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International River Basin Districts under the EU Water Framework Directive: Identification and Planned Cooperation

Abstract

In this article the number and geographical extent of prospective international River Basin Districts (RBDs), identified according to the EU Water Framework Directive (WFD), are determined, and the plans and ambitions for international cooperation examined. Further, for illustrating varying approaches in the identification of and cooperation on international RBDs two examples from the prospective RBDs of Estonia and the Danube River basin are given. The study showed that 30% of the prospective RBDs are international. Area wise, the international RBDs constitute 66% of the total area of prospective RBDs. It is, thus, quite clear that the number and area of prospective international RBDs identified under the WFD are significant. Based on this notion, we argue that the "soft" requirements in the WFD concerning international RBDs may undermine the directive's ambition of management according to river basins. The two examples from Estonia and Danube River also showed that the WFD allows for quite different interpretations in the identification and planning of RBDs.

Keywords

EU Water Framework Directive (WFD); international River Basin District (RBD); River Basin Management Plan (RBMP); Estonia; Danube River.

1. Introduction

Historically, European Union (EU) water policy has largely developed through a series of five Environmental Action Programmes extending over the period 1973-2000. These Action Programmes identified a number of priority issues for reducing water pollution and improving water quality, and resulted in a large number of directives all dealing with quite specific issues, such as bathing water quality or dangerous substances. However, at the end of the 1990's it was clear that the many directives had resulted in a fragmented and sometimes conflicting approach for EU water policy. Based on this recognition, it was decided to develop a new more integrated approach to water management. The outcome of this decision became the EU Water Framework Directive (WFD) [1], adopted in 2000 [2]. The WFD replaces many of the earlier directives and takes a more holistic approach to water management by, among other things, setting the overall objective to achieve "good water status" for all waters by 2015.

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Currently, EU Member States and Candidate Countries are underway with transposing the provisions of the WFD into national legislation. Alongside with the transposition, some of the practical implementation has also begun. For facilitating the implementation of the directive, a Common Implementation Strategy, mainly in the form of a number of guidance documents has been elaborated by Member States and the European Commission. To meet the overall objective of the directive, one of the first key steps countries need to take is to identify river basins, assign them to River Basin Districts (RBDs) and appoint competent authorities to manage the districts (Article 3). This should have been complied with by December 22, 2003 (Article 24). A RBD may be made up of either one single river basin or a combination of several small river basins, together with associated groundwater and coastal waters. Based on the RBD as spatial management unit, a characterisation in terms of pressures, impacts and economics of water uses shall be done (Article 5), and a programme of measures for achieving the objectives of the directive drawn up (Article 11). This will finally lead to the production and publishing of a River Basin Management Plan (RBMP) for each district, which are to be ready by 2009 (Article 13).

If a river basin extends across international boundaries the directive specifically requires it to be assigned to an international RBD. The directive further specifies that countries shall ensure cooperation for producing one single RBMP for an international RBD falling within the territories of the EU; however, somewhat confusingly, the directive at the same time indicates that if not produced, plans must be set up for the part of the basin falling within each country's own territory. If the basin extends beyond the territories of the EU, the directive encourages Member States to establish cooperation with non-Member States and, thus, manage the water resource on a basin level (Articles 3 and 13) (table 1). The guidance document *Best Practices in River Basin Management Planning,* produced as a part of the Common Implementation Strategy, touches upon international RBDs but does not actually go any further than the directive in specifying how to designate international RBDs [3].

Since there are around 70 international river basins in Europe [4], the number of international RBDs identified under the WFD will probably be significant. However, there is a risk that the rather vague formulations in the WFD will result in multiple interpretations by Member States in the implementation of the directive [5]. This has also been stressed by Macrory and Turner [6] which point out that although the international dimensions are more explicit in the WFD than in other EU directives, potentially requiring Member States to move towards close cooperation in managing shared river basins, the strict legal requirements to actually achieve joint management are weak.

