Implementation in and between policy fields

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Preface:
It is not surprising, that the scientific approach to public administration (PA) is described as administrative scienc*es*. In many cases this is primarily an external description of rules and institutions etc. – in addition to the self-description by the administrators (according to Luhmann). The growing size and complexity of PA – in combination with international/global interdependencies/arrangements – lead to (critical) questions about the possibilities and limits of "scientific" observations of the respective (political and administrative) communication[1]. This question is difficult to answer, because often a multi-disciplinarity is implied or made explicit. This does not only fill textbooks with many terms, but also with only few (often rather small-scale) empirical studies. And the basis – f. e. in terms of a theory of science – is often not described in detail. This increases the difficulties of inter-disciplinary or even anti-disciplinary approaches[2].
It was not surprising, that the crisis of the corona pandemic has emphasized the important role of the PA[3] – which also led to the suggestion of more initiatives concerning complexity-theories. What is the aim of the scientific contributions to PA issues[4] – besides writing textbooks, organizing conferences, providing advice-programs etc. If the multi-professional approach to PA-topics is not given up, the question should be raised and answered: what are we talking about? One typical strategy is the selection of a very specific issue: a law, the qualification of staff-members, the trust of citizens, the bureaucratic organi-zation etc. etc. However: even this might need some recognition of the context as an instrument for classification – and to indicate the differences of the meaning of the same words/categories[5].

These introductory comments should substantiate and illustrate the procedures to be described in the next steps: the development of the topic "implementation"

[1] F.e. : how about the differences to "media-reports"?
[2] Many decades ago Klaus König had suggested the formulation of a pre-scientific description for the object under study – so that we can collect knowledge about the same issue.
[3] Today there are discussions about failures within corona-related policies in the EU and in Germany – and also its necessary consequences (precaution; "slack resources" etc.).
[4] This should include the question, why scientific inputs often do not have the expected effects.
[5] I still remember a debate about the presentation of the "Chinese democracy" during the IIAS congress in Tunis (2018). Another experience was the publication of a book in English language, which had been given to a British colleague for language-check: the American publisher complained the incorrect English language.

– as an important element of (also my) research interests: its complexity and conceptual challenges.
In the late 1990ies some professors of PA[6] started a discourse about the necessity to include policies/policy fields and the long/complex process of its development and application into the PA-analysis[7]. Therefore, a reader for the analysis of policy fields was suggested and prepared for publication. After having done empirical research about citizen-related responsiveness of public administration since the early 1970ies, this plan was of great interest for me. However, because of the different career-developments of the participants, the publication was not finalised. In the following years the relevance of the topic became ever more visible[8]. Therefore, I decided to publish a reader[9] in collaboration with researchers of different policy fields (mainly from Duisburg-University): social policy, regional structures, labour market, environment, security, foreign affairs. Very soon the book was sold out – and the publisher asked for a new edition. After some years this was not only a question of the reduced availability of the book, but also of the change processes within the policy-fields[10]. In 2017 the new edition was presented: "Implementation in Politikfeldern. Eine Anleitung zum verwaltungsbezogenen Vergleich"[11] with the policy-fields: security, social services, environment, immigration/integration, tax, administrative reforms. A parallel publication in the same year about "Die Gesellschaft der Zukunft"[12] had also some impact on the new edition. A look at society ("the whole elephant") was and is seen as an important component for the analysis of policy fields[13].

This is also the focus of interest and for this paper, because the *third edition* of the reader is now being prepared for 2026. This raises the question about necessary revisions/additions. One of the possible ways to learn more about the implementation in the context of the "whole elephant" is the observation of the *relationships between policy fields* – not only between policies. This needs a theoretical context – for which system theory (Niklas Luhmann, 1927-1998) has been and still is chosen. It addresses the complexity of modern society and – as in Germany (and many – but not all - other countries) – a broad scale of PA-responsibilities in a democratic, liberal, *non-authoritarian* context. The implications of the complexity can be seen in the large and *growing numbers of*

[6] To name just a few: Dieter Schimanke, Christoph Reichard, Heinrich Mäding.
[7] Nota bene: about 20 years later this seemed to be consensual: in the DVPW-conference 2014 the policy field was defined as an important topic: to overcome *the former ignorance of the "material policy content"*. However, the difference between policy and policy-field was not always precisely clarified.
[8] Even the BAKÖV (national academy of PA) had asked me to develop training courses for administrators on the national level: to have an adequate view on the citizen-related effects of public policies.
[9] Politikfeldbezogene Verwaltungsanalyse. (2003);
[10] It should be noted that the DVPW congress in 2024 had listed about 100 panels on "polycrisis".
[11] "Implementation in policy-fields. Guidance for administration related comparisons"
[12] "The society of the future. Observations from the present."
[13] This is the reason for my often included citation of the story about the blind men describing an elephant (parts of it): with very different results. The importance of this story was observed quite often, if I asked researchers of PA about their perspective on the "whole elephant" (besides their specific research-topic).

policies (policy fields) and their increasing interdependence. Such a complex approach makes international comparisons more difficult. Therefore, this cannot be a part of the paper – but perhaps a part of the discussion.

The following description of the "reader under revision" includes the outline for the analysis of policy fields - and some additional questions about their interrelationships. This will be done in six steps[14]:

1. a short description of the *societal context* (in system-theoretical terms)
2. a short description of the *German PA-architectures* – as a general/special frame of policy-fields
3. a summary of policies, policy fields and *elements of the implementation process (as research categories)* – as used in the reader
4. a special focus on interdependencies of policy-fields: conflicts or mutual resonance? how can the latter be organized – with the *focus on environmental policies*?
5. a special focus on horizontal communication
6. some conclusions and suggestions for further research – with regard to more efficient results for "the elephant"

1. Theoretical background for the analysis of the *societal* context

System theory has many origins, sources and versions. The following discussion concentrates on the "functional-structural"[15] and "autopoietic" version of this theory - as it was developed by Niklas Luhmann[16]. His theory has a universal perspective which covers almost all segments of society. *It focuses its observations on (social) communication*. Systems are areas of dense communication, which are empirically separated from their environment(s). The necessity to generate systems of communication is seen in the ever increasing complexity and contingency of the growing modern world(society). The function of system-building is the reduction of complexity and the coping with the unforeseeable: this ability can be described as a very basic and profound mode of resilience and sustainability. It becomes ever more important in a more interrelated (digital connected), modern world.
In the process of societal evolution different types of *functional subsystems* emerged, which are essential for the development, inclusion, survival of growing size of the population of every society. *They have organized their communication in different ways*. This does not mean, that traditional modes of

[14] It should be mentioned, that the development of my research topics included some "bottom-up" steps: services for the citizens (responsiveness), organizational analyses, shifts between federal levels, European rules, China in comparison. The paper will also rely on topics of these research activities.
[15] Putting functions first has the advantage that the structures (organizations, institutions) are seen as varying in temporal and regional terms. More details are described in the appendix.
[16] The theory is often criticised in PA-sciences, – especially because of its complexity by concentrating on communication – instead of norms and institutions. However, when looking at the new technical media, an important field of research and expertise would be missing – especially, when the implementation effects of administrative decision-making are to be included.

differentiation (territorial, hierarchical, centre vs. periphery) are not existing any more. They can remain as additions or might be "reinvented" for establishing a dictatorship, a kingdom or a cult[17]. It is the advantage of this theory, that it opens the view to different types of systems, their various functions and their multiple forms of functioning. One type of variation relates to the scope/size of communication systems: the simple social system = communication on the basis of personal presence; organizational social systems = systems which are specialized on decisions and which coordinate their communication basically by membership roles; societal subsystems = systems which fulfil specialized functions for society and use specific media and codes for each subsystem. The system of *world* society includes all communicators which can be reached by any communication.

