiskurs gibt, wie sie entstehen und wie sie miteinander verbunden sind. Um mögliche Vorgehensweisen bei der Umsetzung von Klimaschutzmaßnahmen zu identifizieren, verwenden wir das Konzept von „clumsy solutions“ – eine inklusive Herangehensweise, die davon ausgeht, dass eine Kombination der Haltungen, Vorstellungen und Handlungen unterschiedlicher Stakeholder eher zu zufriedenstellenden, robusten und resilienten Lösungen führt als „One-track approaches“ (Thompson, M. et al., 1990, Thompson, M. 2008a).

Zu Beginn der Forschungsarbeit (März 2018) war die Klimadebatte äußerst virulent – extreme Wetterereignisse (lange Trocken- und Hitzephasen in Österreich) und globale gesellschaftliche Bewegungen (Fridays For Future) sorgten für Bewusstseinsbildung im Hinblick auf die Notwendigkeit von Klimaschutzmaßnahmen. Zugleich war der Klimadiskurs ebenso wie andere gesellschaftspolitische Auseinandersetzungen auch von einer zunehmenden Polarisierung geprägt. Es kam zur Ausbildung von Perspektiven, die immer weniger miteinander vereinbar zu sein schienen: Greta Thunbergs Ausruf „How dare you“ steht stellvertretend für die VerfechterInnen des Klimaschutzes auf der einen Seite, auf der anderen Seite finden wir die zunehmende Präsenz und Aggressivität der „Klimaskeptiker“, unterstützt durch die spezifische Funktions- und Wirkungsweise der sozialen Medien; darüber hinaus das Spannungsverhältnis zwischen der „Sorge um das Ende des Monats“ (soziale Sicherheit) einerseits und der „Sorge um das Ende der Welt“ (Umwelt- und Klimaschutz) andererseits; und nicht zuletzt der (verschleierte, aber essentielle) Konflikt um die Kosten des Klimaschutzes („wer bezahlt?“) – allesamt Verhärtungserscheinungen der Klimadebatte, die die Umsetzung von Klimaschutzmaßnahmen erschweren. Und dass der Klimawandel immer in Beziehung zu anderen gesellschaftlichen Krisen zu setzen ist, dies zeigte endgültig die COVID-19-Pandemie am Ende von RIPA, deren Bekämpfung (bzw. die ihrer Folgen) ebenso gegen die Bekämpfung des Klimawandels ausgespielt werden kann und wird.

Im Zuge von RIPA wurden fünf Perspektiven im Klimadiskurs identifiziert: (1) die „hierarchische“ Perspektive (Politik und Verwaltung, Klimaschutz durch staatliche Regulierung und internationale Abkommen); (2) die „individualistische“

Perspektive (der Wirtschaft, Klimaschutz durch marktförmige und technologische Lösungen); (3) die „egalitaristische“ Perspektive (Zivilgesellschaft, individuelle Verantwortung und Lebensstiländerung); (4) die „autonomistische, regionalistische“ Perspektive (Maßnahmen auf lokaler Ebene); und (5) die „fatalistische“ Perspektive (Skepsis gegenüber der Möglichkeit und/oder Notwendigkeit des Klimaschutzes) (Verweij, M. et al., 2006). Diese Perspektiven bedingen einander (keine kann ohne die anderen existieren), sie sind hybrid und in Bezug auf Zeit und Kontext wandelbar, und vor allem gibt es sie notwendigerweise, weil sie alle eine bestimmte Rolle in gesellschaftlichen Zyklen spielen (Kombination der Plural Rationality-Theorie mit dem von C.S. Holling ausgehenden Konzept des adaptiven bzw. Resilienzyklus). Eine Lösung des Konflikts zwischen den Perspektiven kann daher nicht darin bestehen, dass sich eine gegen die anderen durchsetzt oder dass ein Kompromiss im Sinne des kleinsten gemeinsamen Nenners erzielt wird. Die Lösung muss „clumsy“ sein und das gleichzeitige Nebeneinander der unterschiedlichen Ansätze ermöglichen.

Im Zuge einer Stakeholder-Netzwerkanalyse wurden die Schlüsselakteure der Klimadebatte in Österreich identifiziert und diesen Perspektiven zugeordnet. Weiters wurden sie danach gefragt, welche Lösungsansätze des Klimaschutzes sie generell vertreten sowie welche erfolgreichen Maßnahmen und Projekte sie nennen würden. Es wurden fünf partizipative Impact-Workshops mit VertreterInnen der Perspektiven über die Hebelpunkte der gelingenden Umsetzung von Klimaschutzmaßnahmen durchgeführt, und 15 qualitative Interviews über die Bedingungen der Möglichkeit der Zusammenarbeit zwischen Akteuren, die nicht übereinstimmen, die einander nicht mögen und nicht vertrauen (A. Kahane), vervollständigten die Forschungsarbeit.

Die unterschiedlichen Perspektiven stimmen in den Zielvorstellungen eher überein als darin, wie diese Ziele erreicht werden sollen. Außerdem kann zwischen den Positionen in Bezug auf konkrete Maßnahmen viel eher Konsens erreicht werden als im Hinblick auf Interessen, Motive und Wertvorstellungen. Vor diesem Hintergrund und den Erkenntnissen aus der Forschungsarbeit führte RIPA zu einem Regelkatalog für Clumsy Solutions: (1) „Bring clumsiness in“: schließe keine Perspektive aus. (2) „Take numerous small steps instead of a one-size-fits-all solution“: eine Vielzahl an kleinen Schritten führt zum Ziel. (3) „Do the right thing out of different reasons“: lass unterschiedliche Handlungsmotive zu. (4) „Aggregate solutions instead of compromising“: kombiniere Lösungen anstatt den kleinsten gemeinsamen Nenner zu suchen. (5) „Rely upon plural networks“: richte Orten und Formate der Übersetzung von unterschiedlichen Perspektiven und Lösungsansätzen ein. (6) „Let’s do more good instead of less bad“ (Michael Thompson) (7) „Bring in the autonomous and local perspective“: teste die unterschiedlichen Ansätze auf lokaler Ebene und präsentiere die Ergebnisse. (8) „Connect the centre with the periphery“: verbinde die Innovativität der „Peripherie“ mit der Entscheidungsmacht des „Zentrums“. (9) „Handle stets so, dass die Anzahl der Wahlmöglichkeiten größer wird“ (Heinz von Foerster).

2 Executive Summary

The research project RIPA (Roadmap to the Implementation of the Paris Agreement) uses a new approach (also associated with the Paris Agreement itself; Verweij M. et al., 2006), instead of a top-down approach and a "one size fits all" mindset: Involving different attitudes and perspectives and promoting cooperation between different stakeholders and groups. Based on Michael Thompson's "Theory of Plural Rationality" (also known as "Cultural Theory"), RIPA investigates the existing perspectives in the climate discourse, how they emerge and how they are connected to each other. In order to identify possible approaches to the implementation of climate protection measures, we use the concept of "clumsy solutions" - an inclusive approach which assumes that a combination of attitudes, ideas and actions of different stakeholders is more likely to lead to satisfactory, robust and resilient solutions than "one-track approaches" (Thompson, M. et al., 1990, Thompson, M. 2008a).

At the beginning of the project (March 2018), the climate debate was really virulent - extreme weather events (long periods of drought and heat in Austria) and global social movements (Fridays For Future) raised awareness of the need for climate protection measures. At the same time, the climate discourse, like other socio-political debates, was characterised by increasing polarisation. This led to the formation of perspectives that seemed increasingly incompatible with each other: Greta Thunberg's exclamation "How dare you" is representative for the proponents of climate protection on the one hand, and on the other hand we find the increasing presence and aggressiveness of the "climate sceptics", supported by the specific role of the social media; furthermore, there was a tension between the "worry about the end of the month" (social security) and the "worry about the end of the world" (environmental and climate protection); and last but not least the (veiled but essential) conflict about the costs of climate protection ("who pays?") - all of them indicators of increasing difficulties to implement climate protection measures. And finally, we had to realise that climate change always has to be put in relation to other social crises, which was shown by the COVID-19 pandemic at the end of RIPA. The fight against the pandemic and its consequences will also be played off against the fight against climate change.