The objective of this paper is, first of all, to determine the number and geographical extent of prospective international RBDs. Secondly, the plans and ambitions for cooperation in these regions are examined. Lastly, for illustrating varying approaches in the identification of and cooperation on international RBDs two examples from the prospective RBDs of Estonia and the Danube River basin are given.

Table 1. International aspects, especially concerning RBDs and RBMPs, of the EU WFD.

Article	Exact wording (our underlining)
Article 3	
(3)	Member States shall ensure that a river basin covering the territory of more than one Member State is assigned to an international river basin district. (…) Each Member State shall ensure the appropriate administrative arrangements, including the identification of the appropriate competent authority, for the application of the rules of this Directive within the portion of any international river basin district lying within its territory.
(4)	Member States shall ensure that the requirements of this Directive for the achievement of the environmental objectives established under Article 4, and in particular all programmes of measures are coordinated for the whole of the river basin district For international river basin districts the Member States concerned shall together ensure this coordination and may, for this purpose, use existing structures stemming from international agreements.
(5)	Where a river basin district extends beyond the territory of the Community, the Member State or Member States concerned shall endeavour to establish appropriate coordination with the relevant non-Member States, with the aim of achieving the objectives of this Directive throughout the river basin district.
(8)	Member States shall provide the Commission with a list of their competent authorities and of the competent authorities of all the international bodies in which they participate (…).
Article 13	
(2)	In the case of an international river basin district falling entirely within the Community, Member States shall ensure coordination with the aim of producing a single international river basin management plan. Where such an international river basin management plan is not produced, Member States shall produce river basin management plans covering at least those parts of the international river basin district falling within their territory to achieve the objectives of this Directive.
(3)	In the case of an international river basin district extending beyond the boundaries of the Community, Member States shall endeavour to produce a single river basin management plan, and, where this is not possible, the plan shall at least cover the portion of the international river basin district lying within the territory of the Member State concerned.
Annex 1	As required in Article 3(8), the Member States shall provide the following information on all competent authorities within each of its river basin districts as well as the portion of any international river basin district lying within their territory. (…) (vi) International relationships – where a river basin district covers the territory of more than one Member State or includes the territory of non-Member States, a summary is required of the institutional relationships established in order to ensure coordination.

2. Methods

In February 2003, a questionnaire was sent to representatives of national authorities or ministries in charge of the implementation of the WFD in Member States, Candidate Countries, Norway and Switzerland. The questionnaire was in two parts. The first part aimed at collecting basic information about decided or proposed RBDs. The second part of the questionnaire aimed to more specifically investigating the plans and ambitions for cooperation on international RBDs.

The questionnaire used the definitions in Article 2 of the WFD for the terms "river basin" and "river basin district". According to this article a "river basin" means the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta; and a "river basin district" means the area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins. As the directive does not define an "international river basin district", we provided our own definition for the term. An "international river basin district" was defined as a RBD where at least one river basin in the district covers the territory of more than one country. However, countries were asked to not consider RBDs as being international if the predominant part of the river basin(s) belonged to one single country and only a very minor part of the basin(s) belonged to other countries. Because of the difficulty and possible incorrectness in specifying a minimum area that had to be located in other countries for a district to be international, we chose to leave that as a subjective judgement of the informants. It should be pointed out that the RBDs classed as international in this questionnaire do not necessarily have to become defined as international RBDs according to the WFD.

In the first part of the questionnaire, countries were asked to list the names of all decided or proposed RBDs in their country. They were also requested to specify the international RBDs (according to our definition), the international river basins within each district and the countries sharing the districts/basins. Further, the countries were asked to enclose a map of their RBDs. In the second part of the questionnaire, countries were asked to provide information about presence of international water commissions and plans or ambitions for the RBMPs. In asking for this information, we assumed that an international RBD (or, rather, river basin) with an international water commission established and/or plans of coordinating a joint RBMP is more positively inclined towards cooperation for implementing the WFD than a RBD without a commission and/or plans of coordinating a joint RBMP. Thus, we considered this information as giving a measure on the plans and ambitions for cooperation.

