

Mapping Divergent Knowledge Claims in Heterogeneous Constellations: The Case of Regional Flood Protection Policy

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I. We know that there has been a tendency for the traditional boundaries between the sciences, political actors, stakeholders, etc. to erode, resulting in the emergence of new social formations that resemble an agora. But in social science, there are two different perspectives concerning this tendency: On the one hand, notions like the agora constitute the hope of a broadening stakeholders’ participation, or at least of creating new opportunities for participation and for the bolstering of responsibility and accountability.

On the other hand, one cannot ignore that this tendency leads to a multiplication of relevant viewpoints and legitimate interests, especially if scientific measures, technological feasibility or political strategies are no longer able to address the issue at hand by employing a comprehensive standard solution. Agora-like social formations always involve multiple perspectives, and must simultaneously cope with this problem. In drastic cases, the diversity of the knowledge claims can result in the paradoxical consequence, whereby the possibility of participation expressed by successful decision making and issue formation is undermined, even when an enforcement of the stakeholders’ participation and the involvement of all forms of knowledge is desired or regarded as being indispensable. Moreover, social science itself is becoming one player amongst others, thus losing its competencies to provide ‘objective’ definitions of problems and solutions.

Social scientists are quite familiar with this diagnosis, but there have been only a few methodological proposals put forth as to how to deal with this new array of situations. Our contribution offers the “Constellation Analysis” as one approach, which will be illustrated by the initial experiences gained through a case study. And we will present some proposals for giving these results back to the stakeholders involved.

II. The case of regional flood protection policy is a striking example of the difficulties that may arise in agora-like situations, that is, for the contradictions and even paradoxical consequences that result from an issue formation that spans the domains of science, technology, politics and the public. At first glance, the objective parameters seem to be very promising: Occurrences like the disastrous Elbe river flood in 2002 led to the formulation of wide-ranging political programs, which proclaim that the new guideline for flood protection policies lies in creating more space for rivers. But the local authorities emphasize the short-term perspective, pointing to the need for technical precautions (raising of dikes) as a means

for ensuring safety for the local population. The case seems to be clear and is often mentioned in constructivist STS-studies. But we will try to show that it is not clear at all. Between these two main camps, the concert of the different regional actors involved leads to a situation of mutual blockade, in which flood protection seems to become an unmanageable and even incomprehensible field of conflict.

In the research project “Blocked Transition? Spaces for Thinking and Action in Sustainable Regional Development”¹ we are examining the emergence of this deadlock and exploring possible ways of overcoming it. The focus of the project is the constellation of actors in the Elbe-Mulde region in Germany.

III. Constellation analysis, a method we developed at the Center of Science and Technology at the Technical University Berlin and at Nexus Institute in Berlin, is a methodological approach designed to cope with complex situations that call for interdisciplinary cooperation and for trans-disciplinary solutions. The main features of the approach are²:

- It is a ‘middle range’ concept, a tool for bridging different areas of expertise. Theoretical claims, which in modern societies are inherently distributed amongst different disciplines, are not addressed.
- It mainly works with graphical representations of the issue at hand, as opposed to representations in natural or numerical language. By doing this, it tries to make use of the well-known capability of graphical images (the “mind’s eye”) to depict even extremely complex interrelations in a lucid way (as described by Ferguson), a way that has the capability of bridging different disciplinary stances (Henderson).
- It always starts with a collective and iterative graphical mapping of the relevant elements and relations of the issue under investigation.
- In the mapping process, differences between social actors, technical elements, natural elements and systems of signs are highlighted, but there is no a priori decision about their relevance for the issue under consideration. The types of elements are indicated by different symbols, as demonstrated in the examples from our paper.

In this talk, we will try to demonstrate that this method is suitable for cases where a dissolution of the divergent viewpoints involved is not possible, and a mapping of different perspectives is necessary.

IV. After the first analysis of the standpoints of the different regional actors, the reporting in regional media and data interpretations of the extreme flooding of the Elbe river in the

¹ The Project is funded by the German Federal Ministry of Education and Research (BMBF) in the programme for Socio-Ecological Research (Sozial-Ökologische Forschung).