We differentiated between five perspectives on climate change: (1) the "hierarchical" perspective (politics and administration, climate protection through governmental regulation and international treaties); (2) the "individualistic" perspective (of the economy, climate protection through market-based and technological solutions); (3) the "egalitarian" perspective (civil society, individual responsibility and lifestyle change); (4) the "autonomous, regionalistic" perspective (measures at the local level); and (5) the "fatalistic" perspective (scepticism about the possibility and/or necessity of climate protection) (Verweij, M. et al., 2006). These perspectives are interdependent (none can exist without the others), they are hybrid and changeable in terms of time and context, and

above all, they necessarily exist because they all play a specific role in social cycles (combination of the Plural Rationality Theory with the concept of the Adaptive or Resilience Cycle by C.S. Holling). Therefore, a solution of the conflict between the perspectives cannot consist in one prevailing over the others or in a compromise in the sense of the lowest common denominator. The solution must be "clumsy" and allow the different approaches to coexist simultaneously.

During a stakeholder network analysis, the key players of the climate policy field in Austria were identified and assigned to these approaches. Furthermore, they were asked which approaches to climate protection they regard as effective and which best practices in Austria they would nominate. Five Participatory Impact Workshops were held with representatives of the perspectives in order to determine the leverage points for a successful implementation of climate protection measures, and 15 qualitative interviews on the conditions of the possibility of cooperation between actors who disagree, dislike and distrust each other (Kahane, A., 2017), completed the research work.

The different perspectives rather agree on the objectives than on how these objectives should be achieved. Moreover, consensus can be more easily reached between positions on concrete measures than between different interests, motivations, and basic values. Our research led us to a set of rules for clumsy solutions: (1) "Bring clumsiness in." It is not possible to find the one elegant solution which completely solves the problem of climate change. The approach is clumsy because it combines different solutions even though they do not match. (2) "Take numerous small steps instead of a one-size-fits-all solution." The goal will be rather achieved indirectly and by a multitude of mini-steps instead of through a single solution and a "big hit". (3) "Do the right thing out of different reasons." Instead of arguing about different values, identities, and motivations we should concentrate on implementing different solutions independently and at the same time. (4) "Aggregate solutions instead of compromising." Against the background of polarisation and fragmentation we should use the "systems of distributed intelligence" (Nassehi, A., 2015) instead of finding the lowest common denominator (and, in case of doubt, doing nothing). (5) "Rely upon plural networks." We need new formats which translate the different logics into each other to create mutual acceptance. (6) "Let's do more good instead of less bad" (Michael Thompson). Climate protection should be framed (also) as a process that produces, not only prevents something. (7) "Bring in the autonomous and local perspective." Different solutions (be it governmental, market/technology oriented or egalitarian) can be tested at the local level, and the "fatalistic" voice can be better heard as well. Furthermore, the unorthodox ideas of the autonomous perspective (the "hermit") can be found here. (8) "Connect the centre with the periphery." It is important to connect the local level (implementation) with the national/global perspective (regulation) to enable the flow of knowledge and resources. (9) "Keep alternatives in mind." Remember Heinz von Foerster's quote: It is necessary to always act so as to increase the total number of choices.

3 Hintergrund und Zielsetzung

Climate change is proving to be a moving target. Since March 2018, in parallel with our research project, there have been clear disruptions in both the meteorological as well as the political climate. Extreme weather events increased eminently on a global scale. At the same time, calls for action and attention became even more polarized and fragmented. In certain countries and regions and among specific social groups there was a growing awareness of the need for action, as evidenced by social movements such as Fridays for Future, led by Greta Thunberg, and divestment campaigns in universities and colleges. On the other hand, political voices which doubt the importance of international cooperation gained more and more impact. These voices often played off the growing social inequality and technological transformations that lead to uncertainty and instability in meeting daily needs. Therefore, it was reasonable to view the two poles as representing two movements based on the time-scale under consideration. For example, the former long-term, global perspective relates to the term "end of the world", while the latter, short-term, local perspective aligns with concern about "end of the month". They reflect the tension between the ecological struggle (concern about the end of the world) and the social struggle (concern about how to get through the month running out of money). All these developments prevented conflict resolution and complicated political decision-making. Therefore, many people had the feeling that the implementation of climate protection measures happened far too slow. The science of climate change is well established and the required measures to reduce greenhouse gas emissions are well-known, but the process of implementation was stuck, and still is.

Against this background, the goal of RIPA was to identify and understand the different perspectives in the field of Austrian climate policy to elaborate a common ground in order to support the implementation of climate protection measures in Austria. Based on a multi-method approach we elaborated five different positions towards climate protection and its national implementation according to the Theory of Plural Rationality (also known as Grid-Group Theory or Cultural Theory) of the anthropologist and consortium member Michael Thompson. Following his concept, implementation success rests on inclusion of all perspectives towards climate change and climate protection ("clumsy solutions").

In the end of the research period the situation changed completely. The corona crisis pushed the climate crisis out of the headlines. We experienced a complete shutdown of the economy as well as of social life in Austria and at a global scale. We do not yet know how the corona crisis will affect climate protection, but it is to be feared that climate protection and economic reconstruction will be played off against each other. It stresses once again the need for clumsy solutions -

solutions that not only incorporate different perspectives, but also place the climate crisis in the context of other crises we face.

RIPA Objectives:

- (1) Developing a theory of the different positions (“rationalities”) in the climate policy field based on the Plural Rationalities concept in order to describe their attitudes toward climate protection, the main characteristics of the climate debate and its cleavages (WP1 literature research and theory building).
- (2) Identifying the relevant stakeholders which are needed to implement the climate protection measures according to the Paris Agreement in Austria as well as their interconnections by means of Social Network Analysis techniques (WP2 social network analysis).
- (3) Describing the different perspectives on climate change of the rationalities (How do they frame the problem? Where do they see the causes? Which solutions do they propose?) (WP3 content and topic analysis).
- (4) Determining the reasons for the gap between the increasing awareness for the problem on the one hand and the lack of implementation of climate protection measures on the other (WP4 in-depth interviews).
- (5) Supporting the emergence of a new “situational awareness” and of alternative ways to frame the problem in order to overcome stuck positions in the climate debate (WP5 participatory impact workshops).
- (6) Identifying the leverage points to support the process of implementing climate protection measures from the point of view of the different perspectives; and determining the solutions proposed by each of the rationalities (WP5 participatory impact workshops).
- (7) Developing a framework for “clumsy solutions”, a set of rules for new formats and ways of collaboration between stakeholders which “do not agree, like or trust each other” (Kahane, A., 2017) (WP4 in-depth interviews, WP5 participatory impact workshops).

4 Projektinhalt und Ergebnis(se)

4.1. Literature research and theory building (WP1)

4.1.1. The Plural Rationality Concept

The implementation of climate protection measures can be considered as a wicked problem (Rittel, Webber, 1973). Wicked problems are technologically as well as socially complex. Many different interconnected forces drive the problem, many stakeholders with different perspectives and interests are involved, and there is consensus neither about the nature of the problem nor about the nature of the solution. A single "one size fits all"-solution does not exist, and there is much dissent about which – if any – measures should be implemented. Thus, wicked problems require new and specific formats of discussion, conflict solution, and decision-making. And first of all, it is necessary to determine and describe the different perspectives towards climate policy which exist in the climate debate. We combine two theories to conceptualise the emergence and the nature of these perspectives: The Theory of Plural Rationality (Thompson, M. et al. 1990, Thompson M., 2008a) and the Concept of the Resilience (Adaptive) Cycle (Holling, C.S., 1986; Gunderson, L. H., Holling, C.S., 2002; Burkhard, B. et al. 2011; Fath B.D. et al., 2015). This combined approach enables us to understand, why these different perspectives exist and how they depend on each other.

The Theory of Plural Rationality is a heuristic model to describe different forms of social perception which conceptualises a cultural space with two dimensions: the grid and the group dimension (Thompson, M. et al., 1990; see Figure 1 below). Grid means the extent to which social actors find themselves in asymmetric, hierarchical social relations. Group refers to the amount of social cohesion among the social actors involved. The combination of the two dimensions leads to four types of social perception (hierarchy, individualism, egalitarianism, and fatalism) plus a fifth type (autonomism or "the hermit", who is located outside of the cultural space). "Grid measures the extent to which ranking and stratification constrain the behaviour of individuals. Group, by contrast, measures the extent to which an overriding commitment to a social unit constrains the thought and action of individuals. Assigning two values (high and low) to the two dimensions gives the four ways of organizing social relations. Egalitarianism is associated with a low-grid score (little stratification) and a high-group score (strong group boundaries and solidarity). The combination of a high score on the grid dimension (lots of stratification) with a high score on the group dimension (much solidarity) gives hierarchy. The third way of life, individualism, is associated with low scores on both the grid and group scales. Lastly, fatalism is characterized by a high-grid and a low-group score" (Verweij, M. et al., 2006: 819).

