Small particles, big issue – Sediment matters

Peter Heininger[1]

[1]Federal Institute of Hydrology (BfG), 56058 Koblenz, Germany

Phone: +49-261-1306 5307

E-mail: heininger@bafg.de

Introduction: Much progress has been made in the *knowledge* of sediments in river basins during the last 20 years. The *relevance* of sediments for the integrity of river systems is well justified. Despite all this, *practical* examples of comprehensive river-basin-scale *sediment management* concepts are by no means state-of-the-art. In Europe, approaches to the management of waters have been radically altered with the introduction of the European Water Framework Directive (WFD).

The Elbe concept: The first Elbe management plan prepared under the WFD (2010-2015) underlines that contaminated sediments and unbalanced sediment conditions are among the main reasons for the failure to meet the WFD management objectives [1]. As a consequence, the member states in the International Commission for the Protection of the Elbe River (ICPER) decided to develop a sediment management concept in preparation for the management cycle from 2016 to 2021. For the first time, an integrated sediment management concept was developed in support of management planning in a large international river basin [2, 3].

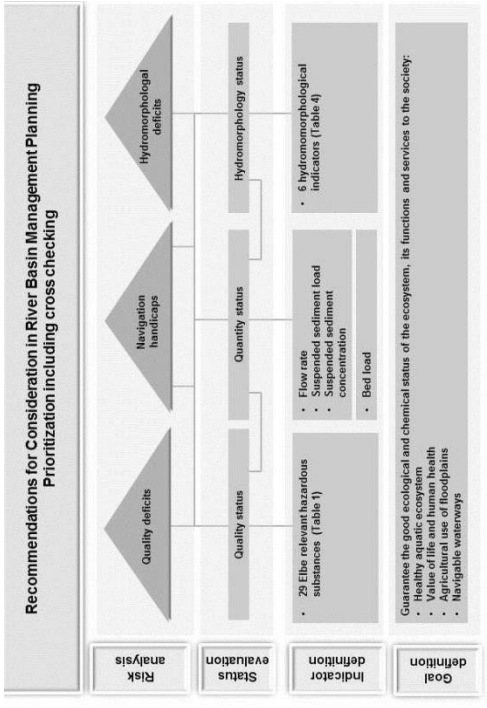

Fig. 1: Conceptual Framework

Figure 1 illustrates the main steps towards the Elbe sediment-management concept. The concept meets the following features:

- It is based on a coherent conceptual model at river basin scale that considers the various functions and uses of sediment as well as the different spatial and time scales;
- It takes into account (1) system and process understanding in terms of quality, quantity and hydromorphology, (2) upstream-downstream relationships, and (3) supra-regional and transboundary collaboration;
- It uses approved mechanisms for elaborating plans and for the engagement with a wide range of stakeholder (in particular WFD scenario).

Focus of the talk: At the Elbe case, the tricky interplay between the knowledge about sediments and the duly integration of sediment issues in river basin planning and practice is addressed (Fig. 2).

Fig. 2: Sediments – from knowledge to practice

The progress from (1) a deep theoretical understanding of the role of sediments in river systems to (2) the awareness of relevance for achieving basic management goals and (3) to the definition of realistic recommendations for river basin management planning is described. While the examples in the talk will be taken mainly from the sediment quality perspective, the Elbe process as a whole includes the quantity and hydromorphology perspectives as well. Finally, the state of the play after one year of the 2nd WFD management cycle is provided.

References: [1] IKSE (2009) Internationaler Bewirtschaftungsplan für die Flussgebietseinheit Elbe nach Artikel 13 der Richtlinie 2000/60/EG. Magdeburg

[2] IKSE (2014): Sedimentmanagementkonzept der IKSE. Vorschläge für eine gute Sedimentmanagementpraxis im Elbegebiet zur Erreichung überregionaler Handlungsziele. Magdeburg

[3] Heininger et al. (2015) in Heininger & Cullmann: Sediment Matters. Springer, p. 201-247