

Regional Governance in Flood Risk Mitigation –

The Case of Weißeritz-Regio

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1 Introduction

Ecological, technical and societal requirements are all closely interrelated in river basins and catchments. Public and private actors' interests relating to issues of, for instance, water quality and quantity, nature protection, agriculture and forestry, or the preparation of land for building activities are highly diverse. As a rule, several administrative borders - municipal, regional, or national borders - cross one catchment's area. In each administrative unit we find a variety of water and land users, while at the regional and state levels there are a large number of responsibilities in different fields. Co-ordinating this multitude of different actors with their decisions and actions becomes a challenging societal task, especially if disastrous events point to the necessity of developing new approaches to deliver public goods.

This paper deals with flood risk mitigation (in contrast to flood event management, which is focused on reducing risk *during* the event). The proposition is that flood risk mitigation is a complex task, to which many contribute, and from which many benefit. In the last few decades the philosophy of flood risk mitigation has changed from a mainly technical understanding (a task for water engineers and hydrologists), to a comprehensive, participative, and collaborative approach (a task of several actors and societal groups) (see Schanze 2006, Wirth & Schanze 2004, Hutter 2007).

This change has been, and is, triggered by flood events with severe consequences, and flood disasters such as the one that occurred in the Dresden region in August 2002, which was caused by different rivers and groundwater conditions. These events make it clear that it is illusionary to attempt to prevent floods by taking purely technical measures such as constructing dams and dykes. However, expanding flood risk mitigation from an approach involving structural / technical measures to a fully-fledged risk-based approach with the whole range of structural and non-structural measures comes at the cost of involving a broad range of institutional actors with different responsibilities, perspectives, risk perceptions, interests, experiences, and resources.

Questions of co-ordination involving such complex actor constellations can be analysed using the concept of "governance" (Benz 2004). Among other variables, the concept of governance points to complex actor constellations (usually from the public, private, and

intermediate spheres), and different mechanisms for co-ordinating decisions among multiple spatial levels and territories (e.g., hierarchy, market mechanisms, collaboration / negotiation).

In a more normative sense, the governance concept points to network-based, collaborative efforts of actors from different societal spheres to solve problems that a more traditional formal and hierarchy-based approach to the delivery of a public good cannot meet adequately (Fürst 2004). The Weißeritz-Regio regional initiative is such a governance-oriented approach to flood risk mitigation. The initiative was established following the river Weißeritz flash flood disaster in the Dresden region in August 2002. The overall purpose of the initiative is to complement the risk mitigation concepts delivered by state authorities.

It is the aim of this paper to present findings from a longitudinal case study that the IOER – Leibniz-Institute of Ecological and Regional Development – conducted (during the period from 2003 to the end of 2007) to understand the advantages of catchment-level collaborative efforts for flood risk mitigation. Section 2 lists the basic facts of the Weißeritz-Regio regional initiative. Because of the governance perspective of this paper, it lays particular importance on describing the Weißeritz-Regio actor constellation, organisational structure, and existing co-ordination mechanisms. Section 3 presents a preliminary assessment of Weißeritz-Regio and its outcomes. Section 4 summarizes our conclusions.

2 The Case of Weißeritz-Regio – An Flood Risk Mitigation Initiative set up following a Disaster¹

The river Weißeritz is a left-bank tributary of the river Elbe in Saxony. The catchment size is 386 square km (fig. 1). The two headstreams “Wilde” and “Rote” Weißeritz have their sources in the Ore Mountains. The source of the Rote Weißeritz is close to Altenberg at a height of about 750 m, that of the Wilde Weißeritz is near Mikulov (Czech Republic) at 800 m. The confluence with the Elbe is in Dresden at 112 m. The distance between source and confluence is only 50 km, which is one reason for the river Weißeritz being a fast-flowing mountain river which can generate floods resembling flash floods which have severe consequences for human health, public infrastructure, housing and economic assets.