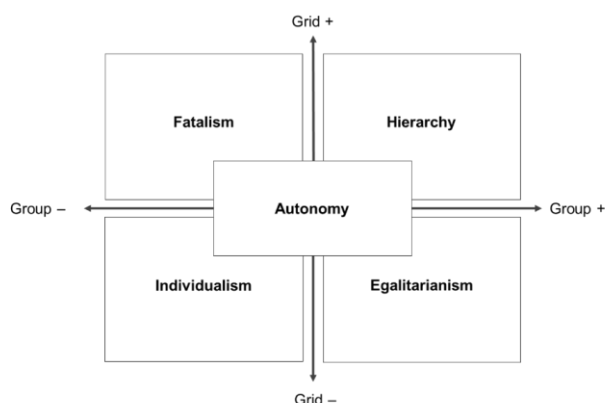


Figure 1: The Plural Rationality Model (Thompson, 1990: 8).

Depending on the position in this cultural space, the perspectives on social life are different (Thompson, M., 2008a):

1. From the hierarchical position (strong hierarchies, high group embeddedness), social life is controllable, and it is stable if laws and rules are followed. There is a need for reliable social institutions that ensure the fair distribution of resources, in accordance with the needs defined by experts and authorities.
2. The individualistic position (weak hierarchies and low group embeddedness) represents an atomistic perspective. Social life is the product of the actions of individuals who pursue their personal goals. The distribution of resources takes place through free markets, which should not be restricted through regulations, and is based on competitiveness. At the beginning, the opportunities are the same for everyone, but then competence and performance count.
3. For egalitarianism (weak hierarchies, strong group embeddedness), social (and ecological) life is fragile. Equality between social actors is the greatest good, and justice is not created by markets or bureaucracies, but by community life. A sense of responsibility towards the socially weak and disadvantaged as well as personal commitment are important values.
4. From a "fatalistic" point of view (strong hierarchies, but low cohesion), social life is ruled by chance. From this perspective, social life cannot be really influenced, let alone changed for the better. There is no trust and justice, the law of the strongest rules the world, but oneself is regarded as weak.
5. The autonomous position is located beyond the cultural space which is framed by hierarchy and social cohesion. "The hermit" does not want to get involved in the struggles for resources and social capital, he acquires meaning from being or acting on his own and from being independent of other social actors and relations.

The most interesting aspect of the Plural Rationality Concept is not necessarily the "detection" of these positions itself (which we find e.g. as politics/state, economy/market, and civil society/social engagement in other policy concepts), but the new framing of these perspectives and that the rationalities are treated

as depending on each other. None of the positions is totally “true” or totally “wrong”, and each of them contains something that the other lack (Verweij et al., 2006: 821). Keeping this in mind could be a key to a better understanding of the positions and to new formats of alternative problem framing and decision-making. A solution for a problem which excludes one of the voices would not be “complete”. The Plural Rationality Theory calls these solutions “clumsy” – “policies, that creatively combine all opposing perspectives on what the problems are and how they should be resolved” (ibid: 817).

4.1.2. The Resilience Cycle

The theory of the resilience cycle has its origins in ecosystem and complexity research, adds a dynamic aspect to our concept and provides an explanation why these perspectives necessarily exist (Katzmair, H., 2019). Further developing and transforming C.S. “Buzz” Holling’s so called “lazy eight” (Gunderson, L.H., Holling, C.S. 2002) the resilience cycle conceptualises the stages social actors as well as relations and networks continuously run through – from emergence (“beginning”) and growth (“prime”) via crisis (“disruption”) right up to regeneration (“deconstruction”) and new beginning (“exploration”) (Figure 2).

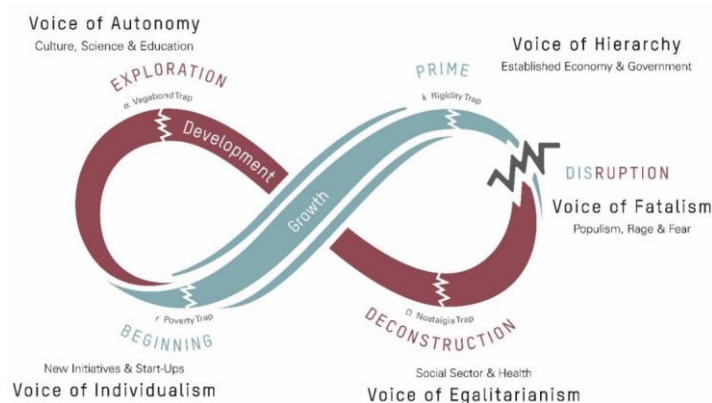


Figure 2: The rationalities in the resilience cycle. Chart: FASresearch based on Gunderson, L.H., Holling C.S. 2002.

“Resilience”, in this concept, rather than to recovery after crises, refers to the ability of a social system to go through this cycle again and again (Burkhard, B. et al., 2011; Fath, B.D. et al., 2015). Learning as well as the ability to adapt and to renew are key factors for the resilience of a social system. It depends (1) on the variety of the social actors in the system, (2) on the amount of available resources, and (3) on the extent of social cohesion among the elements of the system. Adding the perspectives derived from the Plural Rationality Concept to the stages of the resilience cycle, we can propose that in the initial phase the individualistic perspective dominates (innovation, entrepreneurship), followed by hierarchism in the stage of growth (bureaucracies and big enterprises), fatalistic attitudes in the time of crisis and disruption (distrust towards established institutions and knowledge helps to overcome ways of thinking and acting which do not work anymore), and egalitarianism in the stage of reconstruction (social

engagement to help the victims of the crisis). And the position of autonomism (the “hermit”, the artist), which stays out of the game for status and power, seeks for new ways of thinking and acting, as it would be regarded as necessary in the stage of exploration for a new beginning (Katzmair, H., 2019).

We believe that all these perspectives and the corresponding social actors necessarily exist because all of them belong to a certain stage of the life cycle which characterises the existence of social systems. For us, this is the most important reason for the necessity of clumsy solutions, that is, including all the perspectives in the process of problem solving and decision-making. For a moment, different positions and interests (and the social struggles behind them) could be reframed as different stages of a development life cycle. It could help to overcome deadlocked discussions in social conflicts to temporarily rethink conflicts in this way. But reframing the conflict in this manner does not mean that we neglect the fact that the different voices differ in their power, status, access to resources, and network embeddedness. It is more likely that the phase of growth (quantitative change in the stage before disruption) is more stable than the phase of development (qualitative change after disruption), therefore hierarchism and individualism accumulate capital whereas egalitarianism as well as autonomism are concerned with maintaining the system (for which a certain amount of the accumulated capital is needed and has to be redistributed).

4.1.3. Adaptation of the Plural Rationality Model to climate change

We assume that the different positions described by the Plural Rationality Concept represent different attitudes towards climate change and climate protection measures (Verweij, M. et al., 2006). Adapting the concept to the topic of climate policy we have reformulated the group dimension (social cohesion) as regulation (fettered competition) vs. deregulation (unfettered competition, see the x-axis in Figure 1), and the grid dimension (hierarchy) as centralisation vs. decentralisation (of social structures, see the y-axis in Figure 1) (Thompson, M., 2008a). This led us to perspectives in the climate debate which can be described as follows (Verweij, M. et al., 2006, pp. 822-829):

1. The etatistic voice (hierarchism, i.e., regulated and restricted competition in conjunction with centralised and hierarchical relationships between social actors) proposes governmental regulation, legal requirements, international treaties, and expert knowledge in order to deal with climate change (global average temperatures as reference values, carbon offsetting, ecological taxation, state and public subsidies, research funding).
2. The individualistic voice (competition plus symmetry) prefers market-based solutions and new technologies (e-mobility, renewable energy technologies, sustainable industrial processes). From this perspective, innovativeness and the mindset of entrepreneurship are the best approaches to meet the climate change problem (which is rather regarded as opportunity than as problem).