The "autopoietic" character of the social systems strengthens the transparency of communication processes, because they can only do what they can do. They are closed in terms of internal operations (communication). At the same time the systems are open for "irritations" from the environment, because systems can observe the environment and its reactions to their operations; sometimes they are even structurally coupled with aspects of their environment. Nevertheless, the reactions to the observations are rebound to the system-specific internal communication. All subsystems exist/survive because their specific operations contribute to the functioning of society - when dealing with complexity and the dynamics of globalization. The problem of this differentiation is evident: *there is no centre of society (like a king, dictator etc.), from which strict coercion, commands or coordination is expected and accepted*. Every subsystem represents society – but only in a specific way. The specifics are *defined by function, media of communication and code*. In this theoretical context – f. e.(!) the economy: function = supply of society with privately produced, purchased and used goods and services; medium = money; code = payment - no payment. The political-administrative system (PAS): function = setting of priorities for collective values/goals and the preparation and/or enforcing of binding decisions; medium= power and law; code = power (political majority) no power (political opposition); legal - illegal action. In similar formats the subsystems of education, public media, science, religion, law, health, family, civil society, …. are being defined - like:

*Civil Society (a. societal self-alerting; b. sorrow),
*Public media (a. opinion formation; b. information),
*Science (a. developing knowledge; b. truth),
* Medicine (a. health care; b. course of disease),
* Education (a. preparing for participation; b. life cycle),
* Law (a. conflict regulation; b. jurisdiction),
* Family (a. socialisation; b. love, empathy),
* Religion (a. elimination of contingency; b. faith)

[17] The observation of the development in the US might be instructive.

and others.
It becomes quite clear, that many countries in the world did not (yet) develop such a differentiation and the necessary inclusion of the population. This might be the case in "failed states", in countries with extensive natural resources or under restrictive dictatorship – which can be based in politics, in religion, in economy, in military etc. This can also be a regression[18] from an earlier functional differentiated society.
This situation leads us to some restrictions in the further analysis: countries without any or with only a marginal functional differentiated system architecture and/or very limited public inclusion can not be analyzed appropriately with our focus on policy-fields as elements of societal subsystems and their management. The necessary analysis should include: a. the fact, that there is a lack of a central steering structure: all functional subsystems are the society, but only a part of it; b. the subsystems often lack self defined delineations/restriction or stopping rules; they must be stimulated from outside irritation; therefore, resonance between the subsystems (balancing) is necessary; c. a functional differentiation needs many persons acting in the various systems: the inclusion of the population is an important feature. Therefore, the emphasized issues for observation, analysis and propositions are:
- the performance of the subsystem (task fulfilment);
- how (much) is the subsystem influenced (captured) by others;
- how (much) is the subsystem influencing (capturing) others;
- degree and format of population-inclusion (into the subsystems);
- forms and effectiveness of observation, irritation, resonance – i.e. balance – between the subsystems (for more details see the appendix).

It should be noted, that the substructures (organizations, simple social systems) can vary between subsystems and different societies. They can be analysed as "functional equivalents": f. e. different administrative architectures (more or less centralized or rather federal); f. e. different models of universities. However, they have to fulfil the same function by using the same code of communication. With other words: it is not essential to put a sign "hospital" on the building, if the only focus is making money – by keeping persons as long as possible hospitalized. It is the same functional subsystem as the pub, which keeps guests drinking all night: they are part of the economic system (if the flow of money is guaranteed). It is no fortuity, that instruments of "lobby-control" are established with regard to politics and PA.

[18] Often this is described as retreat from liberal-democratic and constitutional state bases: Hungary, Turkey, US are recent examples.

2. A short description of the German PAS-architectures[19] – as a general frame of policy-fields (and their scientific analysis)

The focus on PA can be described as an analysis of a functional subsystem. In a modern democratic country (like Germany) this subsystem – with its function of preparation and implementing binding decisions – is closely connected with the legal system, politics and political parties. The complex architecture is necessary for making the high level of inclusion of the members of society (the public, the citizens) possible. Therefore, multiple steps and organizations are included in the process of goal-fulfilment. The increasing complexity and contingencies of society has also led to continuous observations and many influences (but not captures) with regard to other subsystems (beyond politics and law) – like education, health, science, economy etc. The challenge of this situation can be described with reference to the different communication codes of the subsystems, different sense systems[20]. Although there are also other subsystems with a broad spectrum of observations of the society - like journalism or science - , they are not under pressure to (somehow) coordinate their communication codes. The "social media" show, how it can be ignored - for example: endless chains of fake-news. PA, politics and law are responsible for mutual responses and coordination – also with regard to the "whole elephant". This is especially visible with regard to the requests of the natural environment and with regard to permanent complaints about "too much bureaucracy".

An important indicator is the part of the GNP, which is used for the public budget (almost 50% in Germany) and the numbers/part of public servants (5,4 Mio; 12% of all employees in Germany). In simplifying terms this field is often described as public sector. Its complexity is build up by many different organizational systems, which are specialized on special fields of decision-making - based on membership roles. These organizational arrangements have to be able to syncretize the sources budget, laws/rules/routines, staff, citizens (clients), and infrastructure in a specific territory – or even beyond (EU, UN etc.)[21]. If implementation – including gaps and blame-games - is the key element of the chosen scientific analysis, most often the *whole architecture* of the PAS has to be included: in horizontal and in vertical lines[22].

[19] Nota bene: the following text is not only a case description, but also an indirect indicator for possible international comparisons of policy implementation.

[20] Typical situations could be observed in times of corona pandemic: politicians, administrators, journalists, virologists, virus denier a.o. did not speak the "same language" in public debates.

[21] Two examples from early observations: when the law book for social services was developed in the 1970ies the summary differences concerning the meaning of "income/salary" became visible. When 2006 "the standards control council" ("Expert" organization) made suggestions for rules-reduction in Germany, the status as European rules was often not correctly acknowledged. I described this situation sometimes in my lectures as "cooking a meal with 1000 ingredients".

[22] Historical and international comparisons help to identify the influences of the architectures on implementation quality. But they also show that it is not easy to learn about good/bad examples from other countries.

With regard the societal system the centralized and decentralized (federal) components are important indicators for the distributions of the sources. The national government in Berlin has often been called "spaceship" - indicating the distance to implementation goals and effects. To identify the necessities and problems of communication, the complex architecture[23] has to be acknowledged:

- the division into 16 federal states (three of them city-states) 400 local authorities (294 counties, 106 county-free cities) with together 100.751 communes – with the highest proportion of PA-staff
- organizations: about 1000 on national, (unknown) on state level
- different sizes in terms of included population
- different sizes in terms of (full-time) staff: national level 500 thousand; states-level: 1.8 Mio, local level 1.1 Mio
- complex arrangements of functions/tasks – not only between but also within different levels: from policy formulation to implementation-effects
- complex arrangements of resources: special taxes are f.e. vehicle tax (national) or – property transfer tax (state), trade tax (local), pay role-tax and income-tax (joint taxes)

A data-based description of the political and administrative communication is difficult, because of the complex relationships and constant (contingent?) changes over time. They include the changes in the relationships between functional subsystems[24]: processes of observation, irritation, enforcing of resonance are possible. The survival and development of the society ("whole elephant") often demands for more resonance (or even participation) in ever more functional subsystems and policy fields. This is often triggered by changes in the basic environment of the communication systems: nature in terms of humans, flora and fauna, climate. Many/all functional subsystems have to react to these environmental conditions[25]. Politics and PA have an important (sometimes exclusive) role in balancing the subsystems with regard to these challenges. This is also one of the reasons for the permanent criticism of "bureaucracy" (perpetuum mobile[26]).