¹ More information regarding the practical testing of Weißeritz-Regio can be found on the homepage www.ioer.de/weisseritz

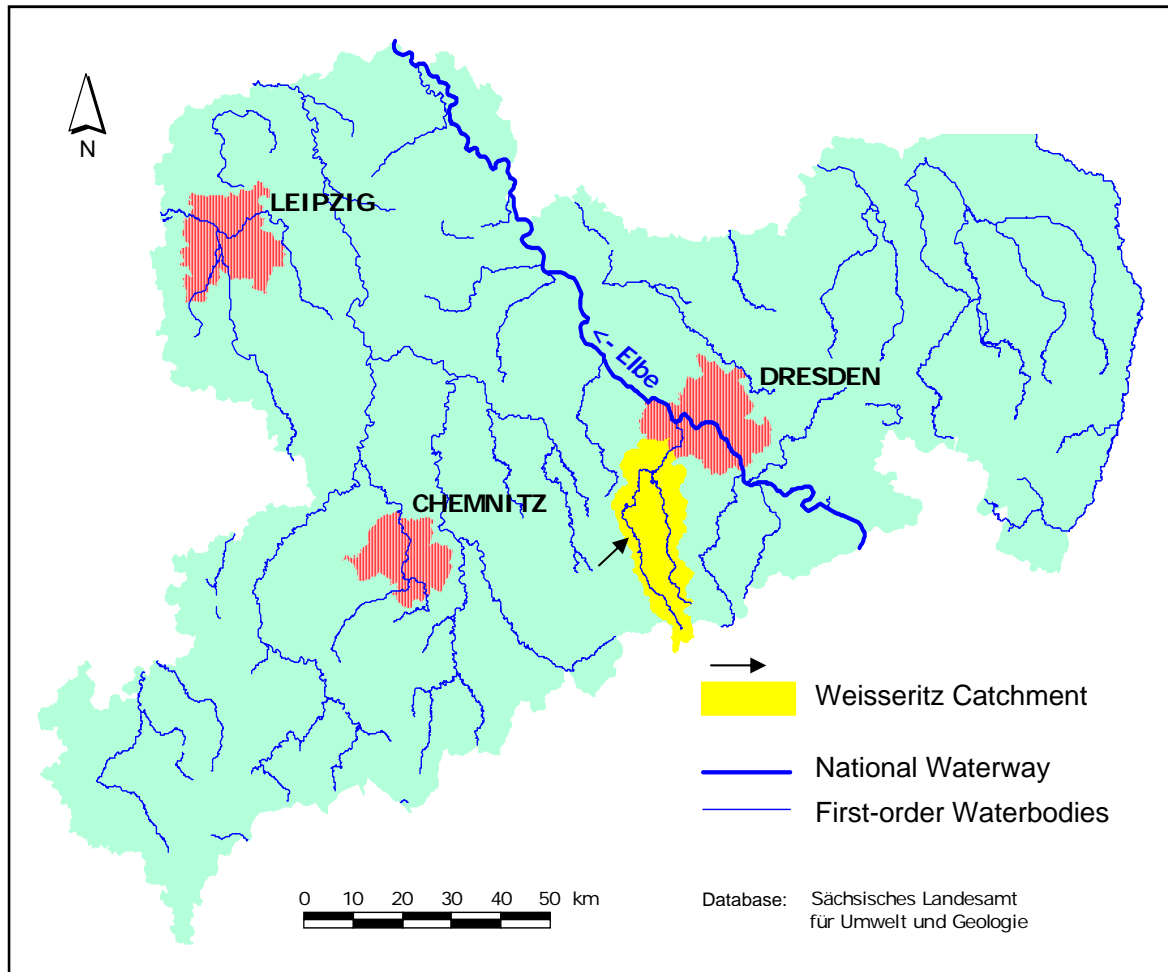


Fig 1: Location of the Weißeritz river catchment in Saxony (source: IOER)

In August 2002, the Weißeritz inundated large urban and rural areas along its banks, seriously affecting the city centres of Freital and Dresden. There had been a previous flood which was to some extent comparable to the August 2002 flood in 1958. After the 2002 flood, state and local authorities focused on two activities: (1) recovering from the flood disaster: for instance, through site clearance and clearing blocked roads, and: (2) formulating flood protection concepts for each main river². One year after the Elbe flood, there were draft concepts for nearly all rivers in Saxony. Despite this tremendous achievement, state and local authorities were aware of the limitations of the existing flood protection concepts. These concepts largely reflect a more traditional approach to flood risk management that focuses on flood protection through structural measures (in the case of the Weißeritz river in the urban areas of Freital and Dresden, for instance, flood walls and measures to enhance the discharge capacity of the river bed). So-called non-structural measures only played a limited role.