3. The egalitarian voice (regulation plus non-hierarchical relationships) rather proposes personal responsibility and lifestyle change as climate protection approach (saving energy, reducing meat consumption, avoid car driving and air travel). Additionally, they emphasise the responsibility of the industrialized countries towards developing countries and the third world.
4. The autonomistic voice represents autonomous, regional and/or local initiatives of climate protection (climate alliances, regional entrepreneurial networks, climate protection associations) regardless of the motivation behind the activities (be it profit seeking, exercising political power or the wish to solve global problems).
5. The sceptical or “fatalistic” voice, finally, faces a deregulated and asymmetric social world (competition without the protection of social cohesion). It deeply distrusts the ruling elite, media and forms of knowledge which are regarded as “established” (including science and climate research), and it denies the necessity and/or possibility of climate protection measures at all.

This is the concept of the plural rationalities and their approaches which we used for all following steps of our research project. The methodical background of operationalizing the rationalities for empirical research is described in detail in our article (Cambardella, C. et al., 2020).

4.2. Stakeholder Network Analysis (WP2)

4.2.1. Network Characteristics and Key-Players

The network of the Austrian climate policy field derived from the 134 interviews with experts identified through snowball sampling consists of 549 institutions (organisations and companies) connected through 1.077 nomination relations. An average of 9.2 institutions were nominated in each interview. Figure 3 depicts the core of the stakeholder network.

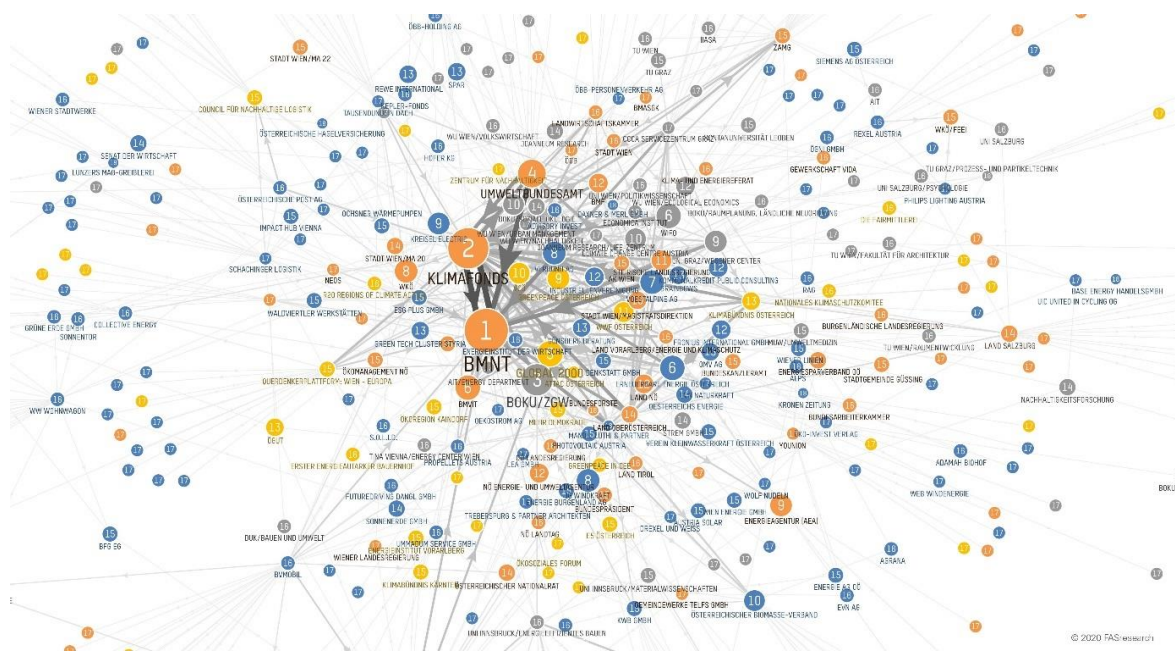


Figure 3: Core of the Austrian climate policy stakeholder network. Chart: FASresearch.

The colours represent types of institutions (orange: government and administration, blue: companies, grey: research and science, yellow: civil society). Numbers indicate ranks according to the number of nominations (indegree). The network consists of one densely connected core and a wide-ranged, diversified (semi)periphery. This suggests the existence of a single climate protection community but hides the existing tensions between the different stakeholder perspectives.

There is a clear correlation between network position and type of institution (Table 1). By subdividing the network into core (five nominations and more, the maximum is 42), semi-periphery (2 up to 4 nominations), and periphery (less than 2 nominations) we can locate governmental institutions (federal and regional ministries, political parties, municipalities) mainly in the core of the network: 27.5% of all organisations in the network core belong to the political sector, in the semi-periphery and the periphery this number is just 21.9% and 16% respectively. The percentage of companies on the other hand increases from the centre to the periphery (40%, 45.3%, and 51.4%). We find research and science mostly in the semi-periphery (15% in the core, 19.5% in the semi-periphery, 15.7% in the periphery), and it is remarkable that the civil society organisations are located as well as in the core (big NGOs) as in the periphery (regional climate protection associations and initiatives – the percentages are 17.5%, 13.3%, and 16.8%).

Network area	Government	Economy	Research and science	Civil society	Total
Center	27,5	40,0	15,0	17,5	100
Semi-periphery	21,9	45,3	19,5	13,3	100
Periphery	16,0	51,4	15,7	16,8	100
Total	18,2	49,2	16,6	16,0	100

Table 1: Distribution of stakeholder groups over networks areas (row percentages). Table: FASresearch.

Another indicator for the specific position of governmental institutions within the network is the number of brokerage roles. Brokerage in this sense is a genuine network analytical concept which measures the degree to which a specific network actor connects different kinds of other actors (i.e. is in a brokerage position; Gould, R.V., Fernandez, R.M., 1989). The aggregated number of all brokerage positions per link is highest for the governmental institutions (3.0), followed by civil society (1.6), research and science (1.2), and economy (0.9).

There is a clear connection between network position and the attitude towards climate protection approaches and the estimation of their impact. In summary, we can locate governmental regulation and legal requirements in the core of the network whereas implementation and realisation of climate protection measures (new technologies, lifestyle change, and regional solutions, etc.) can be found at the semi-periphery and periphery of the network. Thus, climate protection can (also) be treated as the question of a successful innovation ecology which includes the issue of the interrelation between the centre and the (semi)periphery of the Austrian climate policy network.

4.3. Content and Topic Analysis (WP3)

4.3.1. Confidence in Climate Protection Approaches

Overall, respondents attribute the greatest effectiveness to the governmental approach (average of 8.4 on a scale from 0 to 10; 114 respondents), followed by the market/technological approach (6.8), the regional approach (6.5), and lifestyle change (5.6). Stakeholders which implement and realise climate protection measures have more confidence in the impact of measures than experts and members of social partner organisations (representants of municipalities: 8.0 / federal agencies: 7.7 / energy suppliers: 7.4 / NGOs: 6.3 / universities: 6.2 / employee's associations: 6.0 / non-university research: 5.3). - According to our respondents, governmental regulation is most effective, but respondents who trust in regulation, have lower confidence in the other approaches (lowest average correlation of governmental approach with all other approaches; Table 2). On the other hand, the regional approach is most inclusive in the sense that people who have confidence in regional measures, also have confidence in the other approaches (highest average correlation).

Approach	Govern.	Market	Lifestyle	Regional	Average
Governmental regulation		0,20	-0,11	0,17	0,09
Market/Technology	0,20		0,19	0,31	0,23
Lifestyle change	-0,11	0,19		0,50	0,19
Regional measures	0,17	0,31	0,50		0,33

Table 2: Pearson correlation between climate protection approaches (N=114). Table: FASresearch.