This has led us to the story about blind persons, which were investigating (parts of) the elephant –with incompatible results. Or in another anecdote: what are we

[23] It is evident, that the data are part of the self-descriptions of the included organizations or their lobby-groups.
[24] The shifts between economic system (capitalism) and political system (socialism) is only one of the many and various examples.
[25] Often, this is not seen/accepted – even in PA: when asking many local administrative organizations for an interview about sustainability issues, they often answered "please go to the environmental agency". Different in China: when referring to the garbage in the local river, the head of the environmental office said: this is a matter of the health office.
[26] Nota bene: Max Weber has argued, that business organizations or religious organizations are much more bureaucratized – especially in a despotic frame.

discussing about, when we just look at one leg of the millipede[27] I still remember discussions with the coordinators of a research association on implementation in the late 1970ies[28]. Looking at the addressees of policies they used the term "*norm addressees*" – although my project-contribution had focussed on social and psychiatric *services*. Anyway, later we were asked to contribute another research project: about the implementation of "*persuasive programs*" – including the *"co-production"* by the citizens. Another insight was offered in a project about health-related policies in Munich (1997): the manager of the new subway said, that they are offering the most relevant contribution to the healthy city initiative. In more generalized words: the analysis of a policy needs to acknowledge the policy-field or even many of them – in the sense of cross-sectional policies. Or with other words: the identification of implementation gaps is ever more complicated and the practical (as also the scientific) blame-game might not meet the point. To develop insights into implementation processes – from the problem, to the diagnosis, to the therapy, to the outcome, to the solution – horizontal and vertical communication – even with different codes – is unavoidable. In a study about decentralization of social services (in Hesse, 2011) we have shown, that established communication networks (with regularly exchanges) are important conditions for successful reforms. With other words: a typical German slogan - "if you do not know, what to do or how to go on, establish a task force/working group" - might not be a solution.

3. Policies, policy-fields and elements of the implementation process

The previous argumentation just tried to justify the importance of having a *concept of society* – even if the further analysis will focus on specific/selected issues. The chosen concept helps to identify relevant components under study. As explained above, the choices for the following analysis are:

- A *social science* base with *communication analysis* (not economic science with money-flows or jurisprudence with rules-analysis etc.)
- Germany: as a modern (liberal, democratic) society with a high level of functional differentiation and multiple modes of citizen inclusion (no partial or strict dictatorship)
- Germany: with a federal (not centralized) state architecture (also as part of European structures)

Under these premises the reader about "implementation in/of policy-fields" needs a complex approach - for the observation of various horizontal and vertical communication networks. An empirical example, selected from a teaching research project in the HSPV/Duisburg (expert-interviews in

[27] An ironic story in a newspaper: "We have to tell you a sad story; the millipede died: it was unable to decide, with which foot it should start walking."
[28] Mayntz 1980.

Nordrhein-Westfalen (NRW) 2024), which was based on the conceptual frame of the book (under discussion), can be used for a short illustration/specification – especially of the challenges for inclusion processes.

Immigration/Integration policies and their implementation

This topic was selected in the empirical research project, because it refers to a complex and contingent policy field and an example for long-term multiple political conflicts on the national level[29]. Communication about migration takes place on all levels of social systems: from international (UN, EU) to local/inter-personal. This includes rules and decisions/routines on all levels. But often, the integration problems (local level) are not included effectively. With regard to a specific society (like Germany) it influences *modes and qualities of inclusion*[30] into many subsystems – not just into a separated "ghetto". This often includes general problems in various communication processes (language, habits etc.), which are depending on *effective arrangements of message, content/information and understanding*. As migration and integration under changing conditions (caused by wars, economic disasters, weather disasters, false propaganda by smugglers etc.) have a high dynamic, so does the reaction of the PAS: reforms in the context of permanent changes ("changes under the conditions of full speed"). This is especially true for the everyday-demands: the implementation procedures on the local level.

In the federal system of Germany the federal states are responsible for rules and budgets of migration policies; the counties and their communes have to organize the practical work. As this has to include many aspects of daily living, there is a complex and sometimes also contingent problem-situation to be tackled on behalf of migration and integration: a need for multiple coordination processes. The research interviews concentrated on these issues: earlier forms of guides and coordinating groups were strengthened/substituted by KI (communal integration centres) and KIM (funding program for communal integration management). The background is the NRW integration-program (goals to be reached until 2030).

Although it is the responsibility of the counties, all of them (54) voluntarily implemented KI – and received funds from the NRW-government. The tasks concentrated on coordination: guidance, access to service organizations, dialogues between groups of local population, language learning, education in general, organization of special events. KIM has also focused on inter-communal cooperation and the cooperation between migration- and integration-

[29] The decision of chancellor Merkel in 2015 - with the support of immigration - is still debated.
[30] The term inclusion is used in a general sense – f.e. not referring to handicapped persons. Its importance increases with the social media communication (fakes and cyber mobbing) and the growing brutalization of behaviour in the public (Heitmann 2025).

management; it installed and financed positions for case management, special initiatives for staff- qualifications and on the job training.

The communication-processes, concerning policy-goals and the necessity of strengthening the implementation processes, were not very complicated, because they referred to practical problems on the local level. However, the common understanding of the problems does not automatically lead toward a consensus about necessary resources and practical actions: many discussions on the vertical network (ministries; local offices; various voluntary organizations) are taking place. They include controversies with regard to problem-definitions and plans for efficient solutions. The important role of effective communication networks has been described. More specifically: "basic networks" are important for innovative "issue networks". The practical problems can differ between the communes (location; size) and lead to various forms of local self-government. Therefore, the vertical communication is often concentrated on financial questions (which administrative level should cover which types of expenses?) The local level has to contribute 20% to the available budget. This also had been discussed in the context of prevailing high levels of local budget-deficits. Therefore, the solidity of financial transfer is critically observed. In general, the vertical communication has been improved within the new policy-frame (KI; KIM): policy making needs knowledge transfer from the implementing actors to the national policy-formulation. Critical comments are most often related to the cooperation (competition) with voluntary organizations on both levels – which are afraid to lose functions and resources in this policy field. This also refers to the cultural (etc.) differences between groups of immigrants. Voluntary organizations have an important function for the inclusion-processes[31].

For the application in the research project, basic categories of the reader (2017) have been used, to describe the architecture of a policy-field with its implementation-structures and -processes (before looking in detail at the empirical evidence of a "successful" and of a "failed" policy).

The basic components suggested for empirical observations and analysis[32] are

- The political program
- The implementation-structure
- The adressees of the policy
- The forms and degrees of impact

[31] A central element is the necessary resonance of the education system: how about a school, in which 20 different languages are being spoken

[32] Nota bene: the following list is based on the German PA-architectures. How it could be used for other societies/countries will not be discussed. For the application of a "Multiple Governance Framework" see Hill/Hupe 2022

* The political program should include:
- *goals*, which are connected with the necessary dimensions of goal-fulfilment – and which should imply ability for understanding and justification;
- *operative and instrumental elements* (regulation, possible control and punishment, incentives for convincement and participation)
- *structural and procedural elements* of responsible PA architectures – and other included actors.
- *resources* (staff, budgets etc.)

* Implementation-structures and –processes included:
- *heterogenity/homogenity*; openness and/or closure; transparency: how are relevant actors positioned; how are they participating
- *integration and fragmentation multifactor arrangements* (hybrid-structures) different interests involved;
- *centralization/decentralisation* and/or concentration/de-concentration of decision-making, spatial distribution of responsible offices

* Addressees and affected
- *addressees* are those persons, groups, associations, organizations, for which policies should realize effects – as part of the problem-handling and -solving
- *affected* are persons etc, which are not addressed by the policy, but experiencing direct or indirect consequences during the implementation process
- *interested and observers*, which communicate directly or indirectly (via media) their opinions about the policy and the implementation (-plans)

* Gradation of effectiveness
- public policies without visible and effective output: (no output politics);

- public policies with outputs, but without the effects/impacts for the addressees: (no impact politics);

- public policies, which have some impact, but still don´t fulfil the defined needs/goals/functions (no outcome politics);

- public policies with outcomes, which are highly compatible with the intentions (effective/valid): (effective politics) - even if the implementation processes show spontaneous elements or deviations;

- public policies which have an adequate impact on the societal problem: (problem solving politics);

These dimensions of analysis should help to identify the specifics of a policy (- field) and its potential for problem-solving (goal attainment).

