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Hydrology and Earth System Sciences Discussions

Interactive comment on "Institutional design and regime effectiveness in transboundary river management – the Elbe water quality regime" *by* I. Dombrowsky

Anonymous Referee #3

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This is an interesting and informative paper that assesses the effectiveness of the International Commission for the Protection of the Elbe (ICPE), created in 1990, over the past decade. The paper shows that the water quality regime of the Elbe has significantly improved, which only partly may be attributed to the interventions by the ICPE itself. This is an interesting finding: had the ICPE not existed, the Elbe water quality would also have improved, though to a lesser extent. Think, for example, of the economic collapse in the former Eastern Germany after the re-unification which contributed significantly to the reduction in pollution loads (p. 1648).

Another interesting aspect of the case is that it deals with a river basin where the upper

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riparian (Czech Republic) is relatively weak compared to the lower riparian (Germany). This, counter-intuitively, may explain the willingness of the former to cooperate and invest in for example waste water treatment plants. The economic ties with Germany are very important for the Czech Republic, as well as becoming EU member (a process which started in 1994 and was concluded in 2005). Sufficient reason to act as a good neighbour! The author rightfully concludes that "the asymmetry rather promoted than inhibited cooperation". This is, by the way, a conclusion similar to that by Baland and Platteau (1999) who considered collective action in fisheries.

The case also demonstrates that a singular focus on water only would not be able to explain the dynamics of water sharing in a transboundary context. What I also found interesting in the Elbe case is the lack of formal enforcement and dispute settlement provisions, and that other mechanisms, such as publishing water quality data proved effective to ensure compliance. This paper thus adds a useful case study which may be used to compare (and contrast) with other basins with relatively strong downstream riparians.

The methodology employed by the study is of interest as well, as it combines quantitative and qualitative analyses. This is a notoriously problematic issue in institutional analysis. The author conducted in depth interviews with 10 resource persons ("interview partners") , who were also asked to rank (various aspects of) the Elbe's water regime. Questions may be asked whether this sample size is adequate. I would have liked a few more outsiders among the resource persons, including representatives of the agricultural and industrial sectors in both countries. Otherwise the manner in which the author combines qualitative and quantitative data is very convincing and by weaving both strands together the Elbe story comes to life.

Two suggestions on the quantitative part of the argument, however, could be made.

1. The interviewed experts sometimes agreed when ranking an item, but at some issues there were large variations in opinion (e.g. p. 1636 lines 16-16). This is important

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information. In order not to lose that information the author could simply add a column with either the standard deviation or the coefficient of variation in Table 3.

2. I find the manner in which the author calculated the "no-regime counterfactual NR_{ID}" in Table 4 rather arbitrary (see also p. 1641 lines 18-23). Wouldn't it have been much more transparent to provide weights to the qualitative statements on the degree to which the ICPE contributed to the water quality regime, and then simply calculate the NR_{ID}? An example is given below:

Contribution of ICPE to the water quality regime	
Qualitative	Quantitative *(say)*
Zero	0.00
Low	0.15
low-medium	0.35
Medium	0.50
High	0.85
Complete	1.00

This would then translate into the following NR_{ID} and E_i

		AP	CO	ICPE contribution	weight	NR_{id}	E_i
1	Municipal wastewater	8.5	10	Medium	0.50	4.3	0.74
2	Industrial point sources	7.2	10	low-medium	0.35	4.7	0.47
3	Agricultural non-point sources	2.7	10	zero	0.00	2.7	0.00
4	Contaminated sites and landfills	6.8	10	low	0.15	5.8	0.24
5	Fish migration	6.8	10	low-medium	0.35	4.4	0.43
6	Protected areas and morphology	7.4	10	low	0.15	6.3	0.30
7	Accidental pollution	8.4	10	high	0.85	1.3	0.82
	Average	6.8	10			4.2	0.45

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In all, the paper is a welcome contribution on the subject of transboundary water management.

Technical corrections

p. 1643 line 10: What is “fish patency”?

p. 1659 table 5: Check the correctness of the average E_i figure (I calculated 0.44).

Reference

Baland, J.-M., and Platteau, J.-P., 1999. The ambiguous impact of inequality on local resource management. *World Development* 27(5): 773-788.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 1625, 2007.