² More detailed descriptions of the approach can be found in: Schön, Susanne, Benjamin Nölting und Martin Meister 2004, Konstellationsanalyse. Ein interdisziplinäres Brückenkonzept für die Technik-, Nachhaltigkeits- und Innovationsforschung. Berlin: Zentrum Technik und Gesellschaft der TU Berlin (ZTG discussion paper; 12). Internetdokument unter: <http://www.ztg.tu-berlin.de/pdf/Konstellationsana.pdf>; and in: Schön, Susanne, Benjamin Nölting und Martin Meister 2005, Technik als ein Element in Konstellationen analysieren und entwickeln: Das interdisziplinäre Brückenkonzept "Konstellationsanalyse". S. in: Michael Decker und Armin Grunwald (Hg.), Technik in einer fragilen Welt. Die Rolle der Technikfolgenabschätzung.

summer of 2002, a constellation appears, which seems to be a known dichotomous and hierarchical formation.

The elements seem to arrange themselves between the two classical poles of technology and nature – between technical and precautionary flood protection. On the technical flood protection side, we discover technical elements such as dikes, polders and other technical protective measures. The relevant social actors in this part of the constellation can be differentiated into three groups: the regional authority for flood protection in Lower Saxony (Landesamt für Hochwasserschutz, LHW); the local authorities in the vicinity of the Elbe river, which possess only a limited capacity to act but have a marked interest in rapidly achieving safe conditions through technical means; the affected population, which possesses no official capacities but organizes itself into citizen initiatives to actively represent their interests in the process. This part of the constellation seems to be the dominant one, as it is provided with more financial and legal power.

On the precautionary flood protection side, we can identify the authority of the biosphere reserve “Mittlere Elbe” and local environmental organisations as social actors that strive for the renaturalisation of riverside forests, the relocation of dikes or the broadening of flood plains. The German Federal Government also situates itself in this part of the constellation by means of an act of parliament calling for precautionary flood protection.

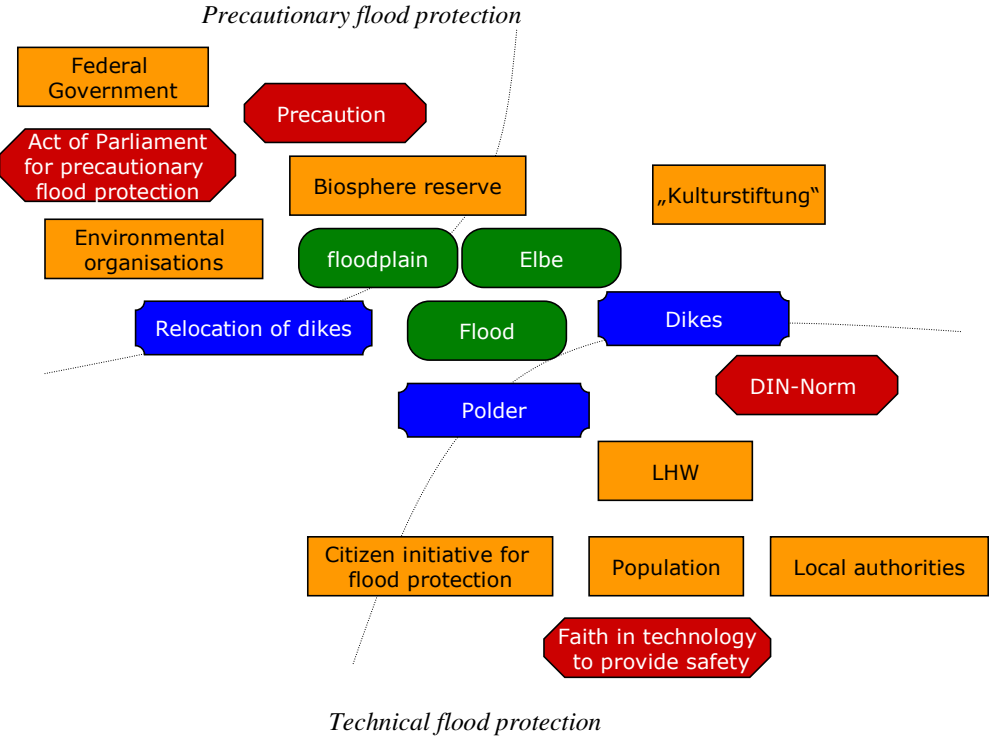


Image 1: Dichotomous constellation of flood protection

V. After further investigation and exploratory talks with regional actors, it became doubtful whether this dichotomous separation was really consistent or whether the pattern was not more complicated. Upon closer examination, inconsistencies emerged:

1. The apparent asymmetrical distribution of legal and financial power and the capacity to act on the part of the regional authority for flood protection turned out to be less definite than was assumed. The local population, for example, seems to put high political pressure on local and regional authorities and therefore to take an active role in the decision and structuring process concerning flood protection. This also shows that there is a multiplicity of power, values and rationalities within one camp.
2. The attachment of some of the elements to the two camps becomes ambiguous. For some actors (e.g., the LHW and the federal government) polders belong to the package of measures intended for precautionary flood protection, because they may reduce flooding peaks by absorbing large amounts of water. In contrast, some environmental organisations reject polders as environmentally incompatible, since they disturb the affected ecosystems, and thus they assign these to the camp of technical protection and control measures.