4. Interdependencies of policy fields: conflicts or mutual resonance? how can the latter be organized?

The list of components of the implementation process offers analytical and empirical approaches for administrative science. A contribution to the understanding of the implementation of a policy can profit from the complex frame - and can contribute to the further development of the frame. This is even more important for the analysis of a policy *field*: in every phase of political programming and during the implementation process, in which mutual influences might be observed – with positive or negative effects. Typical examples are social policies, because they address many citizens and organizations under various conditions[33]. Another type of growing interdependencies is described as "cross-sectional policies": the (police-based) security policy is redefined as "human security". The sustainability policies have been formulated in the SDG2030 (UN) with regard to 17 goals. The complexity of policy goals is increased: particularly, if the natural environment of society (human beings, flora, fauna, air) is addressed[34].

The numbers, the features and the mindsets/interests of organizational systems, which are somehow involved in the implementation process, is growing. These complex and increasingly contingent *horizontal and vertical* relationships – including international/EU-components[35] – have established new frames of analysis: networks, hybridism, governance, virtual and systemic organization, negative coordination, damaged routines, opportunism etc. This has strengthened the "search" for reliable routines in PA – to ensure resilience. The political/administrative macrostructure – as described for Germany – has indicated its important role – not only for this specific societal subsystem (its functions and codes of communication), but also for the (non-dictatorial) impulses on many other functional subsystems[36]. Observation, irritation, structural coupling are processes, which influence the possibility of broad communication – instead of sitting in a "honeycomb" - which is typical for communication in the "social" media (blogs)[37]. The question remains, whether

[33] In the political debates in Germany the "Bürgergeld" (citizen's allowance) is an important example.
[34] It was irritating to observe the difficulties of the last German government, when it was decided, that all ministries should prepare policies for environmental protection (esp. CO2-reduction): especially the ministry of transport ignored it. Another example stems from a research project about "climate adaptation"; the ministry asked us, not to communicate with the "mitigation" -department.
[35] The "supply chain act" is a good example for an overload of bureaucracy under the condition of global resonance.
[36] The comparison with the media-system can indicate the difference in terms of impact – although similar multiplicities of observation (of other subsystems) are existing.
[37] There is a continuous growth of voices: "my interests are not served" – also in Germany. One of the effects is the growing support of right wing political parties.

communication with a common sense-making/ understanding is still possible[38]. This is and will be in the future a growing prerequisite for efficient results of communicating problems, decisions, outcomes etc.
The same requirements have been formulated for scientific observations and comments – as the list of topics from the work in progress (collection volume) indicates. A detailed (perhaps even empirical) policy-analysis has to make selections for its focus. However, to contribute to the knowledge about implementation, it is helpful to anchor it into a basic concept of the "whole elephant"[39]. On such a basis the research can be judged also about its contribution to the understanding of many relevant levels and subsystems of society (i.e. vertical and horizontal communication).

The following (few/selected) topics from my own research can be seen as *examples* of relevant research questions for an indication of implementation-gaps – and possible steps to their filling. They include not only the vertical dimension (top-own and bottom-up), but also the horizontal dimension (between policies, policy-fields and functional subsystems).
The *focus on the policy field "environmental politics" (EP)(Umweltpolitik)* is a good choice for the description of the relevant issues: problems are known since decades, solution are far away. Luhmann (Ökologische Kommunikation, 1985) has described the special challenges of this policy-field not only with regard to its high level of complexity and contingency, but also with regard to special communication problems: nature (flora, fauna, climate, human nature …) is not talking[40]: people have to take over this role on behalf of natural/environmental problems and goals.
The first example is an empirical study (Grunow 2002): EP administrators of 87 cities (N=98) were asked to describe the most pressing (local) implementation problems –concerning European rules and regulations; the most often mentioned problems were:

- Unclear delineation of responsibilities 19%
- complicated, contradicting implementation rules/too much paperwork 18%
- laws are ambivalent in goal definition etc. 10%
- conflicting traditions of rule of law in Europe ("misfit" for Germany[41]) 10%
- lack of resources (staff) for implementation tasks 6%
- ….
- High expenses for coordination tasks 3%

[38] The media-scientists are sceptical. This can be observed in the German debates/conflicts about the "Autumn of reforms" (2025).
[39] The discussions about "poly-crises" is a recent indicator of the multiple interdependencies between societal subsystems: crisis in education: how about health, how about jobs/economy, how about science, how about public media etc. ?
[40] The pandemic was an instructive example: the virus did not talk with the people. Also a danger could be seen: many people did not accept, that there was a virus at all. Sounds like: "there is no climate change".
[41] This is a well known problem of multilevel arrangement: especially the bottom-up communication – to share implementation procedures and problems - is often not sufficient.

- Lack of acceptance by politics and population 3%

The implementation *problems* which were specified by the local experts differ with the various public policies: Flora Fauna Habitat FFH (46 %); UVP (38%); waste water (35%); garbage (30%), emissions (22%).

This again is an example not only for the problems of resonance to natural environment, but also for additional complications, caused by the multilevel interdependence: the functional subsystems are often manifold in the EU member countries. This can be tested especially on the local level of politics and public administration. The lack of intersystem-resonance on higher levels is witnessed especially in the implementation phase of public policies.

Some evidence with regard to the scope of resonance (observation, irritation, structural coupling) has been collected from empirical research in the city administration of Duisburg: expert interviews in 35 administrative units[42] have been focused on the following topics:

- Relevance of EP issues
- Special tasks in the EP field
- General network partners
- Special EP network partners
- Outlook on climate change and EP in the city

Results: Relevance of EP-issues in various offices (policy fields) and their inclusion in (number of) EP-networks

High relevance	**Some relevance**	**Little relevance**
Env. Protection (8)	city development (5)	education (2)
Health (5)	infrastructure (0)	city archive (0)
Consumer (10)	regional developm. (1)	culture affairs (0)
Veterinary (5)	city research (4)	youth (0)
Fire brigade (0)	social/housing (8)	communication (0)
Regulatory author.(6)	city marketing (0)	*finance(0)*
Real estate management (4)		a*ccounting (0)*
Water management (17)		
Construction (4)		
City planning (5)		
Strategic city development (11)		
Sports (0)		

The data show an extensive observation of the natural environment (issues) but a very heterogeneous degree of inclusion in communication networks. In addition:

[42] (Grunow 2014) A first result was the first contact on behalf of an interview-appointment: first reaction: "you should ask/contact the office for EP – I am not responsible/competent".

most often these networks are established on the basis of "single issues/cases/problems/catastrophes"; they often lack the background structures for continuous observation and communication.
These results can be seen as an indicator for the complexity of this policy-field: affecting many aspects of everyday life – with ambivalent/controversial valuations.

This assessment was supported by some qualitative interviews with administrative staff from this policy-field (Umweltamt/ environmental agency). Besides their special tasks – environment- protection (air, water, waste etc.) and development of green space in the cities – they often mentioned their complex tasks of planning and coordination of other local actors. The lack of willingness for cooperation, financial resources and legal tools was described. Especially the cooperation between all local agencies was demanded. Also the necessary contribution of the population was described (new gutters after heavy rain). The blame-game also addressed federal and central government: more awareness and regulations should be initiated and supported. In Duisburg the "dual climate concept" was described with special emphasis on emission-reduction. "We have to get all actors at one table and the liability of the idea/goals of climate-protection".

The second empirical example describes a few results of 10 years old represent-tative population surveys (Grunow et.al. 2012), concerning the *adaptation* to climate change. It can illustrate a few implications of these issues for the perception of the citizens (from this region (Ruhr-District)). They also indicate a higher awareness and concern ten years ago[43] in contrast to today.

- about 80% of the citizens think that climate change and its implications are important public issues;
- almost 50% agree that they are already affected by climate change implications (storm, heavy rain, flooding, heat);
- the respondents use various media for information; more than 80% are following the discussions in the mass media; even more are discussing the issues in the context of peers/family;
- many citizens (40%) feel insufficiently informed – especially with regard to strategies of adaptation (to climate change) and about the implications and side-effects of these strategies;
- more information is demanded especially from mass-media, NGO (environment) and public administration (all about together 80%);

[43] The "Fridays for future" movement is a good example: long time discussions, starting in 2018, not longer visible in 2025.