Thirteen countries replied to the questionnaire (AT, BE: Flanders, CH, FI, HU, LT, LV, PL, PT, RO, SE, SI, and SK[3]), while eight instead provided other information material, such as consultation papers or official proposals of RBDs (CZ, ES, IE, NL, NO, UK: Northern Ireland, UK: England and Wales, and UK: Scotland[4]). In the latter cases, we used the provided documents to fill out at least the first part of the questionnaire ourselves. Five countries did not reply at all; however, information was instead collected through informal (personal) con-

[3] AT – Austria, BE – Belgium, CH – Switzerland, FI – Finland, HU – Hungary, LT – Lithuania, LV – Latvia, PL – Poland, PT – Portugal, RO – Romania, SE – Sweden, SI – Slovenia and SK – Slovak Republic.

[4] CZ – Czech Republic, ES – Spain, IE – Ireland, NL – The Netherlands, NO – Norway and UK – United Kingdom.

tacts or web pages (DE, DK, EE, FR, IT[5]). In six cases neither a reply nor any other information was obtained (BE: Brussels and Wallonia, BG, CY, GR, LU, MT[6]). After finalising the information collection in June 2003, an overview of the number of prospective national and international RBDs in each Member State, Candidate Country, Norway and Switzerland could be compiled (table 2).

Table 2. Overview of prospective national and international RBDs in Member States, Candidate Countries, Norway and Switzerland.

Country	Tot. number of RBDs	Number of int. RBDs	Int. RBDs (%)
AT	3	3	100
BE: Flanders	2	2	100
BE: Brussels and Wallonia	No information	No information	-
BG	No information	No information	-
CH[7]	No implementation	No implementation	-
CZ	3	3	100
CY	No information	No information	-
DE	10	6	60
DK	13	0	0
EE[8]	1	1	100
ES[9]	15	4	27
FI[10]	8	5	63
FR[11]	12	4	33
GR	No information	No information	-
HU	1	1	100
IE	7	3	43
IT	No proposal yet	No proposal yet	-
LT	4	4	100
LU	No information	No information	-
LV	4	4	100
MT	No information	No information	-
NL	4	4	100
NO	14	2	14

[5] DE – Germany, DK – Denmark, EE – Estonia, FR – France and IT – Italy.

[6] BE – Belgium, BG – Bulgaria, CY – Cyprus, GR – Greece, LU – Luxemburg and MT – Malta.

[7] Switzerland does not plan to implement the EU WFD. However, they do take part in cooperation on international river basins, such as the Rhine.

[8] Estonia has decided to have only one RBD, dived into nine sub-river basin districts. For the two international river basins (Narva River/Lake Peipsi basin and Gauja River basin) within the RBD it appears as if Estonia will set up special arrangements with the countries sharing the basins.

[9] Based on quite old (October 2001) slightly ambiguous information.

[10] Officially, Finland will have two international RBDs (Tornionjoki and Tenojoki-Paatsjoki). However, apart from these districts there are three RBDs that are shared with Russia. Although Finland will not officially class these districts as international, they were in this study considered as international districts.

[11] Officially, France will have three international RBDs. However, quite a large part of the district Rhône et côtiers méditerranéens lies in Switzerland. Although France will not officially class this district as international, it was in this study considered as an international district.

Country	Tot. number of RBDs	Number of int. RBDs	Int. RBDs (%)
PL	2	2	100
PT	8	4	50
RO	1	1	100
SE	5	2	40
SI	2	2	100
SK	2	2	100
UK: Northern IE	4	3	75
UK: England and Wales[12]	11	1	9
UK: Scotland[12]	2	1	50

Based on the collected information, a register, in the form of a GIS data layer with attribute information, of prospective RBDs in Europe was created. A GIS dataset in the scale 1:1 million on catchments draining into the sea, provided by EU's scientific and technical research laboratory the Joint Research Centre [7], combined with a GIS dataset on international boundaries, were used as digital data input. By using the analogue map material on decided or proposed RBDs provided by each country as reference material, river basins belonging to one district were selected and unified into one polygon. For RBDs shared between Member States and/or Candidate Countries information from the concerned countries was combined for delineating the borders of the district. When a RBD contained one or more river basins extending outside the territories of Member States or Candidate Countries, the borders of the river basin(s) were used as borders for the RBD.