4.3.2. How to support Climate Protection Approaches

Regarding the question how to support climate protection measures, all in all 110 propositions and demands have been derived from the expert interviews. The ten most nominated propositions are: (1) Government and politics should take over more responsibility and use political action opportunities (69 of 116 respondents; 59,5%). (2) More use should be made of the opportunities offered by renewable energy technologies (56%). (3) An ecological tax reform should be implemented (50,9%). (4) Awareness and knowledge about climate change should be raised (41,4%). (5) Create incentive systems for the implementation of climate protection measures (37,9%). (6) Understand the political framework conditions as essential points of leverage (37,1%). (7) Ecological financial and economic models should be developed and implemented (37,1%). (8) Use progressive countries in climate protection as best practice examples (34,5%). (9) Fix concrete and realistic long-term climate protection goals (33,6%). (10) Avoid favouring certain interests or interest groups (31,9%). - 47 out of the 110 propositions (42,7%) are related to governmental measures, 28 (25,5%) refer to market and technology solutions, 21 or 19,1% to lifestyle change measures, and 14 (12,7%) are concerned with regional measures and activities. - To sum up, the most significant results are:

1. According to the expert interviews, the governmental approach has the greatest impact, but the governmental bodies should take over more responsibility than up to now.
2. A lot of solutions, initiatives, and projects already exist – many of them funded and/or supported by the federal and/or regional government(s). According to our respondents, there is a lack of coordination between the government and the regional initiatives and a lack of connectedness among regional initiatives.
3. The political impact corresponds with network position. It is the “governmental core” of the network which experts treat as responsible for regulating climate protection measures and which they urge to take over more responsibility. The semi-periphery and the periphery of the network are the areas where climate protection already takes place, but actors from the (semi)periphery miss contact and relationships to the core and to each other.
4. It is the regional approach which can integrate the other approaches because it can be state-driven, market-driven and it can be related to lifestyle change

measures at the same time. The proposed solutions of the different rationalities could be implemented, presented, and selected at the local level.

5. In general, stakeholders which implement and apply climate protection measures (national, regional and local decision makers, entrepreneurs) have more confidence in the impact of these actions than experts (scientists, researchers, NGO's) and members of social partner organisations (business associations, trade unions).

4.4. In-depth Interviews (WP4)

4.4.1. Obstacles for implementing climate protecting measures

We found that although some of the obstacles were mentioned by representatives across different rationalities, the detailed explanations behind them followed different lines of argumentation. All the rationalities mentioned the lack of implementation plans for the goals set by the government. The representatives of the hierarchical rationality saw the reason for this hurdle in the great complexity within the political system and the still remaining negotiations of the political parties in the government. In contrast, the representatives of the egalitarian rationality saw a power-strategic approach of the politicians behind it to keep their electorate and not to "disappoint" them with possible restrictions. The representatives of the individualistic perspective, however, regarded it as inherent in the political system to first announce too ambitious goals and to leave the measures for implementation in the dark, because technical expertise would often be lacking. And the representatives of the autonomous rationality who deal with local initiatives believe that there is often a discrepancy between the goals set and the reality, because politicians are often too far away from local events and have little insight in the concrete living environment of the people.

4.4.2. Experiences with "Stretch Collaboration"

Based on the concept of "stretch collaboration" (Kahane, A., 2017) we categorized the experiences of the interviewees of working with people who are different, whom they do not like or trust and created a framework for a joint problem-solving process. It was interesting that there were no major differences between the representatives of the different rationalities referring to the experiences. All interviewees already had experience with this form of collaboration and were positive about working with different stakeholders, though there were different emphases. The interviewees mentioned different challenges that must be considered. There was agreement that there must be a common sense of direction as a premise for this collaboration. In three interviews, it was explicitly stated that the discussion with climate change deniers makes no sense (anymore). It is better to concentrate on cooperation with those people with whom there is a shared and common sense of direction or

with whom there is a realistic chance for cooperation. Our results show that the representatives of the different rationalities suggest different ways to reach the goal. At the same time, it is a promising insight that there are shared ideas on how to jointly design and negotiate the way to achieve the goal: A minimum of understanding for the perceptions and interests of the other rationalities is necessary, a shared sense at least of the direction is needed, and the whole process consists of a step-by-step implementation which needs much time and patience.

4.4.3. Perception of the current political situation

The setting up of a new ministry for climate policy was mentioned and assessed as positive. Despite the emphasis on the potential, it was pointed out that climate protection cannot be an isolated issue and that cooperation with other ministries is necessary. In addition, two of the interviewees said that the climate ministry needed a little more time to really get active. The current intergovernmental agreement also tends to be assessed as positive. From an ecological point of view, the interviewees see it as a major step forward compared to previous governments, as it contains not only single measures, but also overall concepts on climate protection for the first time. Following the interviewees, the intergovernmental agreement has a new kind of depth in understanding the problem. From an economic perspective (stated by the representatives of the individual rationality), the combination of climate and environmental protection with an industrial strategy resulting from the coalition between the People's Party and the Austrian Green Party is perceived as positive. Compared to what was expressed in the expert interviews (WP2 and WP3) and in our workshops (WP5), the perception of the national political situation with respect to climate protection was more optimistic, also because of increasing awareness due to Fridays for Future and climate protection activities in other countries, especially at EU level. The impact of the COVID-19 could only be addressed in the last four (of 13) interviews at the beginning of the crisis. Respondents from the "hierarchical" position mentioned that it was astonishing which radical measures were possible in a short time (but it remained unclear if these kinds of measures were suitable and preferable for climate protection). Furthermore, they worried that climate protection and the economic crisis after COVID-19 will be played off against each other.

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4.5. Participatory Impact Workshops (WP5)

4.5.1. The Statement Mapping

The first step of the Impact Workshops was the assessment of the statements with respect to agreement and probability of implementation (6.5.2.1). The five most supported statements (climate protection measures) were (1) a progressive ecological tax reform (agreement of 6.2 on a scale of -8 = strongly disagree/-4/-2/-1/0/+1/+2/+4/+8 = strongly agree; all workshops with 25 participants), the necessity of regional energy and transport infrastructure (6.1), (3) more efforts in recycling and circular economy, (4) more ambitious regulations and goals with respect to decarbonisation (4.8), and (5) more sharing than owning, reduction of consumption (meat, air travelling) (4.8). The measures with the highest estimated probability of implementation were (1) more efforts in recycling and circular economy (3.7), (2) the necessity of regional energy and transport infrastructure (2.8), (3) climate protection through market and technological solutions (2.2), (4) raising awareness and feedback (2.2), and (5) promotion of entrepreneurial mindset (2.1).

The list shows that our workshop participants rather support political measures ("etatic statements") whereas market and technological solutions ("individualistic statements") are rather treated as probable and realistic (Table 3). Furthermore, the "individualistic statements" are more polarising than the others (see column "dissent" in Table 3) in the sense that the participants either refuse or agree to them but are not indifferent. Dissent is much lower when it

comes to "etatic statements" (participants rather support them) and with respect to "sceptic statements" (which were rather rejected by our groups, in which – as mentioned above – global warming sceptics were not represented).

Rationality	Support	Probability	Dissent
Etatic statements	3,4	0,4	0,2
Individualistic statements	0,7	1,5	0,4
Egalitaristic statements	2,6	0,8	0,3
Autonimistic/regionalistic statements	2,3	1,1	0,3
Sceptic statements	-4,1	-1,8	0,1

Table 3 - Average support, implementation probability, and dissent of statements (25 participants).

What we find particularly important is the fact that the participants across all groups rather agree with the statements which indicated concrete measures rather than the ones which referred to basic moral values (average value of +2.5 compared to +0.2). Therefore, we compared these three kinds of statements with respect to their average dissent values.

Statements	Dissent
Basic moral values	0,47
Climate policy approaches	0,25
Concrete measures	0,07
Total	0,25

Table 4 – Average dissent values for different kinds of statements. Table: FASresearch.

At least for the participants of our workshops we can say that dissent increases from concrete measures via climate policy approaches to basic moral values (Table 4). The more concrete the statement the higher the consensus. People rather argue about values, identities, and motivations than about concrete propositions, measures, or projects.

There is one result which we found in every group (apart from the mixed group with the sounding board members) regardless of their member's affiliations: The ecological tax reform was regarded as key factor; it was the climate protection measure which would have the greatest impact on successful climate protection, and all groups agreed that the ecological tax reform is most difficult and less likely to be implemented. For every group except the mixed group the leverage point mapping was done with the tax reform as topic.