- only 15% see local politics and administration making a "good job" on behalf of environmental protection; 60% see local politics too little engaged in adaptation initiatives (concerning climate change);
- more than ¾ of the respondents *agree* with the following statement: *whether some progress is made in the context of environmental issues depends on the initiative and pressure of the citizens;*
- between 30 and 50% of the respondents are willing to engage in various forms of public participation (with regard to environmental projects/programs); rather high levels concerning Discussions; Initiatives; Information-meetings; Voluntary activities; rather low levels concerning the Use of Internet; Energy cooperative.
- in answering a special question about a project (sub-surface pump storage) which is part of the energy-turn ("Energiewende") in Germany, the respondents articulated clearly their demand for transparency – by asking for early and detailed information about goals, costs (and why they often rise far beyond the projection), side-effects and how to deal with them, participation strategies etc. If such a procedure is not installed sufficiently a protest initiative is seen as necessary and legitimized.

In the context of the interviews we had observed ambivalences with regard to the actors involved or concerned. Although there is a high level of awareness related to climate change issues: there is some interest in further talk, but only little willingness for private action ("Ecological Behaviour"): *completely agree* concerning switching out the light (if not needed) almost 70%; concerning the use of public transport instead of own car about 30%; concerning acceptance of higher prices for renewable energy about 20%[44]; concerning the changing of living place for ecological reasons less than 10%.

In detail: Relevance of Environmental Protection (EP) politics: Role/Perception of the German population (Grunow 2014)

- The priority of EP-problems is varying, but not generally very high in the German public. If questions in surveys are formulated in an open format the EP-issues are usually named by 5% (+/-) of the population as a most important political problem. On the other side we have quite stable answers (2/3 to ¾ of the population) concerning the fear of unemployment of lack of security.
- Two thirds of the population shares the opinion, that the German government should take a leading role in EP-policies and they see Germany already advanced on this path.
- Two thirds of the population support further EP-actions only if their quality of life is not affected negatively.

[44] There is an intensive debate in and against the new German government about energy prizes.

- Only 8 % are members of EP-organizations. It seems that political support is very high only if others (like industrial plants) are affected.
- Judgment of the population about the possibility of problem solution by the PAS: about 60% of the population in Germany see little or no chance; a third of them is awaiting "some chances" for problem solution; only 5% are sure about it.

The newest empirical example describes again results from the teaching research project (expert-interviews in NRW 2024): *a. about public transportation-networks; b. about processes of improving sustainability (SDG2030)*.

a. With regard to public transportation many heterogeneous actors are focussing on different interests and goals. In the interviews often mentioned was also the necessary cooperation between many communes - with regard to a broad public transportation network. The lack of funds for the management on the state-level leads to more self-organization on the local level. Mutual decision-making and the control by the state level is slow. Therefore, the funds of the state are often not even used in a timely manner by local/communal actors. Sometimes, the shortage of staff is mentioned as an important background problem.
b. Much more inclusion of various actors is necessary for the implementation of sustainability goals: politics, PA, economy, science, civil society, NGOs etc. are on the list. Since 2021 the obligation for communal reports about the development of sustainability-standards is established. Since 2023 the presentation of a budget for sustainability activities has to be added. They are financed by the responsible state ministry. Various modes of cooperation and control have been developed. However, multiple causal factors, multiple actors, multiple experiences are indicators of complicated, often inefficient communication networks (in all directions). The developed plans are often affecting the living conditions of the population. As described in the interviews, protest and lobbyism (of party-politics, economy, lobbies, NGOs etc.) are part of it. The "green party" was most often attacked. One of the negative consequences is the "piecemeal" character of many plans and implementation activities. The need for broad information about the SDG2030 and its necessary local implications was formulated very often in the interviews. More (especially local) experimentation with practical solutions – for a broad set of problems - was suggested. Co-production of the citizens is needed quite often.

The empirical examples have indicated the complexity, continuity and long time dimension of the policy field – and the challenges of the communication processes. The complexity has increased with the international dimension: the global character of nature and the increasing human influences on its quality (esp. emissions and their climate effects) are demanding for ever more global

goal setting and implementation strategies. International agreements[45], global (controlling) observations and prospect definitions show the risks for the future: goals are not reached, costs are increasing, and arguments for necessary actions are sometimes even ignored/rejected.

An important basis for these debates is provided by continuous evaluations and their results by international institutions like the IPCC: first report 1990; the newest (sixth) report 2025. It summarizes the expected developments: the goal of maximal 2.5 degrees increase of global temperature until 2100 will not be reached: the key element (CO2 emissions) will not be reduced fast enough. This leads also to the observation of different segments of the emissions – with different demands on policy making and implementation.
The last (6th) report (from 2025) of the IPCC has described the individual contribution to climate change effects: mobility 18,8%, food 15% , heating 14,1%, energy 6,5%, public sector 6,3% , other factors 39,3%. The German UBA (federal office for environment) has listed (in the Environmental Monitor 2024) 10 groups with 30 indicators: 5 groups referring to action fields, 5 referring to elements of environment. Only 4 indicators had a good status, 11 had a *negative* status: f. e. environment-management and energy-consumption in the action fields; f. e. quantity of garbage and air–quality in the city-centres as environmental indicators.

Somehow, this fits together with some general observations of (reduced) "trust" in government (2023): about 60 % in police and justice; about 40% in local administration; about 35 % in national parliament, about 25% in political parties (OECD 2024). This can also be seen in connection with complaints about too much bureaucracy and paternalism. About 90 % of the population see too much bureaucracy in Germany.[46] This leads to a question - also addressed to the sciences: why this situation, which produces these public reactions (since decades), cannot be effectively changed?
One of the answers could refer to the question of inclusion-quality. A study from 2016, which compared the acceptance of four different ways of democratic political inclusion in Germany, *80% preferred a combination of all four models; only 6% preferred only one model*. In combining two models: the (existing) *representative system* was included by 23%, expertocracy by 21%, participation by 18% and strong leadership (head of state) by 7%. These results might explain the often formulated complains – "my interests are ignored by politics and PA"-, but their potentials for problem-solving are unclear, because so many actors (interests) are included in policymaking and its implementation.
However, the (world-wide) observation of heat, storms, heavy rain/floods, fires, droughts etc., including their victims, has intensified the controversial debates – also in Germany. But at the same time their relevance are often reduced by other

[45] Important example: the Paris contract from 2015. However, some countries – like the US – have cancelled it.
[46] Another example for recall: the IIAS congress in RIO 2015 about "Trust in Public Administration".

catastrophes: wars, economic de-growth, immigration, criminal events a. o. This can also be observed in the German national government – with the shrinking role of the "green party"[47]. At the same time the right wing party (AFD) is increasing its public support: it wants to destroy all wind-mills and reinstall gas- and atomic energy-production.
One important element in this development was the policy with regard to a new heating system: "Heat pump" is a good example of deficiencies in the communication to the public: false and contradicting messages at a too early phase – with "leaking" information to the media. In the background was also a conflict with regard to the linking of EP functions to the ministry of economic affairs (in the last government).

5. Horizontal communication for the balancing of subsystems

Horizontal communication on the national level

Although the large number of problems and topics for communication have shown the complexity of the arrangements for observation and influencing climate-developments, it is possible to make a selection for the horizontal dimension: the ecological *policy-field*. For the national level, climate *mitigation* can be described as a central challenge: the control/reduction of CO2, N2O, methane (and other) emissions – to slow down the global warming and air-pollution. Whereas the (often long-term) goals are accepted, the necessary actions are still controversial topics. One of the key issues is the provision and use of energy - in a sustainable (instead of fossil) form. Because of the increase and complexity of the demand and provision, these issues need central decision-making. The proportion of about 50% production and use of renewable energy in Germany has changed the time perspective for the "zero-fossil"- situation (from 2050 to 2045). But there are still conflicts with regard to further steps – about heating systems, about thermal isolation of houses, about energy-tax (reduction?) etc. The international dimension and the inclusion of many functional subsystems are leading toward a high level of political and administrative controversies.

