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Supporting Information for

Transforming European Water Governance? EU Water Framework Directive implementation in 13 member states

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Introduction

The supporting information provides the variable descriptions and a detailed account of the data aggregation procedures employed during the analysis.

Further, the supporting information contains a list of literature sources consulted to elicit the data for this analysis.

Table S1. Variable descriptions

Variable Name	Description	Scale
RBM Planning Reference [RBM_PR]	Which scale serves as the main reference point for water resources management?	0=administrative, 1=hydrological
RBM Legal Responsibility [RBM_CA]	At which scale is the actor with legal responsibility for water resources management (or the designated Competent Authority under the WFD) located?	0=administrative, 1=hydrological
RBM Planning Responsibility [RBM_PA]	At which scale is the actor responsible for operating the planning process located?	0=administrative, 1=hydrological
RBM Implementation Responsibility [RBM_IA]	At which scale is the actor with primary responsibility for implementing measures located?	0=administrative, 1=hydrological
PP Number [PP_NO]	How many separate process types make up the participatory planning process?	number
PP Power Delegation [PP_PD]	The extent to which participants were able to influence the decisions to be taken (degree of decision-control granted to participants).	0=very low influence, 4=very high influence (co-governing)
PP Accessibility [PP_AC]	The extent to which access to the process by stakeholders and the public was constrained (e.g. presence of barriers or selection processes that regulated the access of potential participants).	0=very low, 4=very high
PP Representation [PP_RE]	Degree to which the constellation of interests involved in the participatory process was representative of the underlying stakeholder field.	0=very low (strongly biased), 4=very high (balanced representation)
PP Communication [PP_CO]	The extent to which the process provided opportunities for participants to engage in communicative interactions with each other and the authorities (e.g. listen as spectator vs. deliberate and negotiate).	0=very low (listen as spectator), 4=very high (highly deliberative)

RBM: River basin management

PP: Participatory process

Table S2. Public Participation in 13 EU member states under the WFD

Country	Venues	Access and representation	Power delegation and communication
Austria	National roundtable; Local processes	Professional stakeholder selection, open locally; strong representation of nationally important interests	Consultative and informative function
Czech Republic	District level planning committees; Regional seminars	Stakeholder selection; strong representation of established professional interests	Consultative function
Denmark	Regional water and nature council	Closed, rather balanced, selection of sanctioned stakeholders	Consultative and informative function
England/Wales	National liaison panel; RBD liaison panels; Local catchment processes	Stakeholder selection; stronger representation of potential co-deliverers	Advice and recommendations
France	Basin committees; Local level processes; Broad public outreach	Access points for various interests and publics; elections	Development of preferences, strong influence in decisions
Germany	State level advisory councils; Local sub-basin processes	Stakeholder selection, more open locally; strong representation of organised interests and users	Advice and recommendations
Hungary	National water management council; District water management councils; Local councils	Restricted stakeholder selection; rather balanced between government, NGOs, users, and academia	Consultative and informative function
Ireland	Regional advisory councils	Application for membership based on criteria; strong representation of local authorities	Consultative and informative function
Netherlands	National interest group forum; Regional water boards, sounding boards; Local area processes	Closed selection, open locally; strong representation of organised interests	Development of preferences, strong influence in decisions
Poland	National water management forum; regional water management councils	Stakeholder selection; strong representation of users	Consultative and informative function
Scotland	National advisory group (NAG); Area advisory groups (AAG); AAG Forum	NAG/AAG: stakeholder selection, Forum open; representation according to local circumstances	Advice and recommendation
Spain	National water council; River basin and governing councils; Local working groups and workshops	Limited stakeholder selection and strong representation by users	Development of preferences, strong influence in decisions
Sweden	Regional water boards; Local water councils	Stakeholder selection, open locally; organised conservation interests under-represented	Advice and recommendations, provision of data and own proposals

Table S3. Data

	Austria	Czech Republic	Denmark	England	France	Germany	Hungary	Ireland	Netherlands	Poland	Scotland	Spain	Sweden
TO_RBM_PR	0	1	0	1	1	0	1	1	1	1	0	1	0
TO_RBM_CA	0	0	0	0	1	0	0	0	0	0	0	1	0
TO_RBM_PA	0	0	0	1	1	0	1	0	1	1	0	1	0
TO_RBM_IA	0	1	0	0	0	0	0	0	1	0	0	1	0
TO_PP_NO	1	1	2	2	2	1	1	1	2	1	1	2	1
TO_PP_PD	0	0	2	1	4	1	2	1	4	1	0	4	0
TO_PP_AC	2	2	2	2	1	2	1	2	1	2	2	1	3
TO_PP_RE	2	2	2	2	4	2	1	2	3	1	3	0	3
TO_PP_CO	1	2	2	2	3	2	2	2	3	1	2	3	2
T1_RBM_PR	1	1	1	1	1	1	1	1	1	1	1	1	1
T1_RBM_CA	0	0	0	0	1	0	0	0	0	0	0	1	1
T1_RBM_PA	0	0	0	1	1	0	1	0	1	1	0	1	1
T1_RBM_IA	0	1	0	0	0	0	0	0	1	0	0	1	0
T1_PP_NO	2	2	1	3	3	2	3	1	3	2	3	3	2
T1_PP_PD	2	2	2	3	4	3	2	2	4	2	3	4	3
T1_PP_AC	2	1	1	1	2	3	1	3	2	2	2	1	3
T1_PP_RE	2	2	3	2	4	2	3	1	3	2	3	1	2
T1_PP_CO	2	2	2	2	3	2	2	2	3	2	2	3	3
TO_RBM	0.000	0.500	0.000	0.500	0.750	0.000	0.500	0.250	0.750	0.500	0.000	1.000	0.000
T1_RBM	0.250	0.500	0.250	0.500	0.750	0.250	0.500	0.250	0.750	0.500	0.250	1.000	0.750
TO_PP	0.317	0.367	0.533	0.483	0.733	0.417	0.367	0.417	0.683	0.317	0.417	0.533	0.467
T1_PP	0.533	0.483	0.467	0.600	0.850	0.633	0.600	0.467	0.800	0.533	0.700	0.650	0.683

Text S1. Method of aggregation for indices used

Public participation (PP): To arrive at a single participation index, we standardised the five variables on a range between 0 and 1. To aggregate the single dimensions, we calculated the simple mean of the standardised variables for each country. The resulting participation index is shown on the x-axis of Figure 1.

Formula:

$$Participation_i = \frac{PP\ Legal\ Status_i + \frac{PP\ Number_i}{4} + \frac{PP\ Power\ Delegation_i}{4} + \frac{PP\ Accessibility_i}{4} + \frac{PP\ Representation_i}{4}}{5}$$

where i = country.

River basin management (RBM): As with public participation, we aggregated these variables per country by calculating their simple mean. The resulting river basin management index is depicted on the y-axis of figure 1. Note, however, that there is – partly due to the binary nature of the variables and the logic of progressing institutionalisation beyond these variables – an inner logic and order. Therefore, the steps on this scale indicate qualitative difference in the institutionalisation of water resource management and planning on a hydrological scale.

In detail this means:

- 0 no basin planning
- 0.25 River basin unit (hydrological scale is the reference point for planning, prescribed by the WFD)
- 0.5 operational planning (actual operational planning and/or implementation is carried out by actors on river basin scale)
- 0.75 legal responsibilities (river basin actors are legally sanctioned)

Text S2. Literature drawn on in coding: European water resources management before and after EU Water Framework Directive implementation

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