These examples show that, upon closer examination, the simple division of the constellation into two camps does not work. The different regional actors have different perspectives. Each would prefer to arrange the elements of the constellations in a different way and plot different relations between actors and the other elements. The mutual perceptions of the constellation diverge. The constellation cannot be represented by one single graphical map, but by various viewpoints and perspectives. Therefore, the constellation analysis also has to deal with the methodological problem of multiplicity and heterogeneity of viewpoints mentioned above.

VI. Considering the blurring of the two poles and the complexity of the issue, a shared problem definition within the constellation does not seem to exist nor is there an objective analytical view that arises externally. Therefore, it seems useful to choose an approach that preserves the heterogeneity and diversity of the different perspectives by analysing and visualising them separately in a constellation. The subjective views of the different actors are thus taken seriously and granted equal importance.

In personal interviews and discussions with the relevant actors and by analysing documents, standpoints and reports in the regional media of each target group, the researchers ascertain each perspective and plot it in separate constellations. In order to be able to compare and relate the diverging constellations to the other perspectives, we choose a shared point of reference for the constellations. In the case of flood protection, it is the focus on the material and natural elements of the constellation: the Elbe river and the flood itself. These two elements make up the material core of the constellations. By this methodological trick, we achieve an arrangement of the elements that enable to maintain a minimum of comparability while preserving heterogeneity and diversity.

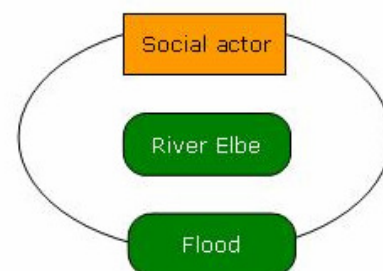


Image 2: Material core

VII. By showing and briefly illustrating three of the resulting graphical representations (mappings) of different perspectives of regional actors involved, we want to highlight some unexpected special features that substantiate the assumption of the heterogeneous divergence of knowledge.

(1) In the constellation of the LHW (Landesamt für Hochwasserschutz), we can see that, beneath the technical measures of flood protection and control, they also consider precautionary measures as important devices for flood protection. Nevertheless, their competence and capacity for action is situated exclusively on the side of technical flood protection.