Furthermore, a survey conducted with decision-makers in all 15 municipalities in the Weißeritz catchment area revealed that nearly all were involved in a hierarchical system to co-ordinate, under the leadership of Saxony's water authority, the federal state government (Landesregierung),³ and the county government (Landkreis administration), but

² Waterbodies of 1. Rank according to Saxon Water Law

³ In Saxony this is the „Landestalsperrenverwaltung Sachsen“.

only 2 worked together with adjacent municipalities to answer old and new questions concerning flood risk mitigation. Gaps in communication and the uncoordinated actions of stakeholders were very obvious. The survey showed that local decision-makers were mainly interested in issues of implementation, especially issues involving the funding of flood risk mitigation measures through structural measures in their municipalities.

In this context, that of developing and implementing flood risk mitigation concepts in the aftermath of a flood disaster, the IOER initiated the non-statutory collaborative initiative “Weißeritz-Regio”. The initial intention had been to complement existing or emerging structural flood protection measures through developing additional approaches based on non-statutory cooperation of all the relevant flood risk mitigation actors. To mobilise state and local authorities to support the initiative, representatives from the IOER initiated discussions with high-level representatives from different institutions (the City of Dresden, the City of Freital, the county administration, the water authority, and the regional planning office). With representatives from these institutions agreeing to back the regional flood risk mitigation initiative, the other institutions relevant for catchment-wide collaboration joined the initiative. Officially, the regional initiative “Weißeritz-Regio” was established at the beginning of the year 2004.

Institutional members of Weißeritz-Regio are the following:

- 15 municipalities including Dresden, the capital of the Free State of Saxony;
- the county administration (in German: “Landkreis”) Weißeritzkreis;
- 3 state authorities (water, environment, forestry),
- the Regional Planning Office;
- the Farmers Association as the representative of land users;
- 2 interest groups (the “Grüne Liga” Environmental Association, and the “Eastern Ore Mountains” Landscape Protection Association);
- 1 research institute (IOER – Leibniz Institute of Ecological and Regional Development).

Representatives from these institutional members agreed to sign a one-page declaration as the written basis for the collaborative flood risk mitigation effort. The declaration is made up of quite abstract notions in terms of goals of the regional initiative and general principles of the initiative. The declaration mentions improving flood risk mitigation through achieving mutual advantages involving collaboration as the main goal. It declared that measures for flood risk mitigation would be adjusted, within statutory responsibilities, based on the results of the regional initiative. It became increasingly clear that the partners would only cooperate if the collaborative effort were not to question the existing statutory responsibilities. Furthermore, a low-budget approach was agreed. Direct (as well as indirect) costs of participating in Weißeritz-Regio were to be covered by the partners themselves. Additional costs for joint single products of the regional initiative were to be matters for negotiation.

Only a short time later, the rules for cooperating within the regional initiative were set down in more detail in a joint convention covering the following matters:

- organisational structure,
- tasks of boards and role of speakers,
- decision-making methods, information flows, and modes of process management.

The Weißeritz-Regio organisational system is based on the method “Regionalmanagement” (Fürst 1998). Proponents of this method argue for a two-level structure of interaction to involve politicians and officials in the process of organizing a regional initiative: (1) Building an assembly of members (and a steering group which is a part of the assembly), and (2) defining working groups for common problems (fig. 2).