The created GIS data register then allowed us to derive statistics for examining the plans and ambitions for cooperation on international RBDs. A map and a table were prepared by characterising the prospective international RBDs according to six classes (table 3). The six classes can be regarded as, on a decreasing scale, reflecting the plans and ambitions for cooperation on international RBDs, where a RBD with a commission + plans of coordinating a joint RBMP represents a "most cooperative district" and a RBD without a commission + plans of producing separate RBMPs represents a "least cooperative district".

[12] As the UK has defined the RBD shared by England and Wales, and Scotland as international, this study also regards the district as being international.

Table 3. Classes reflecting plans and ambitions for cooperation on prospective international RBDs.

Extent of cooperation	Class
Decreasing cooperation ↓	Commission + joint RBMP
	No commission + joint RBMP
	Commission + not decided about RBMP
	No commission + not decided about RBMP
	Commission + separate RBMP
	No commission + separate RBMP

3. Results

Figure 1 shows a map of the prospective RBDs in Europe. According to our study, the total number of RBDs is so far 96. Of these are 29 or 30% international districts. 16 districts are shared between Member States and/or Candidate Countries, while 13 are shared with non-EU countries. For clarification, the term "non-EU countries" is here used to denote countries that are neither Member States nor Candidate Countries. Area wise, the international RBDs constitute 66% of the total area of the prospective RBDs. The size of the RBDs varies quite a lot (table 4). The international RBDs are generally larger than the national ones, and the largest RBD is more than 1300 times the area of the smallest district. Most of the larger international river basins, such as the Danube and the Rhine, have been defined as stand-alone RBDs, only joined with minor basins near the coasts (figure 2). Smaller international RBDs are on the other hand not always stand-alone. Instead, they may have been joined with national river basins to form combined RBDs. An example of this is the RBD Bothnian Bay/Torniojoki shared between Sweden and Finland, where Sweden has combined a number of national river basins with one international river basin into one (international) district.