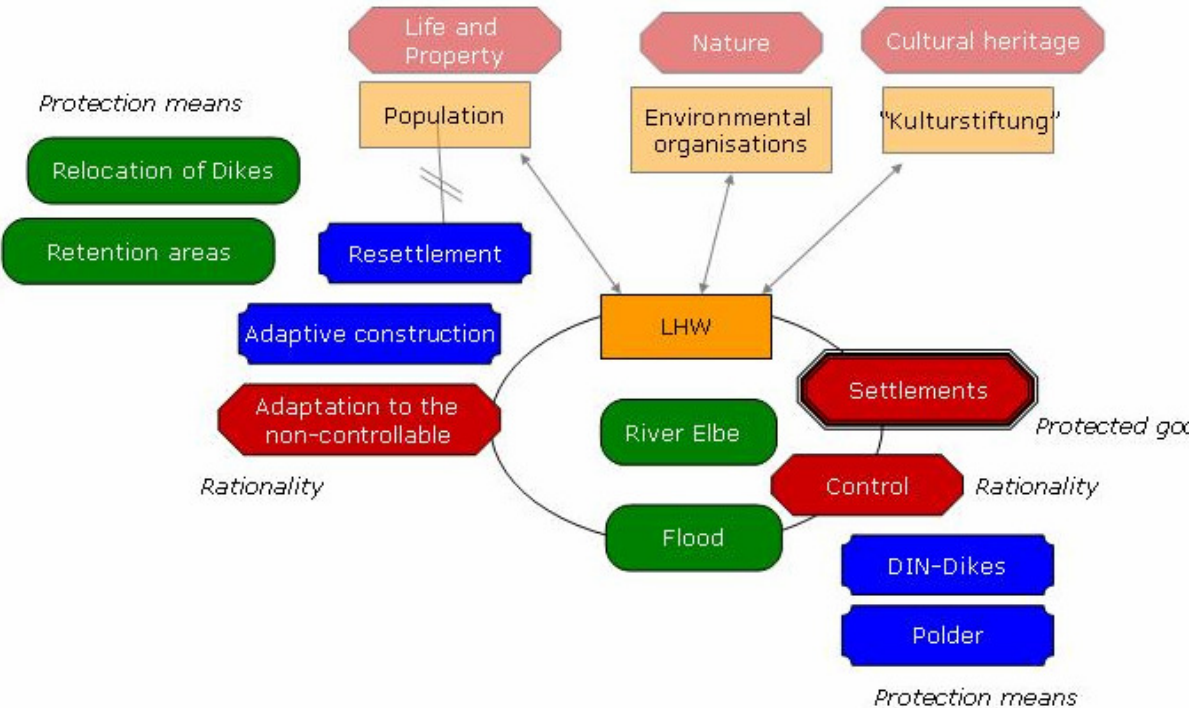


Image 3: Perspective of LHW: Range of considered flood protection measures

An unexpected characteristic feature of the perspective of the LHW is their role as a mediator. Although there is a formal suspension of the obligation of public participation of all interest groups within the reconstruction measures in flood protection, the LHW has a marked interest in mediating between the different actors' interests, because earlier efforts to implement a simple execution of legal measures led to open conflict.

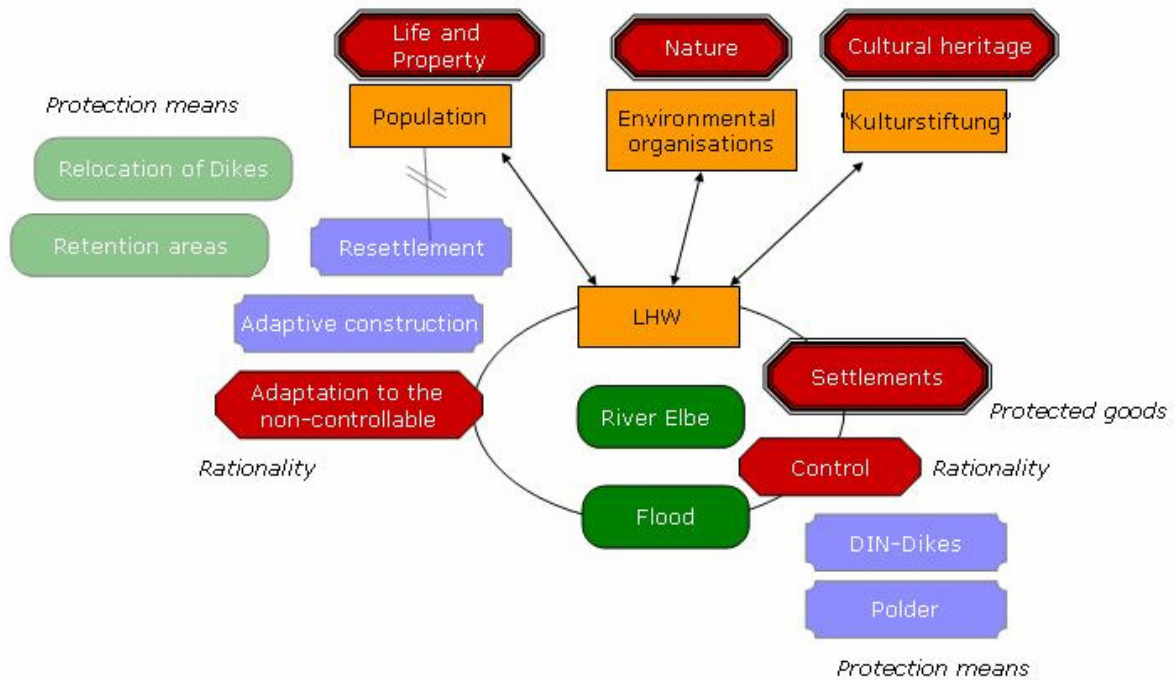


Image 4: Perspective of LHW: Mediation between the different actors

(2) The population of Waldersee, a district of the city of Dessau, was greatly affected by the Elbe flood in 2002. Since the time of these events, they have been intensively engaged in discussions about flood protection in their region. The prime aim of the protection measures is preventing livelihood and property from being subjected to future flooding. Fear for livelihood and claims of responsibility and solidarity result in a highly emotional debate. Against this background, they make a wide range of proposals for future arrangement of flood protection. These include both technical protective means and measures of prevention such as reforestation, the creation of retention areas and the initiation of an interregional flood protection forum.