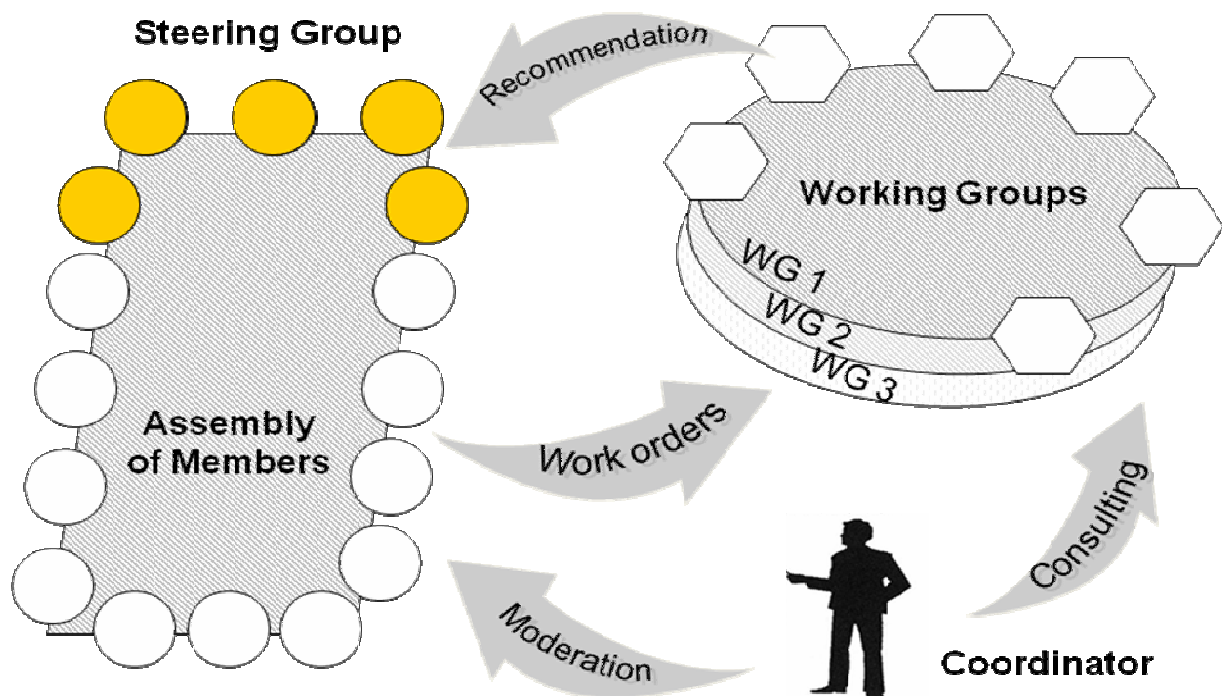


Fig. 2: Informal regional cooperation based on the Regional Management Concept

First, there is the **assembly of members**. It is responsible for decision making and for transferring the results of cooperation to the member institutions and for implementing measures. All members of Weißeritz-Regio are represented in the assembly. Usually, members form the assembly – according to the joint convention – two times a year. Tasks at these occasions are the exchange of information, discussion of basic questions of the cooperating institutions, appointment of members of the steering group, installation of work groups, and formulating tasks of steering group respective working groups.

To guarantee a continuous flow of information to prepare and communicate decisions, a **steering group** was established. It represents the interests of the assembly of members in the intervals between the sessions of the assembly; it meets regularly, four times a year. The steering group prepares member assemblies, coordinates working groups, assesses working group results, and elaborates recommendations for the assembly of members.

Another important question was how to organize representation of the initiative vis-a-vis the public and third parties. The problem was solved by the nomination of **speakers**. The vice-mayor of Freital, the second largest town in the Weißeritz area, was elected as speaker of the initiative. The vice-mayor became also the speaker of the steering group. His main tasks are inviting to the meetings and working on public relations.

Experts from several institutions prepare decisions and guidelines in **working groups**. Their responsibility is to recommend solutions to problems relevant for all members or the majority of the regional initiative and without the pressure of a political context. Working groups were set up on a permanent or on a temporary basis. In working groups, more technically-oriented officials and experts come together to discuss problems of flood risk mitigation and to draw up proposals and recommendations on the basis of the state of the art using their own experiences. The number of meetings depends on the task in hand. In times of high pressure some working groups met weekly, in times of low demand only every three months. The tasks, are, as a rule: the analysis of the problem, discussion of possible solutions involving external experts (for instance, engineers, scientists, or other officials), formulating proposals and recommendations, and presenting proposals to the assembly of members. Four working groups were set up in Weißeritz-Regio:

- A forest and flood working group aiming at providing “Forest Impacts on Floods” guidance for private forest owners, communities and key actors in public administrations, involving forest reconstruction, expansion of forests, and tree, shrub, and hedge planting in the open landscape of the Weißeritz area. The result was a guideline, of which 2,700 copies were printed.
- The objective of the second, agriculture and flood, working group was to support farmers in questions of flood-appropriate land use including techniques of ploughless cultivation. For this reason the group organised two agricultural symposia, the results of which (presentations) are available via internet.
- The working group “Citizen Information” aimed at enhancing the preparedness of citizens in the Weißeritz basin. The result was a brochure „Flood Precautions in the Weißeritz River Area – Informing Citizens”, of which 5,000 free copies have been printed and distributed by local administrations. The contents of the brochure included basic rules for individual precautions involving land use and building protection in flooding areas, as well as information on personal behaviour in the case of a (flash) flood.
- The goal of the “Decision Support” working group was the creation of a user-friendly internet-based information system “Weißeritz-Info” in close contact to the stakeholders in the Weißeritz catchment (www.ioer.de/weisseritzinfo). The idea was to provide consistent information for citizens, land users, traders and administrative officers. Extensive technical support was given by the IOER.