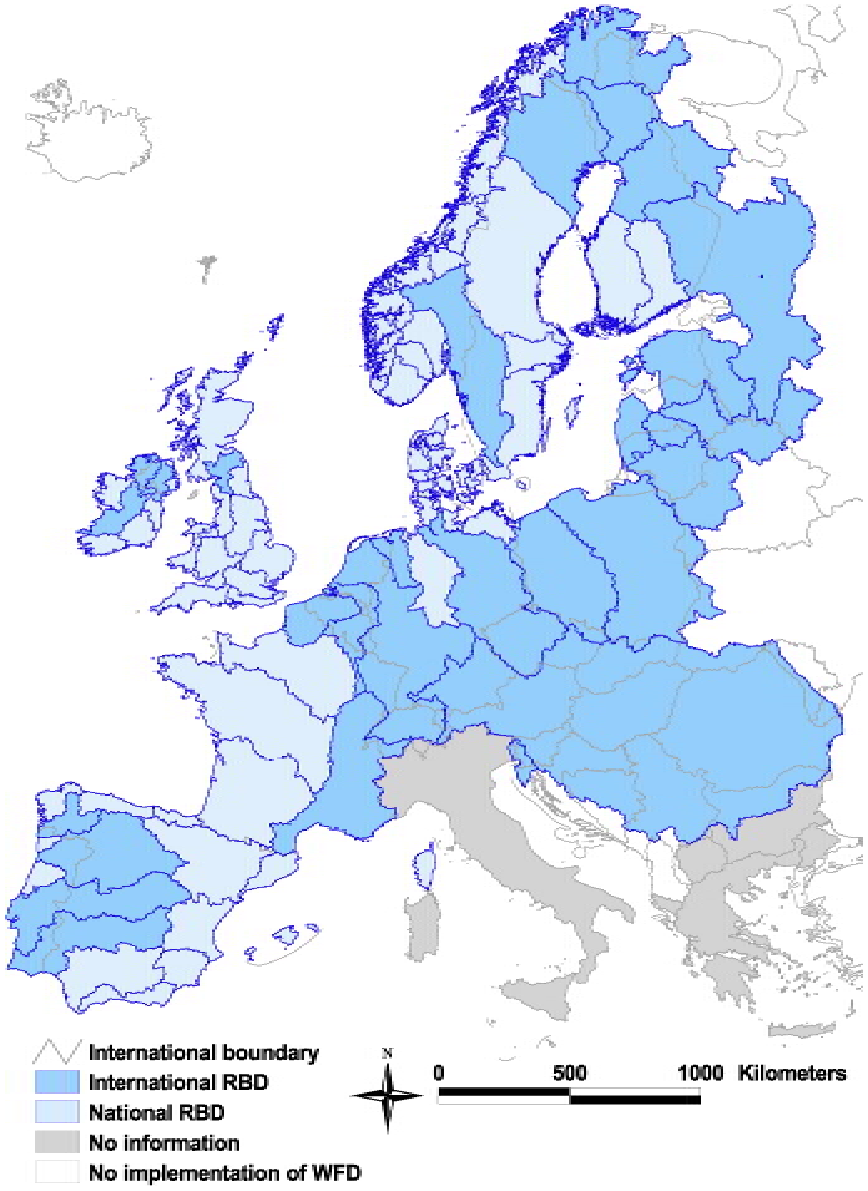

Figure 1. Prospective RBDs in Europe.

Table 4. Smallest and largest national and international RBDs.

	Smallest RBD	Largest RBD	Mean area RBD (km^2)
National RBDs	Bornholm, DK (587 km^2)	Bothnian Sea, SE (181 841 km^2)	24 872
Internatio-nal RBDs	Neagh Bann, shared by IE and Northern IE (8 115 km^2)	Danube, shared by AL, AT, BA, BG, CH, CZ, DE, HR, HU, IT, MD, MK, PL, RO, SI, SK, UA and YU (806 238 km^2)	109 479