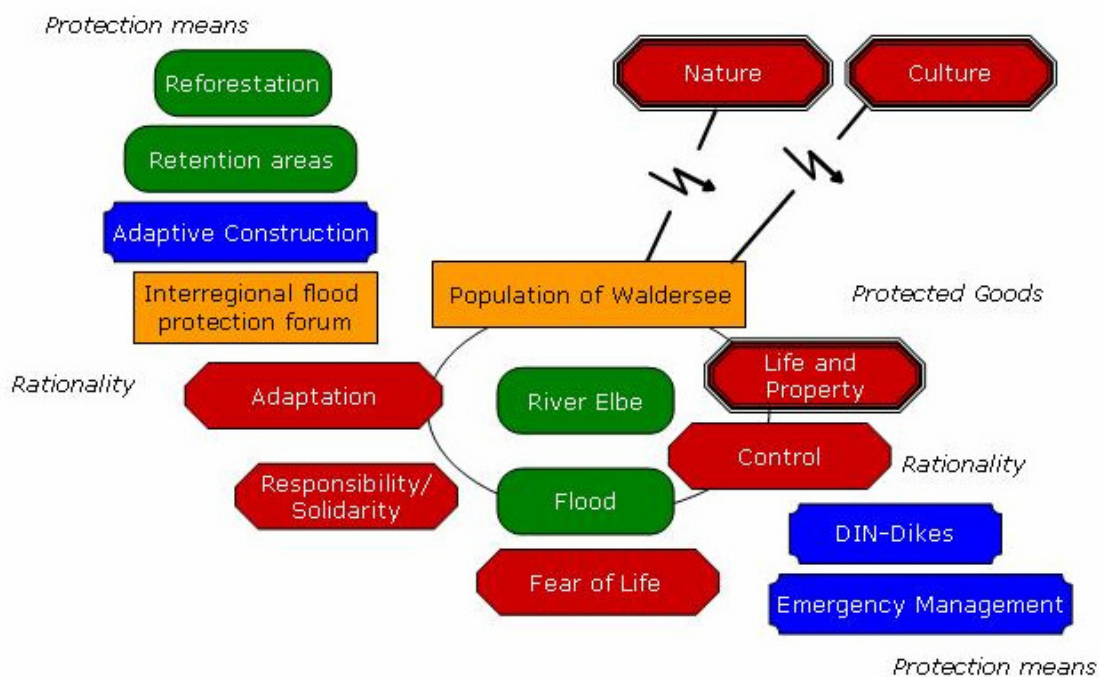


Image 5: Perspective Waldersee

(3) The perspective of the “Kulturstiftung”, the authority for the protection of historical buildings and monuments, reveals another characteristic. From their point of view, their main interest lies in establishing protection from destructive protection measures and not from destructive flood events. . Heading the conservation of the UNESCO world-heritage-site “Dessau-Wörlitzer Gartenreich” (which lies within the floodplain of the Elbe river), the “Kulturstiftung” criticizes all flood protection measures that intend to reinforce and therefore change the historical dikes, which are designated as historical structures. They prefer that the protected buildings remain within the flooding area and would rather cope with the extreme flood events than see the historical status of the dikes destroyed by renovation. They accuse the local population and policy makers of granting their purely egoistic-interests a higher status than the national common interest in cultural heritage.