In contrast, **project groups** were defined to deal with questions of more restricted relevance. Until now, the option of forming *project groups* has only once been realised in the Weißeritz initiative. The group *Oelsabach* was founded with the objective of promoting a flood protection concept for a non-main river which was in the responsibility of two small municipalities⁴. The Weißeritz initiative supported the affected communities in achieving partial state funding for the concept.

The most-discussed questions in the initial phase of Weißeritz-Regio were those regarding the **playmaker**. Right from the start it was clear that a common approach of this dimension needs something like a *coordinator or process moderator* (in the sense of a “process champion”, see Bryson 2004). The first idea was to make one of the participat-

⁴ In Saxony for so called second rank water bodies (small rivers, brooks) the communities are responsible.

ing institutions or some other organisation responsible. Finally it was decided to assign this task to the Leibniz Institute for two reasons: on the one hand, the institute has sufficient experience in regional management. Doing this work themselves, researchers would be able to provide a high level of process management. Taking this route, the risks of insufficient coordination could be reduced. On the other hand, the direct involvement of the researchers opened the possibility of direct access to processes of information transfer, opinion formation, and decision preparation. The consequence is that researchers have become part of the process. They have established close contacts with the regional actors and are no longer “external observers”, and are “between independence and engagement” (van de Most et al. 2003) including elements of action research.

3 A Governance Perspective on Flood Risk Mitigation – Appraisal of the Weißeritz-Regio Cooperation

In river catchments there is a multiplicity of natural situations, land uses, societal requirements, actors, and responsibilities. This makes it necessary to find a common way in essential questions like flood risk mitigation. This type of problem has been discussed intensively in regional and urban development during the last two decades or so. There are many situations with similar features, maybe in urban regeneration, in the cooperation of cities with their hinterlands, and in processes of the structural change of cities and regions; there is a lot of experience available from these fields. Discussions often focus – as already mentioned above – on a governance perspective (e. g. Danson et al. 2000, Knieling 2003), and consequently the Weißeritz-Regio initiative is a governance-oriented one.

Governance is understood here as “a process of coordination of actors, social groups and institutions in order to attain appropriate goals that have been discussed and collectively defined in fragmented, uncertain environments” (Le Galès, 1998). The approach “is mostly used to indicate a new mode of governing, different from the old hierarchical model in which state authorities exert sovereign control over the people and groups making up civil society” (Mayntz 2003).

In a wider sense, all forms of societal steering which bring together public and private actors and which have emerged in addition to classical forms of steering are understood under governance (Einig/Fürst/Knieling 2003). Governance stands for flexible cooperation in networks. Benz (2003) argues that governance concepts would be suitable to reproduce the reality of planning, politics and administration better than other concepts.

In the German literature regarding spatial development at regional level, the governance approach has been discussed for several years as an alternative to inter-communal administration units (Zweckverbände). Statutory communal cooperation is, as a rule, a highly institutionalised cooperation mode for managing the tasks of municipalities (water, wastewater, land use planning). By contrast, regional governance is understood as a weakly-regulated but flexible form of cooperation policy based on the ability of actors to accept changing framework conditions and to learn in an institutional context (Benz

2003). It is a soft mode of steering, primarily based on networks with actors from economy, policy and society (Fürst 2003).

In a European perspective, some features of regional governance approaches are stressed here (on the basis of Albrechts/Healey/Kunzmann 2003) because they are suitable to deciding on the route taken in Weißeritz-Regio:

- Governance work looks similar in its broad outlines, but may take a range of different forms. The previous experiences of institutions involved, “cultural” factors like the strong position of spatial planning in Germany, different styles in the regional policy of national states in Europe, and questions of place identity have to be considered.
- Making plans under a governance philosophy is not just a question of technical analysis; also the development of spatial development programmes and metaphors can command attention and carry persuasive power in complex political contexts.
- Governance is a soft mode of steering, combining strengths and weaknesses. Flexibility in action, overcoming traditional barriers between different fields of action (such as public and private), and the reduction of hierarchical relationships are interpreted as strengths; the limited legitimation of governance networks, the low level of commitment, and the ever present exit options available to participating institutions are seen as weaknesses.
- Governance approaches are based on networks of actors from different fields of activity; often they have to be connected with “hard” institutional infrastructures to implement objectives to achieve the goals (see remark above).
- New governance initiatives often emerge under conditions of structural change or crisis when existing institutional settings are inadequate for the solution of basic problems of places, cities, or regions. Under such circumstances, the conditions for establishing learning processes are favourable.