4.5.2. The Leverage Point Mapping

As described below (see 6.5.2.2) the Leverage Point Mapping is about identifying the success factors for the implementation of the measure with strong agreement and low implementation probability which was identified in the Statement Mapping. Here is the summary of how the different groups determined the process of implementing an ecological tax reform:

1. The **administration group (“hierarchical position”)** identified two starting points for the process: the reframing of taxes as carbon pricing (costs for emitting greenhouse gases) and the use of a simple and emotional language to communicate the consequences of climate change (e.g. “hot cities”). Critical factors for the administration group are raising awareness (triggered by the emotional language) and taxes as control instrument (triggered by carbon pricing). Leverage points which indicate the progress of the process are planning reliability for the economy and the visibility of positive distributional effects (both as outcome of climate protection measures).
2. The **economy group (“individualistic position”)** meant that the process can only be started if carbon taxes are introduced at an international level. Furthermore, there should be differentiations between industry sectors (ETS industries and others) regarding the amount of taxes. Critical factors are the transparency of costs, the dedication of the tax revenues for climate protection measures, the framing as crowd funding for system change, and finally the tax reform should be a scenario with constant net debit. The outcomes of the process according to the economy group are strengthening the circular economy (life cycle approaches, principle of cradle-to-cradle) and the reform of conveyor systems for climate protection measures.
3. The **civil society group (“egalitarian position”)** thought that a government including the Green Party would rather be able to introduce an ecological tax reform. Furthermore, the evidence of the benefits of an ecological tax reform should be used and more communicated. Critical factors according to this group are a Europe-wide coordination and more international agreements in general, a professional communication strategy of the government, and there should be a coalition between politicians, companies and the “people” against the lobbying groups which prevent climate protection measures (social partner organisations) . Outcome indicators should be social and ecological accuracy (of the taxes), consumption-based carbon pricing, fair competition, tariffs for non-sustainable products, incentives for reducing energy consumption, and awareness for the “first mover advantage”.
4. The **regional actors group (“autonomous position”)** thought that the main problem is the relationship between short-term thinking (from one election to the next) on the one hand and the need for long-term measurements on the other. Thus, the tax reform should be introduced at the very beginning of the parliamentary term. Furthermore, for more acceptance, the tax reform should be reframed as ecological fundraising. Critical factors are the positive communication of the tax measurements, “celebrity marketing” and testimonials for climate protection, and the work on convincing all political parties. The performance indicators according to the regional group’s assessment are winning acceptance through dedicating

the revenues to social policy measures and the change of the political circumstances.

What the different groups have underlined as critical for a successful ecological tax reform corresponds with their rationality (their position in the cultural space as described in the Plural Rationality Concept) in most instances: For the administration group awareness and legitimacy are the crucial factors; according to them the ecological tax reform can only be implemented if people accept it. For the individualistic position, competitiveness and the costs for the economy are the most important factor, therefore it proposes transparency, fixed purposes, differentiation between industry sectors, and constant net debit. The arguments of the civil society group were quite "etatistic": Europe-wide coordination and international agreements are necessary. And for the regional actors group the willingness of politicians and lobbying groups (the acceptance of climate protection in the "centre" of climate policy) are the critical leverage points.

The main result of the comparison of the different groups is that they agree on the objective but differ in how it can be achieved. This would support the clumsy solution approach which is about including all the different perspectives and aggregating the different approaches instead of arguing about what is best.

5 Schlussfolgerungen und Empfehlungen

5.1. Plural Rationalities and Clumsy Solutions

In the Global Risks Report 2020 of the World Economic Forum we read about the pandemic risk: "Considerable progress has been made since the Ebola epidemic in West Africa in 2014–2016, but health systems worldwide are still under-prepared for significant outbreaks of other emerging infectious diseases, such as SARS, Zika and MERS. A recent first-of-its-kind comprehensive assessment of health security and related capabilities across 195 countries found fundamental weaknesses around the world: no country is fully prepared to handle an epidemic or pandemic. Meanwhile, our collective vulnerability to the societal and economic impacts of infectious disease crises appears to be increasing. Serious as these risks are, it can be argued that health systems nonetheless have a blueprint to mitigate them, and success requires only adequate attention."¹ In the beginning of our research project global warming gained more and more attention because of extreme weather events and the commitment of social movements like Fridays For Future. Due to the COVID-19 pandemic, now (in May 2020) the attention has understandably switched from climate change to infectious diseases. How will we manage this proliferation of crises – the corona virus and its economic and social

¹ World Economic Forum: Global Risks Report 2020, 15th Edition, 76. Download: http://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf, May 2020.

consequences on the one hand and global warming on the other? And how will we handle the increasing polarisation between different perspectives on these crises which often play off different needs against each other? According to the Global Risks Report, the three threats which are most closely related to infectious diseases are failure of regional or global governance, water crises, and profound social instability – all of them are strongly connected to climate change, too.

In the moment of disruption solutions cannot be “clumsy” – there is no time to include different perspectives, discuss the approaches and test solutions. As the crisis reaches its peak, the hierarchical rationality dominates the arena (see Figure 2). But once the worst is over (at least for most of the people), in the stage of reconstruction, clumsiness is more important than ever, especially when we are exposed to several crises with different levels of virulence simultaneously. “Clumsiness” in short means: Bring in all existing perspectives even if they are contradictory, try not to discuss basic values but collect different approaches, translate the solutions of the different perspectives into each other in order to foster mutual acceptance, and select the solutions that work.

Based on the Plural Rationality Concept we have determined five different perspectives on climate change and protection: 1) The “hierarchical” position (politics and administration) which favours governmental regulation and international agreements based on expert knowledge; 2) the “individualistic” position (the economy) which supports competition, market-based solutions and new technologies; 3) the “egalitarian” position (associated with the civil society) which promotes individual responsibility and lifestyle change, 4) the “fatalistic” position which denies the necessity and/or possibility of climate protection; and 5) the “autonomous” or “regional” approach which implements measures independently and at a local level. The most important aspect of the model is that none of these perspectives is “true” or “false”, each of them knows something that the others forget or do not have in their minds, and all of them necessarily exist because each perspective plays a specific role in the Resilience Cycle, that is, in the life cycle of social systems. The individualistic attitude dominates in the stage of emergence of a social system, growth (the accumulation of capital in its different forms) is not possible without the hierarchical approach. In times of crises (the disruption of a social system) the “fatalistic voice” rises, after that the egalitarian perspective supports those who suffer from the consequences of the disruption, and finally, in the phase of exploration, the autonomous and regional perspective is needed. But there is something that prevents the inclusion of the different rationalities (or at least makes it more difficult): the differences between them with respect to the power they possess. The resilience cycle (Figure 2) consists of the growth phase (in which resources are accumulated) and of the exploration stage (in which resources are consumed), and that means that usually those in the individualistic and in the hierarchical position own the resources and decide over redistributing them. Therefore, reallocation of resources and power is the precondition for development and learning, or in other words: for solving problems. The clumsy

solution approach has to keep in mind this inequality of resource distribution among the different rationalities.

5.2. Stakeholder-Landscape Climate Policy in Austria

This inequality is reflected in the network structure of the climate policy field in Austria. As we have seen, the core of the network is dominated by the “hierarchical” rationality (government, politics, administration, but also the large energy and industry companies, big universities and research institutions) which are responsible for producing expertise knowledge, for the political framework and for the decisions on resource allocation, whereas in the semi-periphery and the periphery of the network local authorities, small companies and research institutions, civil society organisations and regional initiatives can be found, which are rather engaged in developing solutions, raising awareness and implementing climate protection measures. The connectedness of the core and of the (semi)periphery is crucial for a successful climate policy.

5.3. Key Demands of the Respondents

A key result of our study is that, according to our respondents and to the participants of the Participatory Impact Workshops, the state and the government (the “hierarchical” rationality) should take over more responsibility and use the political options for regulation and measures – the governmental approach of climate protection (governmental regulation, legal framework, agreements at EU- and international level) has the greatest impact. The objectives are set, but there is a lack of implementation plans and a lack of clear communication. Representatives of the individualistic perspective say that the goals are (sometimes too) ambitious, but the implementation steps are not concrete enough, and that more investments are needed. Especially representatives of the egalitarian perspective (NGOs and activists) mention the problem complexity, resisting interests and the gap between short-term thinking in election periods and the fact that climate protection requires long-term measures as obstacles to implementation. And actors at the regional or local level point out the lack of connectedness between them and the governmental and administrative bodies. Furthermore, they say that there should be more awareness for the fact that many ideas, solutions, and projects are already existing, and that they should be brought together and connected to public decision-makers in order to connect innovative ideas with resources and power.

5.4. Approaches and Solutions

It was remarkable that the participants of our Impact Workshops rather agree with respect to concrete measures than when it comes to basic values. Concrete measures are less polarising than statements about identities, motivations, or

interests. This underlines the need for new formats of generating a shared situational awareness and of detecting and testing different solutions instead of seeking common grounds and compromises. We believe that our Participatory Impact Workshops could be one of these formats. They enable different stakeholders to develop a systemic view on a complex problem in a consensual way. We saw that when it comes to determine the leverage points for the successful implementation of climate protection measures, different stakeholder groups agreed in the objective but differed in the way how to get there. The four groups which represented the hierarchical, the individualistic, the egalitarian, and the autonomous perspective equally identified the ecological tax reform as the measure with the highest impact on climate protection and as the most complex action to be realised. The differences occurred when they had to define the steps to the implementation of the tax reform, and these differences reflected their position according to the Plural Rationality Concept. For the administration group the acceptance of the ecological tax reform was the most important factor, the economy group was focused on costs and competitiveness, the egalitarian group argued in a hierarchical way and proposed governmental commitment, regional players disbelieved the willingness of politics and administration on the national level, and fatalistic players even did not want to take part in a project which, as they said, was paid by the "global climate change lobby".