Initiatives towards an all-inclusive balancing are often (and well-founded) expected from policymaking by the (national) political/administrative system. It is highly affected by the ongoing environmental developments (air, water, flood; flora, fauna; climate, weather…) and their public (media-based) communication. Against this background it was justified to ask, how environmental policies can be organized more effectively addressed and balanced by the political/administrative system. One of the often given answers is the referral to the principles of "good governance"

[47] Some newspapers describe this as a general "ignorance" of government with regard to climate-developments.

- Respect for the rule of law;
- openness, transparency and accountability to democratic institutions;
- fairness and equity in dealings with citizens, including mechanisms for consultation and participation;
- efficient, effective services;
- clear, transparent and applicable laws and regulations;
- consistency and coherence in policy formation;
- and high standards of ethical behaviour. (Homepage of OECD)

Although these goals are not as old as the propositions of the Club of Rome, they still lack convincing effects on a large scale. John Gerring concluded his review with the statement, that, "good governance" lacks theoretical utility. It confuses, rather than aids, in the formulation of theory and the related project of hypothesis testing, not least because the concept is so fluid that analysts can easily define it in the way that best fits their data."[48]

From the perspective of system theory, the main deficiencies should be described as the omission of the modes of intersystem-resonance and attempts to balancing the intersystem penetration:

- How is the observation of the natural environment organized in various subsystems? (problem: lack of resonance – because the natural system does not communicate)
- How is the observation between subsystems and their mutual irritation taking place? (problem: too much resonance – because of the "overload" with incomprehensible varieties of observation)
- Is there a mechanism of establishing stop rules ("red lines") for the internal communication (practices) within subsystems (retention, sunset-clause, impact assessment…)?
- Are modes of double coding (structural coupling) available – without the danger of capture or system destruction? How about the resonance between political subsystem and civil society: a basis for inclusion and balancing irritations?
- Is there any resonance (observations/irritations, double coding) possible between comparable subsystems on different levels – if some elements/breakpoints should be included in all these systems: f.e. international law and standards (what is the appropriate language?). How about the specification of "functional equivalents" with regard to the respective subsystems?

[48] http://www.stor.org/pss/3235246

In the report of the UN – Committee of Experts on Public Administration (April 2018, Summary) suggestions with regard to the SDG2030 have been formulated:

"The Committee stressed that the indivisibility and the urgency of the Goals made policy and institutional coherence a priority. It suggested three pathways to improve coherence. First, institutional and policy coherence should be promoted together and should be context-sensitive and inclusive. Second, the promotion of coherence requires structural attention and coordination and a broad range of tools and might need specific work programmes or reforms. Third, there is scope for a global peer-to-peer learning mechanism to support the necessary change of structures, processes, skills and mindsets and to promote mutual learning, networking and knowledge exchange by all relevant stakeholders. In addition, national public administration schools and other training institutions should integrate the promotion of coherence for the Goals in their curricula."

This list is addressing some of the problems on the way towards the target achievements. But it is without theoretical coherence. This is the reason, why so many of them are well-established but only little effective. Therefore, the importance of organizing the mutual resonance (balance) between functional (social) subsystems of society - *which communicate in different formats (medium, codes, goals, programs)*, also with regard to the natural (not communicating) environment - has been emphasized. The scientific reconstruction of the complexity and contingency of policy fields and their implementation somehow explains the existing deficiencies. In a book from 2010(!) – with the title "Ökologische Aufklärung" ("ecological enlightenment"): 25 (!) Jahre "ökologische Kommunikation" (25 years of "ecological communication") - contributions of economy, law, science, education, politics were included as necessities for the analysis of resonance[49]. However, it should not be ignored, that there are sometimes new developments/challenges, which can have breaking effects on the ecological goals: f. e. the pandemic, the war in the Ukraine, conflicts in the middle-east – which occupies attention and takes resources.

As it was described already, the special/influential role of politics and PA should be described as a complex aggregation of policy fields (f.e. in various ministries): the challenges include: a. the fact that there is a lack of a central steering structure: all functional subsystems are the society, but only a part of it; b. the subsystems often lack self defined delineations/restriction or stopping rules; they must be stimulated from outside irritation; therefore, resonance between the subsystems (balancing) is necessary; c. the differentiation needs

[49] It would be interesting to study the cost-effect relationships of ecology-related meetings, conferences and committees.

many persons acting in the various systems: the inclusion of the population is an important feature. In the context of environmental policies the issues for observation, analysis and propositions have to include goals/standards of mitigation and adaptation:

a. The performance of the subsystem (task fulfilment); the political system has to develop the rules and regulations for the very broad policy-field, effecting almost all other subsystems; coordination between different actors and interests is complicated; one element is the fact, that controversies between political parties and government-levels prohibited a "national law-book" for environmental policies in Germany. There is no precise information about the number of public offices in this policy-field. In the last government it was not possible to get the agreement of all ministries about CO2-emisssions. The ministry of transport rejected ideas about speed-limit on highways. Some progress is expected by adopting EU-laws (ETSII) in 2027.

b. Forms and effectiveness of mutual observations, irritations, resonance – i.e. balance – between the subsystems: a typical field of controversies is the relationship with scientific communication: there are still many climate deniers, which do not accept any research results (IPCC-reports) and state regulation: examples are car-industry and agriculture. Lobbyism and media play an important role. Often it is an indicator of communication barriers: this could be observed during the pandemic crisis: the virus did not talk - and the discussants (politicians, administrators, journalists, scientists (virologists), medical doctors) did not understand each other.

c. How (much) is the subsystem influenced (captured) by others: how (much) is the subsystem influencing (capturing) others: the self-restriction (red line) is a rare phenomenon in many functional subsystems. This is a typical topic for the role of the economic system, if profit should be maximized – leading also to a growing inequality of wealth-distribution. With regard to the central function of communication the social-media system is a dividing instrument within and between the subsystems; a red line (self-control) is not recognizable.

d. Degree and format of population-inclusion (into the subsystems): an important issue is the inclusion of the younger generations, because they will experience the consequences of policy and implementation failures personally. If they do not want to accept a transformation of societal arrangements, even an earlier right to participate in political elections might not change the prospects for the future[50]. But anyhow, an "education for sustainable development" (Wochenschau 2024) can still be useful in the schools.

[50] The suggestion of Nassehi to establish a parliament of functional subsystems will not be successful either.

Horizontal communication on the regional and local level.

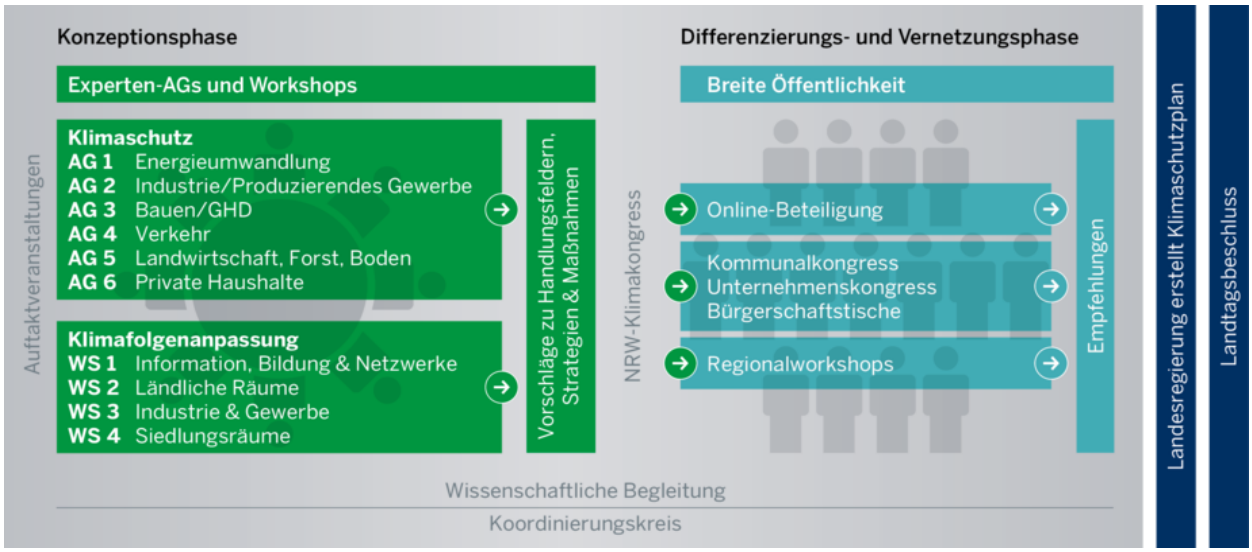
Whereas the national observations and political goals are often focussing on mitigation with the basis on general data descriptions, actors of the regional and local level can focus on changes in everyday life in their region. They observe the effects of climate change and of old and new (everyday) attacks on climate, nature and living conditions by human actors. Adaptation is one of the answers – when dealing with a deficient quality of water and air, influenced by natural catastrophes: fire, heat, drought, floods, storms etc. The reactions on the local levels have to concentrate on implementing compensative as well as preventive and forward-looking goals: having water in reserve, planting new trees in the centres of cities, stopping the pavement of front-gardens, reducing cement in the buildings etc. These examples show that the problems and goals are quite different in different locations: Industrial region (air pollution) or agriculture (soil contamination). One of the rather new effects is the draught of rivers (like the Rhein) or the polluted water at the coast of North-Sea and East-Sea – because of sunken/destroyed ships from the second world war. The examples indicate the necessity of combining policies, and the inclusion of many functional subsystems: the reaction "not in my backyard" is also not feasible, if the whole population is affected. More protests, but also more willingness to cooperation can be observed. A recent example is the reduction of criticism against windmills – by sharing the energy earnings. Local activities in the environmental policy field can combine advantages and disadvantages or costs and benefits within the inclusion of the population. This is especially important for the young people – because they are afraid to loose the future quality of their lifestyle.