After four years of cooperation stock can now be taken of the Weißeritz initiative. Two sources were used to identify the cooperation impact on flood prevention in the whole Weißeritz area: on the one hand, the observations of researchers, and on the other, the individual opinions of key actors in the process. The monitoring of the process by researchers was led by a set of propositions which evolved from initially relatively abstract ones to more detailed predications in the recent phase of the process. To tackle the complexity of the process, and the multiplicity of interactions, three issues of cooperation were observed in more detail:

- Water retention in forestry and agriculture
- Handling of flood risk maps
- Activities to enhance the individual preparedness of inhabitants.

The opinions of key actors were determined in the course of 15 guided expert interviews. When reviewing the process, the results of the activities, as well as the impacts and implications of work have to be taken into account. Some aspects are relatively clear, while others can be assumed by means of individual observations, but not attested with absolute certainty.

The main products of Weißeritz-Regio are the guidelines for forest owners, a series of presentations regarding flood-appropriate agricultural land use, the brochure on individual flood precautions for inhabitants, and the Internet-based interactive information system Weißeritz-Info. They can be used directly by administrative officers, land users, or local residents. In the minds of a majority of participants the brochure for citizens was the most important product because, at present, a lack of individual preparedness is seen as a serious shortcoming in flood risk mitigation at the moment. Though the actors do not believe that the brochure is a final solution to this problem, it is a support for affected citizens and also a tool for responsible actors in municipalities in discussing this aspect competently with target groups. The forest guideline and the agricultural symposiums were addressed to special user groups, which is why they were perceived by environmental, forestry and agricultural authorities and the landscape protection association more intensively, but by some communal actors more rarely. The Internet platform – originally designed for all members of the initiative – became a tool of those small municipalities in the Ore Mountains that do not have their own digital information systems, and for interested laypersons. The bigger cities and the state authorities usually used their own information systems.

The four main products of Weißeritz-Regio in generally can be characterised as follows:

- They directly answer problems seen by the local/regional key-actors in the Weißeritz area.
- They were created outside the given institutional framework, voluntarily, and without any order from outside.
- They were created in a climate of cooperation by local and regional actors for the common benefit of the public and local/regional actors.
- They are tailor-made for the special natural and socio-economic conditions of the Weißeritz River catchment .

This makes them typical products of a governance approach. In spite of these positive outcomes, the results and effects of the project should be categorized as soft measures. No dam was erected and no big investment was undertaken as a result of common decisions of the Weißeritz-Regio cooperation. This is deeply rooted in the character, including its basic principles of the cooperation: no change in responsibilities, nor any budget for common measures. For this reason the Weißeritz approach was never expected to be an alternative to the planning of key investments. In the case under study, non-statutory cooperation can thus be said to have performed an important function, but it is no substitute for the traditional tasks of state and local authorities, of land owners, and local inhabitants in this field. Comparing Weißeritz-Region with a wall, the legal responsibilities of sovereign partners would be the bricks, and the cooperation initiative the mortar holding them together. It is a complementary tool in the system of flood risk management.

Of a wider scientific interest are the impacts of the non-statutory cooperation process on the behaviour of the actors in the river basins. Though results are still being appraised, some trends regarding the behaviour of key actors are apparent; in particular, better *information*, a higher intensity of technical *discourse*, and a contribution to *decision making* in some fields of interaction.

At the beginning of the process *information* regarding flood prevention and the elimination of the 2002 flood damage was a rare good. Typical was a vertical information flow (top down and bottom up), and consequently the information situation was heterogeneous. Some were able to benefit from it, some not. Regarding the results of Weißeritz-Regio, in practice researchers and actors agree on the positive effects of cooperation. Meetings of several groups, excursions, the Internet platform, newsletters, technical forums, and brochures were crucial contributions to more appropriate and consistent information. The learning effect for members was to get a better sense of how to address knowledge and information.