5.5. A Framework for Clumsy Solutions

The findings and experiences of RIPA let us believe that Michael Thompson's approach of clumsy solutions is most appropriate to address the problem of implementing climate protection measures – especially in times of crises or in transition periods (we know that it cannot stay like this, but we do not yet know what is to come). Climate change is a "wicked problem" (Rittel H. W. J., Webber M. M., 1973) because it is technologically complex (numerous of different measures have to be implemented) as well as socially complex (there is no agreement on how to do it and whom to let pay for it). Conventional formats for "simple", "complicated" or "complex" problems (routines, expert conferences, or multi-stakeholder platforms) are important, but not enough. Formats are needed which help the different perspectives to mutually understand each other and accept each other in their existence. These formats should rather concentrate on translating different approaches into one another than on finding a common ground regarding basic values, identities, motivations, and interests. Things should be done out of different reasons (accumulating knowledge, making business, saving the world etc.). Finally, these formats should be rather about testing, mutual presenting, and selecting solutions than about discussing what should be done. One of such formats is the Adaptive Co-Management Process developed, among others, by C.S. Holling. Adaptive Co-Management consists of "successive cycles of participation, learning and doing" (Fabricius, C, Currie, B. 2015) involving different kinds of stakeholders at different levels where the focus is on the presentation of solutions.

We conclude by formulating ten rules for clumsy solutions which are derived from what we have learned from the Theory of Plural Rationality, from the results of the expert survey of our network analysis, from the in-depth interviews, and from the workshops of the Participatory Impact Analysis.

1. **Bring clumsiness in.** It is not possible to find *the one* “elegant” solution which completely solves the problem of climate change. The approach is clumsy because it combines different solutions even though they do not match.
2. **Promote a systemic approach.** Relational thinking is needed to better understand complex problems and to help the different perspectives to reflect their own position and their relationships to the others.
3. **Take numerous small steps instead of a one-size-fits-all solution.** The goal will be rather achieved indirectly and by a multitude of small steps instead of through a single solution and a “big hit”.
4. **Do the right thing out of different reasons.** Instead of arguing about different values, identities, and motivations we should concentrate on implementing different solutions independently and at the same time.
5. **Aggregate solutions instead of compromising.** Against the background of polarisation and fragmentation we should use the “systems of distributed intelligence” (Nassehi, 2015) instead of finding the lowest common denominator (and, in case of doubt, doing nothing).
6. **Rely upon plural networks.** We need new spaces and formats which enable different rationalities to listen to each other and to translate the different logics into each other in order to create mutual acceptance.
7. **“Let’s do more good instead of less bad”** (Michael Thompson). Climate protection should be framed (also) as a process that produces, not only prevents something.
8. **Bring in the autonomous and local perspective.** Different solutions (be it governmental, market/technology oriented or egalitarian) can be tested at the local level, and the “fatalistic” voice can be better heard as well. Furthermore, the unorthodox ideas of the autonomous perspective (the “hermit”) can be found here.
9. **Connect the centre with the periphery.** It is important to connect the local level (implementation) with the national/global perspective (regulation) in order to enable the flow of knowledge and resources.
10. **Keep alternatives in mind.** Remember Heinz von Foerster’s quote: It is necessary to always act so as to increase the total number of choices.

The question remains as to why the rationalities in the stronger position (individualism and hierarchism in the growing stage of the cycle) should redistribute resources to the rationalities in the development stage of the cycle

(fatalism, egalitarianism, and autonomism) in order to make the social system(s) resilient (to allow them to go through the cycle again and again) – if not the awareness that they all are part of the same cycle.

C) Projektdetails

6 Methodik

6.1. Literature Research and Theory Building (WP1)

6.1.1. Objectives

1. Review of existing approaches to apply the **Plural Rationality Theory** to the issue of climate change.
2. Review of existing approaches to operationalise the **five rationalities** (stakeholder positions towards climate change) according to the concept.
3. Further development of the concept, elaboration of a description of existing positions in the climate debate and **operationalisation of the rationalities** in order to assign social actors to these positions.
4. Exploration of **further theories and concepts** to better understand the different perspectives on climate change (complexity theory, resilience concept, network research, political sciences).
5. Integration of the findings into the **study design**.

6.1.2. Approach

WP1 was done by a comprehensive literature research in the fields of Plural Rationality Theory (also known as Cultural Theory), Complexity Theory (concept of the Adaptive/Resilience Cycle), Network Research (innovation networks) and Political Research (emergence and shaping of political attitudes). The results were incorporated into the study design in two dimensions: Firstly, they led to our specific way to combine the different concepts and to adapt them to the topic of climate change. Secondly, they led to the decision how to operationalise the rationalities and how to frame the questionnaire.

6.2. Stakeholder Network Analysis (WP2)

6.2.1. Objectives

1. Identification of the **main stakeholders** (companies and organisations) in the field of climate policy in Austria.
2. Determination of their **specific roles** in climate policy (pioneers, experts, researchers, decision makers).

3. Mapping of the **stakeholder landscape** (key players, key relations, key communities).
4. **Activating** the stakeholders and **raising public awareness** for the climate protection goals according to the Paris Agreement.

6.2.2. Approach

The questions were introduced by a narrative which described the motivation, the purpose, and the objectives of our study. In short, the questionnaire included the following questions: (1) Assessment of the impact of different climate protection approaches. (2) Nomination of existing solutions, projects, measures, actions etc. and the persons/companies/organisations which represent them. (3) How to support the development of further solutions and measures. The interviewees were selected based on snowball sample techniques (Goodman, L.A., 1961). All in all, 134 interviews with stakeholders of the climate policy field per phone were conducted (52 [38,8%] government at national and regional level, 46 [34,3%] economy, 18 [13,4%] science and technology, 18 [13,4%] civil society). The data gathered from the interviews were transformed into network data and analysed by means of social network analysis techniques.

6.3. Content and Topic Analysis (WP3)

6.3.1. Objectives

1. **Classification** of stakeholders according to the Plural Rationality Theory.
2. Identification of the **stakeholder attitudes** towards climate policy.
3. **Determination of the topics** which are regarded as most relevant by the stakeholders with respect to achieving climate protection goals.

6.3.2. Approach

The part of the questionnaire with open questions (asking for propositions how to specifically support climate protection measures in Austria) were analysed by means of qualitative content analysis techniques (coding and classification of propositions according to the Plural Rationality Concept).

6.4. In-depth Interviews (WP4)

6.4.1. Objectives

1. Determining the **reasons for the gap** between the increasing awareness for the problem on the one hand and the lack of implementation of climate protection measures on the other.
2. Analysing experiences of "**stretch collaborations**" in terms of what is needed for collaboration between people who have different perspectives, do not trust and do not like each other (Kahane, A. 2017).

3. Examining the perception of the **current government** regarding the implementation of climate protection measures.

6.4.2. Approach

We conducted 13 in-depth interviews per phone with the representatives four "rationalities". We talked to three representatives of each rationality, except the governmental, for which we had four interviews due to an overlapping appointment coordination. As in the Impact Workshops (WP5), our attempts to find any representatives of the "sceptic" position failed because they did not want to get involved in our project and its objectives (therefore we had 13 instead of 15 planned interviews).

After comprehensive internal deliberations we carried out WP 4 after WP 5 so that we were able to deepen both the results of the network analysis (WP 2) and the results of the workshops (WP 5) in the narrative interviews. This approach was of additional benefit to our research, as it enabled us to ask for the perception of the new government (including the Austrian Green Party since January 7th, 2020) as well. For the survey we conducted semi-structured guided phone interviews. The questionnaire was influenced by the concept of "stretch collaboration" (Kahane, A. 2017). Three questions guided the interviews:

1. What **obstacles** and **hurdles** do the interviewees see to implement climate protection measures, although there is already a great deal of awareness and knowledge about what is needed to be done?
2. Which **experiences** do they have **with working with people** who are contrary, who they do not trust, and what does it take to make cooperation between different actors successful?
3. How do they assess **the ability of the current government** to implement effective climate protection measures?