These and similar developments have fuelled *regional* strategies since many years. In the following an example of a policymaking and implementation process will be described: The development of an "Umweltschutz-Plan" (environment protection plan) – designed as a multi-level *participatory approach* towards the implementation of an "Umweltschutz-Gesetz" (Environmental Protection law) in North Rhine Westfalia, Germany (2013)[51].

§3 Klimaschutzgesetz
defines the goals of climate protection ("Klimaschutz-Ziele")
(1) Emission reduction (base 1990) by 25% (2020); by 80% (2050).
(2) Measures/action: protection of resources; energy saving; priority of renewable energy; energy efficiency
(3) Limitation of negative effects of climate change by sectional/regional adaptation

[51] www.klimaschutz.nrw.de.

§ 6 of the law defines the development of a climate protection plan:
* The state government develops under a comprehensive participation of societal stakeholders and communal associations the climate protection plan, which will be finally decided upon by the NRW parliament.
* First version of the plan 2013; revision every five years.
* Goals: reduction of emission rates; renewable energy gets priority (energy turn); energy efficiency; defining the possible contributions of all societal sectors; including measures of adaptation; regulating financial issues with regard to this policy, etc.
The process of preparation took place in two phases:
* Autumn 2012: start of concept development by 400 experts: six working groups (sector-specific); 4 workshops (issue-specific); Proposition of strategies and measures/action
* NRW Climate Congress Dec. 2013: Results of concept phase were presented to the public; the role of NRW in the national and international climate politics was discussed
* Diffusion, differentiation and networking Dec.2013 – March 2014 (online interviews; small scale congresses and workshops)



Explanation of the graphic:[52]

[52] *Concept development (expert meeting/workshop);Mitigation: Energy Transformation; Industry/business; Construction/buildings; Traffic; Agriculture, Forestry, soil; Private households; Adaptation: Information, Education; rural districts; industry/ craft; 4. dwelling areas; Differentiation/Networking for general public: Online interviews; local administration congress: local business congress; citizen round table; Suggestions; Plan formulated by government; Plan decided upon by parliament*

The 6 working groups have developed 258 propositions – the largest number in the building-/construction segment. *About half of the propositions are qualified as controversial*. In an open participatory process all kinds of actors could write their comments to these propositions or add some further elements.
Many organizations endorsed the request for participation - as the example of the *Essener Klima-Agentur* has shown: "please engage in the development of the climate protection plan".
The participation was very intensive; however, the stakeholders of different economic/business branches were dominating. The list of activities/measures to be taken: 154 concerning mitigation; 66 concerning adaptation. Quite a few propositions have been omitted, because "it would not be possible to implement them" (?). On Dec.17th 2015 the plan was accepted by the Landtag (NRW parliament); a review and adjustment was planned for every five years. As the list of goals already indicates, the catalogue of future action is a long remuneration of compromises between economic interests and climate hazards. No radical shift of production or consumption was to be expected. Whether the only "red border line" – the warming up by 2 degree Celsius or less and its locally defined preconditions – can be realized, remains an open question. The "success-story" of the state government contains mainly a list of activities – including many groups/organizations of civil society - and only little effects regarding the level of CO2 emissions and other modes of environmental protection[53].

In the context of these and various other participatory debates and suggestions, a growing emphasis on *adaptation* to climate change can be observed in many similar initiatives. It leaves the question open, whether this means a retreat from the expectation of a successful climate protection strategy. In a book from 2024, this is summarized in the title: „Warum es immer schwerer wird, unsere Klimaziele zu erreichen"[54]. It refers to studies, which still show ambivalences: climate change is caused by mankind: 57% agreement in East-Germany, 65% in West-Germany; 40% see too many climate-related actions by government. Whereas climate-related catastrophes often mobilize spontaneous support, the goals for the future need new forms of co-production – continuously: videoconferences, clouds, crowd working, basic networks, citizen-offices, citizen-shops, planning-cells: - with a common strategy: taking the role of the other on behalf of environmental challenges.

[53] The new list for 2024-2029 includes 16 action fields, but only very few of the tasks allocated in more than one state agency.
[54] "Why does it become ever more difficult to reach our ecological goals?

6. Some conclusions and suggestions for further research – with regard to more efficient results for "the elephant"

The paper has focussed on reflections about a third edition of a handbook: 20 years after the first, 10 years after the second edition. The question had to be asked, what kind of changes in the field under observation have taken place, which progress has been made – and what the contribution of administrative/political science(s) has been. The selected topic – implementation of public policies/policy-fields – has been characterized as very complex and contingent. Therefore, the important components of the scientific observation/analysis of the implementation steps have been described. The growing numbers of actors involved in modern (liberal democratic) societies makes a view on the global context (society, international networks) ever more indispensable. System theory was used for the analysis of "the elephant" – because its focus on communication in and between functional subsystems of society.

The empirical examples, used for the description of developments in the last decades, show the limited progress. This is especially visible in cases of "ecological communication" – with the role of the not communicating nature: the consequences of climate change (demands for mitigation and adaptation) are well known, but insufficient steps of problem solving are seen everywhere. This leads to the question, how these deficiencies can be explained – before new ineffective steps are taken – and what is/could be the role of public administration? The criticism of "bureaucracy" is a permanent topic in the population and the media. This leads to the question, which functions/tasks should be fulfilled. What are the necessary processes of decision-making? Is the disregard of rules no problem? And: is one important contrast to "bureaucracy" – corruption - acknowledged? These issues have to be addressed in many details, when the complex and contingent natural challenges are addressed.

The main focus with regard to ecological policies has been (only briefly) laid on the (necessary) horizontal modes of communication[55] – with the aim of mutual resonance between functional subsystems (with different communication codes and processes of "capturing"). The role of public administration is essential for the balancing the sub-systems on behalf of environmental policies. The examples from the regional/local level have also described the necessity of a broad communicative inclusion of the population – especially those (often very rich) persons, which cause the highest emissions. A special role is needed for the younger generations, which will bear the consequences in the future: "not in my backyard", "not in my lifetime" are misleading perspectives for the future. The "earth overshoot day" is an instructive indicator for the definition of "red lines" and for the deficiencies of the implementation of environmental policy-fields.

[55] Topics for discussion have been "taking the role of the other", staff exchange, networking, commission, citizen council, jury, one stop agency, pilotage and others.