A further advantage of the cooperation process in the Weißeritz area is the impulse it gives for a *discourse* about flood risk mitigation issues involving cross-border municipalities and technical disciplines (fig 3). Typical in the starting phase of cooperation were bilateral or small-group discussions. As a rule, they were directed to single measures of flood prevention, including only those actors who were directly affected. There was no discussion regarding general questions of land use, river engineering techniques, or preparedness in the Weißeritz catchment. Such discourses emerged in the working groups and partly in the steering group of Weißeritz-Regio. One of the main topics was to connect measures of water engineering (a responsibility of the state water authority and the municipalities) in a better way with measures of land use change (like expansion of the forest area, changing cropland into grassland, or ploughless cultivation of cropland). It was the first time that the head of the state water authority responsible for the Weißeritz area became acquainted with a concept to reduce water erosion on farmland. Discourses regarding this topic emerged in the several working groups, as well in the project group Oelsabach. Questions of natural protection were included. Discourses were pushed by internal and external experts e.g. from Dresden Technical University. In some cases recipients (like farmers) were directly involved in the discourse.



Fig 3: Discussion in the working group forest and flood of the initiative Weißeritz-Regio (photo: IOER)

Finally, an influence of the Weißeritz cooperation on *decision making* among the participating organisations was noticed. Here the evidence is still weakly-based and empirical.

Of course, it is plausible that new forms of collaboration cause a change of behaviour of individual actors in the organisations involved. One of the main actors argued the plans of the water authority would already consider agreements of the working group “forest and flood” to use nature-orientated techniques of river engineering. But there is neither any evidence that this is true nor (were it true) anything to show that it is a cause of cooperation. What we can, after four years, say is that most of the actors were convinced that the chosen approach is an innovative contribution to flood risk mitigation, and that it influences the behaviour of individual actors. Cooperation had opened eyes for alternatives courses of action and for the consideration of new solutions.

Of course it is highly visible that the reason for the establishment of the initiative was the 2002 Elbe flood event. A natural disaster provided the impulse for new a new form of societal acting. Actors diverged from routines and looked for alternatives. After the disaster, representatives of state authorities, key actors in local administrations, land users, and interest groups were highly motivated, and there was a high level of pressure from the public to force the rectification of damage and flood risk mitigation. Without this dramatic background the call for closer cooperation would certainly not have been effective. This is made clear by the fact that in the final period of the cooperation process some actors revised or reduced their activities. Similar observations have been made in other cases (Penning-Rowsell 2003).

Keeping in mind this the Weißeritz-Regio initiative is now undergoing a change. It is time to consider further perspectives and new objectives. Though first goals have been achieved, most mitigation measures have not yet been implemented. The intention is now to reorganise working groups, reduce the number of groups, and to focus core topic activities more closely on the daily work of actors.

4 Conclusions

The Weißeritz-Regio cooperation is a unique flood risk mitigation initiative in medium-sized river catchments characterised by flash floods. Whilst most existing initiatives in river catchments aim at the creation of action plans (e. g. Malcolm & Parkin 1997, HWAP Weser 2005), in case of Weißeritz there is a permanent interaction of flood-relevant actors in plan implementation. From this point of view, Weißeritz-Regio represents an innovative approach in societal flood risk management. At the end of the examination the question is what the lessons that have been learned are.

In the case under investigation it could be seen that it is generally possible to establish a non-statutory collaboration towards flood risk mitigation. It is an additional element, complementary to the statutory forms of cooperation. The kind of cooperation observed produces results which can close gaps in the legal system of flood prevention. But there is also an influence on the “climate” of collaboration. There was evidence of an improved information flow and intensified opinion forming by actors, and it is assumed that there is an influence on decision making processes in the organisations involved. All in all, it can be assumed that the trial cooperation has had positive effects.

Ultimately, the governance approach in Weißeritz-Regio can be understood as an impulse for a learning process. Evidence suggests elements of policy learning in the sense of Benz & Fürst (2002). Most respond actors actively to new circumstances, and adjust their programmes. Of course, not all the actors in the cooperation pool were able to follow this learning offer; it depends on different patterns of individual and institutional thought and behaviour (see van der Werff 2003). But after four years of cooperation, there has been noticeable progress in the interaction of flood-relevant actors, and a majority of actors have a high level of interest in continuing its operation.

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