6.5. Participatory Impact Workshops

6.5.1. Objectives

1. Implementation of a **systemic process** including six Participative Impact Workshops with different stakeholders (rationalities) of the climate policy field to generate common situational awareness and to identify leverage points for the realisation of climate protection measures (**leverage point mapping**).
2. **Classification of participants** according to the Plural Rationalities Theory based on their consent to likert scale statements that represent the world view of the groups (**statement mapping**).
3. **Testing a format** which is suitable for "clumsy solutions" by including different perspectives on climate change.

4. **Comparison of results** with respect to the different rationalities: Which leverage points do they prefer, and which measures do they propose?

6.5.2. Approach

Five workshops with a total of 25 participants were held between April and June 2019. It was not possible to win over representatives of the “sceptic” position for the workshops. All in all, we contacted eight different people who were recommended to us as “sceptic” towards climate protection, but they refused on the grounds that they did not want to commit themselves to the project and its objectives. The workshops took place in the FASresearch office in Vienna. To conduct the workshops, the FASresearch tool “ImpactMap” was used (ratings, analysis, presentation of the results).

6.5.2.1. *Statement Mapping*

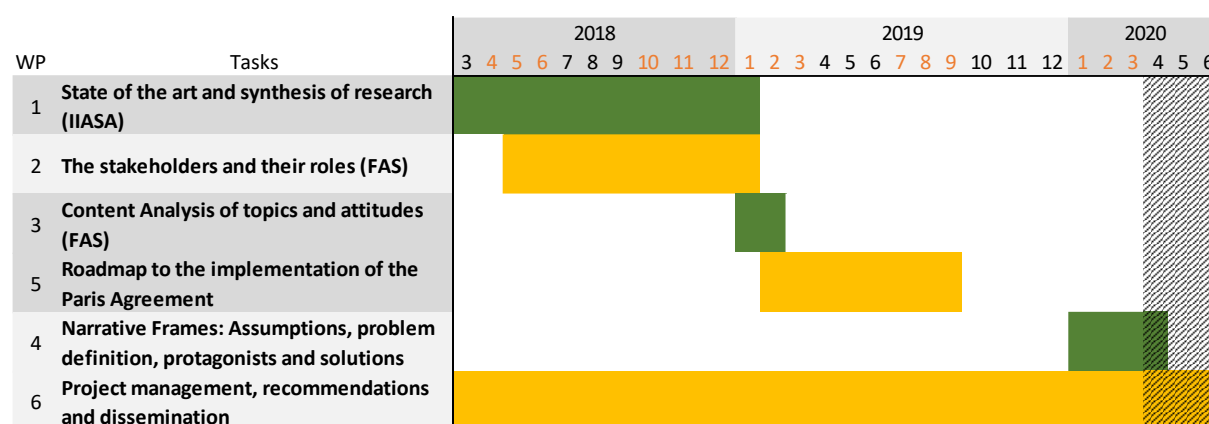
The participants were asked to assess 29 different Likert Scale statements: ten about basic values, six about climate protection approaches in general, and 13 about concrete climate protection measures. Each of the statements represented one of the five rationalities: etatism (hierarchy, government and administration), individualism (companies and interest groups), egalitarianism (civil society), autonomism/regionalism (science, regional actors), and scepticism (which denies climate change or the necessity of measures). The assessment included two dimensions: (1) To which degree do the participants agree with the statement or support the measure proposed by the statement? (2) To which degree do the participants think that the fact or the measure represented by the statement is already realised? – The result of this assessment was a classification of statements; and the statement with the highest support and the lowest degree of realisation (the most critical measure) was chosen for the next step of the workshop, the leverage point mapping.

6.5.2.2. *Leverage Point Mapping*

The process of the leverage point mapping is based on Frederic Vester’s sensitivity analysis (Vester, F., 2007) and determines the system of leverage points (also called “success factors”) which have an impact on achieving a certain goal which is represented by the statement identified in the statement mapping as described above. In a group discussion the participants develop and agree on a certain number of leverage points, that is, factors which are framed as variables (facts which can increase or decrease or become better/worse respectively). In the next step each participant assesses the impact each factor has on every other factor (on a scale of 0 = no impact / 1 / 2 / 4 / 8 = enormous impact). FAS ImpactMap computes the average values of the estimations and creates several diagrams which present the results. The main aspect of the result is the distinction between factors which are rather active (strong impact on others), rather passive (strong sensitivity towards other factors), or both. Active factors are regarded as leverage points with which the process (of achieving the

goal) could be started, both active and passive leverage points represent critical factors which are crucial for success but can't be triggered directly, and passive leverage points act as indicators for the progress of the process. It is important to note that this system of leverage gets produced jointly and by the consensus of all participants. By analysing all workshops, we can compare the different groups with respect to their climate policy objectives and their approaches how to achieve the climate protection goals.

7 Arbeits- und Zeitplan



8 Publikationen und Disseminierungsaktivitäten

Publications

- (1) Claire Cambardella, Brian D. Fath, Andrea Werdenigg, Christian Gulas, Harald Katzmair (2020): Assessing the Operationalization of Cultural Theory through Surveys Investigating the Social Aspects of Climate Change Policymaking. Accepted for Publication in Weather, Climate, and Society (WCAS) (ISSN: 1948-8327; eISSN: 1948-8335).
- (2) Christian Gulas, Andrea Werdenigg, Brian D. Fath, Harald Katzmair (2020): Climate Disruption: Plural Networks and "Clumsy Solutions". Submission for a special collection on "social networks and climate change" for the Journal "Social Networks" (ISSN: 0378-8733) edited by Prof. David Tindall (UBC Vancouver), Prof. Nina Kolleck (University of Leipzig) and Prof. John McLevey (University of Waterloo). Submitted on January 21st, 2020.
- (3) Michael Thompson et al.: Applied Systems Analysis and Systems Change. Forthcoming book.

Interviews, Presentations, and Announcements

Interview with Harald Katzmaier on "Klimapolitik in Österreich zu zentralistisch", conducted by Elke Ziegler (Ö1-Wissenschaft) and brought by the „Ö1 Journal um Acht“, March 4th, 2019 (<https://oe1.orf.at/programm/20190304/545590>) (June 2020).

Article on "Klimapolitik in Österreich zu zentralistisch" by Elke Ziegler based on the interview with Harald Katzmaier: <https://science.orf.at/v2/stories/2966520/> (June 2020).

Presentation and Poster at the 20th Austrian Climate Day, April 24th – April 26th, 2019.

Harald Katzmaier: Climate Disruption and Clumsy Networks. Presentation at the „2. Forum Anthropozän“, June 21th, 2019, Besucherzentrum Mallnitz, Nationalpark Hohe Tauern, Austria.

Harald Katzmaier: Klimadisruption. Plurale Netzwerke und ungehobelte Lösungen. Keynote at the „Stadt-Umland-Konferenz (SUM-Konferenz) 2019“, Nov. 11th, 2019, Festsaal des Wiener Rathauses, Vienna, Austria.

Project announcement in Brugger, K.; Wolf, A. (2020): „Stand der österreichischen Klima- und Umweltforschung und Entwicklungsperspektiven“. Durchgeführt vom Climate Change Centre Austria im Auftrag des Bundesministeriums für Bildung, Wissenschaft und Forschung, Abt. V/4. [unveröffentlichter Projekt-Endbericht].

Announcement including network visualisation in: Evaluierung Klima- und Energiefonds – Gesamtbewertung Jahresprogramme 2015–2017: https://www.klimafonds.gv.at/wp-content/uploads/sites/6/S324_Evaluierung_Klimafonds_Ergebnisbericht.pdf

Announcement in: Climate Change Center Austria – Newsletter 03/2020: Ankündigung des Endberichts: <https://newsletter.ccca.ac.at/m/11996555/597364-88db23c2539264e6cf2f0fe536461a93>

Online

RIPA website: <http://projects.fas.at/RIPA/>.

Conference

FASresearch, IIASA: "Climate Change. Building Resilience through Dialogue and unconventional Collaboration. 6th Viennese Talks on Resilience and Networks". The conference was completely planned for March 17th, 2020, at the "Haus der Industrie" of the Federation of Austrian Industries (IV), but had to be cancelled due to the COVID-19 crisis.