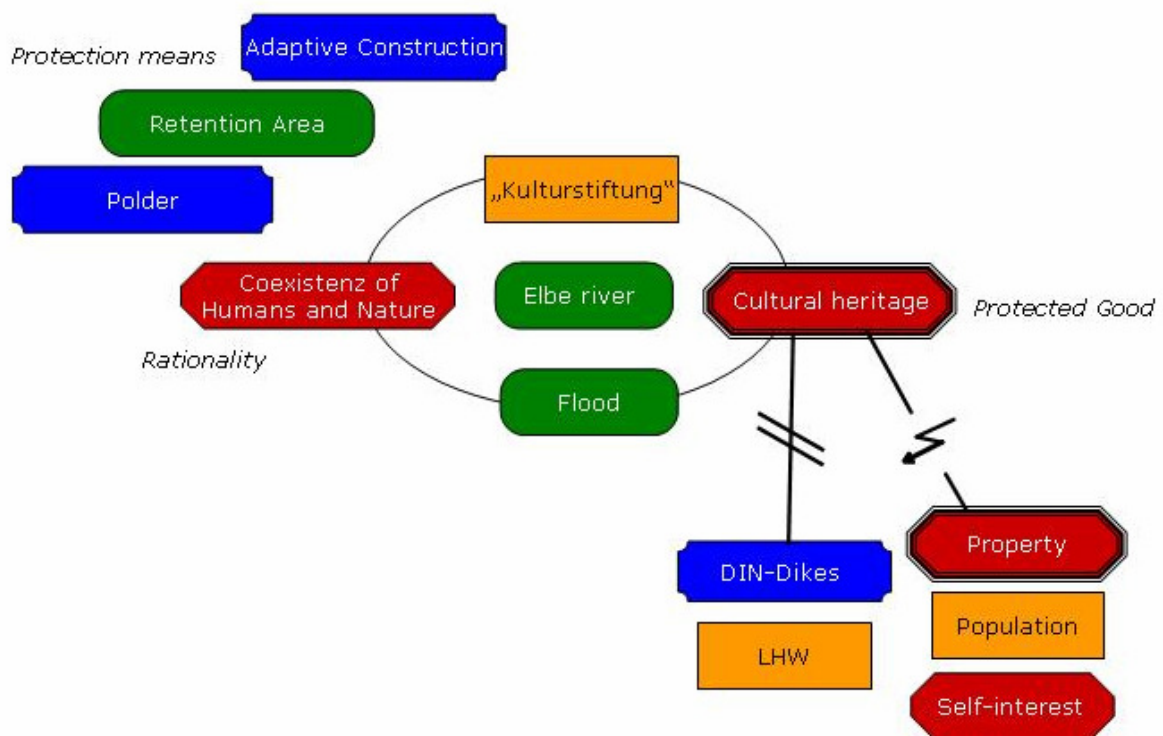


Image 6: “Kulturstiftung“ Perspective

As an intermediate result, we can learn from the three examples that within the blurring of the classical dichotomous pattern of flood protection and the heterogeneity of viewpoints it is possible to structure the different perspectives and depict them graphically. The perspectives elucidate that the different stakeholders arrange the same elements and issues differently and act in the face of diverging rationalities and normative patterns.

VIII. These maps of diverging and heterogeneous knowledge claims can be used in the next stages of our project for quite different goals in the process of knowledge generation:

- First, they can be used to confront the groups involved with the sheer heterogeneity and the blind spots in their views on the same issue (regional flood protection). Because of the maps, graphical evidence can thus be depicted in a very simple, but nonetheless

convincing way. Examples from other projects show that immediate insights are likely to occur when being confronted with a condensed picture of the differences between the viewpoints, insights such as: “I never imagined they could see the river this way,” or, “I always thought they were part of my camp.” This use of constellation analysis clearly serves to enlighten the public

- Second, the maps can be used as a tool for structuring a process of mediation between the stakeholders, as a preliminary step for the participatory politics desired. Again, graphical evidence is suitable for recognizing mutual linkages that were previously hidden, and for avoiding misunderstandings. This use of constellation analysis aims at opening opportunities for issue formation and for widening the range of possible collective decisions, thus preparing the way for political participation.
- Third, systematically involving the stakeholders’ viewpoints provides the scientists with new data at every stage, which allows an iterative improvement of the picture of the situation on a larger scale. This can eventually result in a focused map of the whole situation, including the diverging viewpoints. This use of constellation analysis treats the stakeholders as providers of knowledge in order to check, correct and improve the scientific picture.

X. To sum up, we would like to sketch some lessons learned thus far. Since the research project is still a work in progress, we do not want to speculate about the results of the three uses of constellation analysis mentioned above. It is especially unclear whether the mapping of heterogeneity can be matched with a more focused map of the whole situation. But we hope that we have been able to demonstrate that regional flood protection policies cannot be analyzed without seriously considering the divergent viewpoints of the stakeholders. A closer look at the agora reveals a messy heterogeneity, not a clear-cut picture. And the emergence of an agora-like social formation by no means guarantees a meaningful integration of stakeholders. In point of fact, the multiplicity and heterogeneity of knowledge claims can be one important reason for blockades. The three proposals offer possibilities for dealing with the multiple and divergent forms of knowledge and for finding a way out of the blockades.

We have tried to demonstrate that constellation analysis is a suitable tool for mapping this heterogeneity, and especially that the focus on one non-human element is one, if not the only possible starting point for any attempt of analysis by social science. In conclusion, we want to emphasize that in our view the mapping of diversity is the only way to ensure the possibility of analysis and the achievement of transparency.