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As this paper refers mainly to selected studies; the general debate about the topic cannot be presented in this list. As the development in Germany is in the focus, the listed books are in German language.
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Appendix[56]: Details of the theoretical background

Subsystems are representing society – but only in their specific scope, based on media and code. And therefore – more or less – they depend on each other. This is the reason why they observe, irritate or even influence other subsystems. To avoid a complete separation of the subsystems or a complete takeover by other subsystems – which most often will destroy their specific contribution to the survival and development of society – a kind of resonance and balance between them is necessary. This might not be visible with regard to small-scale tasks and practices, but it is essential for any fight against poly-cisis and for the development of a "new normal" for society.
Therefore, the interdependencies should be observed with different focus points and with varying intensity - for example! -:
* *Observation of other systems*: scope and intensity.
As all systems are depending (somehow) on (many/all) others, observation is an almost universal feature; however, the scope and frequency might be very different – between overload and ignorance; - between permanent and sporadic observation. In many systems special "watch-units" have been installed.
* *Irritation of the systems as a result of observations*:
Irritation can be an internal effect of observations – it might change the internal operations on a regular ("retention") or sporadic/situational base; it might even function as a kind of stop-rule – f.e. when observing the legal system[57]. The scope of irritation is influenced by the scope of observation. The intensity of the effects depends on the ability of the systems to adopt new elements into their (specific) communication processes.
* *Double coding and structural coupling*:
There are fields of communication which are closely coupled: like public administration and law or education and politics. The processes within one system are depending on external conditions (other systems) – without being substituted by these environments. The most important example is the "condition humana" as a precondition of communication ("interpenetration") and their co-evolution – as long as robots have not taken over.
* *System capture (destruction)*: Although such a situation seems to be unlikely in a society in which each subsystem depends on the fulfilment of other functions by other systems, it still happens (like in Turkey today – of even in EU-countries like Hungary[58]). This can be the beginning of the destruction of a functional differentiated society: chaos (failed states) or back to old models (like authoritarian models, dictatorship) – can be observed more often then expected and desired.

When looking at mechanisms of inter-system-resonance two additional elements of the overall scenario have to be included. So far the systems under observation have been *social systems based on communication*, *which needs a message, a way of transmission and a reception/understanding.* The completion of such a process needs a "shared set of meaning". The basic achievement is the reduction of world complexity. Without such an achievement the world would end in chaos.[59] However, social systems have also to refer to two types of

[56] This text has not been prepared for the presentation on the conference. It is taken from earlier papers.
[57] The difficulties to establish and enforce stop-rules are well known as a kind of escalating process – whereby new rules are the consequences of strategic ignorance of previous ones (f.e. corruption, tax-evasion, crime…) and at the same time the new rules are blamed as an excessive bureaucratization.
[58] These examples can also be seen as a warning about the consequences: loss of societal capacities.
[59] Some features of it can be already observed in the new net of digitalized media: nobody is able to receive and decode the masses of data, which "arrive" on the smart-phones: it is mainly data overload and not communication. How difficult it is to organize communication can be seen in any talk show – if the moderator is not able to stop the participants talking all at the same time. With reference to individuals the new development can be described as "loss of civilized behaviour" (in German language: "Rüpel-Republik"). This can be observed

non-social environments: nature (ecology) and human beings (physical and mental disposition). If humans are not to be completely eliminated and nature is not completely destroyed social systems have to develop resonance towards these "external" systems. But this is far from self-evident – even for human beings who can participate in social communication/systems: this is not only a question of war but also of misuse in the economic and many other systems – altogether ignorance against the necessity of inclusion of the population and basic human rights.
However, the problems of resonance are even more pressing with regard to nature. One of the reasons is quite clear: nature (flora, fauna, climate etc.) cannot participate in the social communication: people have to assume this role – like the pupils in Germany did it every Friday ("- for future"). Although there might be lots of controversial debates, many lobbyists and "merchants of doubt"[60]: the impact of the two external systems have more relevance (and often more effects) with regard to various subsystems of society: they cannot be easily ignored – as long as the world society is not accepting the entire substitution of humans by robots and/or the destruction of the globe. "Laws of nature" are not in the same way debatable as minimum wages for taxi-drivers (Uber?).
To use a category of resonance it can be said that "double coding" is necessary to avoid the enhancement of polycrises. Any communication and decision prevailing in a specific medium and code of a functional subsystem has to observe and show resonance to the "human condition" and to the architectures and logics of natural environment. Although this might be unexpected – especially in contrast to the speed of global commerce – the demand for resonance with regard to these two "natural" environments include ever more often also time-calculations. Since many decades *sciences* have already contributed to this perception of time limits for specific developments – i.e. the wastage and damage of natural resources, the human footprint. Much more often scientific contributions have addressed the "conditio humana" (life spans, phases of psychic and physical developments) - because they are included in the communication processes. This fact has lead system theory to consider a broad (multiple) *inclusion* of the population into the societal subsystems as an essential element: it is a possible way to ease/realize the above mentioned double coding. People could and would include their natural features and capacities into the communication and – eventually - also their experiences/knowledge from other subsystems, in which they are also included. "The population" (civil society) therefore can be an important source for necessary observations and resonance (or even balancing) between subsystems (with their specific code). Nowadays this can be better observed if the opposite is the case. Many explanations related to all variations of populism are dealing with the "exclusion" of parts of the population: from education, economy, health, science…- even politics. A quite different example is the mass-media system – which seems to be almost captured by civil society (based on Facebook, Youtube,, X, Tiktok…). However, this might lead to the danger of disruption of this functional subsystem altogether. Open remains the question: who will finally "capture" the media system: The political system with Trump, Xi Jinping, Erdogan ….. and all kinds of fake news or news-suppression; the economic system – dominated by the "masters of the universe" (Silicon Valley), the security system (observation by police; secret service)….?

The overall development (evolution) of modern societies (with its population growth) stimulates the increasing complexity of the social world and its processes of differentiation – not only between but also within functional subsystems. As human beings are necessary

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not only in the pattern of hate speech and shit storms in the media but also in the form of physical attacks on staff members of police and rescue organizations. However, there are also situations with long tradition: it is well known that inspectors of food producing companies never execute their job without one or two colleagues.

[60] Including President Trump – when he said, that climate change is a nightmare, invented by the Chinese government.

elements of this development their inclusion into the systems plays a crucial role. This also holds true for the "management" of the various interdependencies which were listed above. There are many instruments which try to strengthen the individual abilities on behalf of the reductions (not identical with elimination!) of complexity: communicating in various functional systems; meetings between "representatives" of various systems, task/job rotation, mediation and coordination techniques; work and travel, voluntary social year, adult education ….These are all attempts to reduce or compensate extreme specialization and narrow-mindedness. All of this can contribute to the complicated task of "balancing" societal system without a centre with universal steering competence/power[61].

Any attempt to balance the subsystems is facilitated – if not only made possible – by a boundary of a societal (national) system. It helps to decide about the systems which should be observed and possibly reacted to (in internal communication). If the boundary is the world society with global governance and a globalizing economy etc. the balancing task is almost impossible[62]. Therefore, the typical mode of global governance is a kind of piecemeal strategy: small elements (rights, duties, prohibitions..) are selected for "irritation": but even if there are some of these elements defined – it is all but sure that they are also observed, accepted or implemented (elements of system--internal communications)[63]. The problems can even be illustrated with examples from the EU – in which somehow a trans-national level of balance is attempted – but not always reached[64].

[61] The development of China under the rule of the CCP should be observed closely as an adverse case – where ever more terms are forbidden in public communication.

[62] Just three examples: if the economic system is observing the education subsystem (for staff recruitment) it might have to observe the respective system in many countries. The same challenge can be seen, if the companies are controlled by "their" administration with regard to human rights applied by their sub-sub-sub-sub-contractor anywhere in the world economy. Another type of challenge is the "alignment" of international cooperation on behalf of developmental politics and projects.

[63] Child labour is forbidden in Germany – but how about German companies in African countries? Who can and will "irritate" the business organizations?

[64] The pressure has increased in times of disruptions in a multi-polarized world.