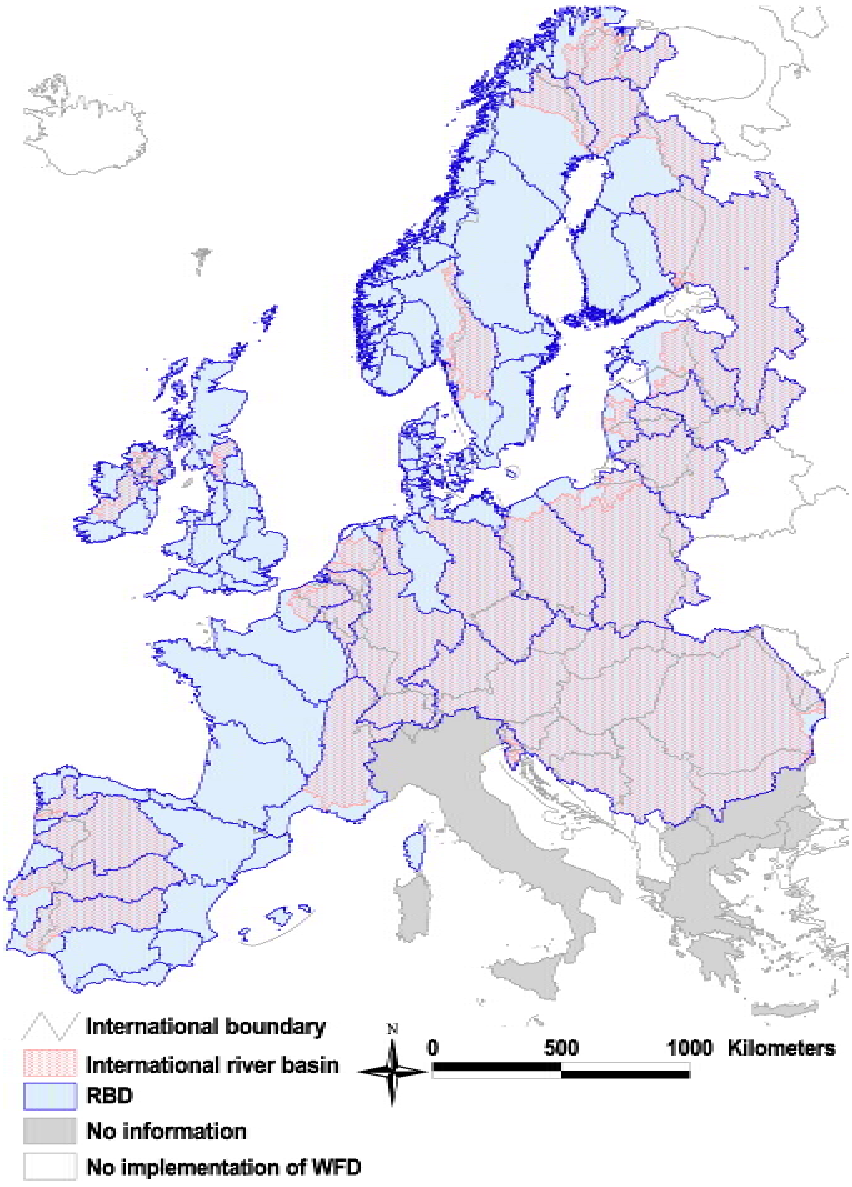

Figure 2. Prospective RBDs and international river basins within the districts.

When it concerns the plans and ambitions for cooperation on international RBDs the situation is quite complex. In international RBDs shared between Member States and/or Candidate Countries, international water commissions have been established in little more than half of the districts (figure 3). In RBDs shared with non-EU countries international water commissions have been established in nearly 40% of the districts. In international RBDs shared between Member States and/or Candidate Countries, there are plans or ambitions for coordinating a joint RBMP in little more than half of the cases, whereas in the remaining districts the strategies for the RBMPs have not yet been settled. It should be noted that no RBD shared between Member States and/or Candidate Countries so far have decided to produce separate

RBMPs for the different countries involved. This is quite opposite to the RBDs shared with non-EU countries, where RBMPs only for the own part of the district will be produced in nearly 50% of the districts. Only in two of the RBDs shared with non-EU countries are there plans of coordinating joint RBMPs; however, in five of the districts no decisions have yet been taken about RBMPs. Figure 4 and table 5 show a classification of the prospective international RBDs according to six categories, ranging from "International RBD with commission + joint RBMP" (regarded as "most cooperative") to "International RBD without commission + separate RBMP" (regarded as "least cooperative"). With one exception, the "most cooperative" RBDs are found in western and central Europe. These districts are all shared by three or more countries. In four cases (Elbe, Oder, Scheldt and Meuse), the districts are shared only between Member States and/or Candidate Countries, while in two cases (Danube and Rhine) the districts are also shared by non-EU countries. The water commissions in these districts will generally have a coordinating role for producing joint RBMPs. However, the commissions will probably not be formally appointed as competent authorities according to Article 3 (3) of the WFD. The RBDs lacking international water commissions, but still with intentions of coordinating joint RBMPs are found on the borders between Ireland and Northern Ireland, and England and Scotland. The RBDs with or without international water commissions and with plans of producing separate RBMPs only for the own part of the district, in this study classed as "least cooperative", are found on the eastern (future) border of the EU. All these districts are shared with non-EU countries. In the remaining districts, located mostly on the borders between Portugal and Spain and around the Baltic countries, the strategies for the RBMPs had not been worked out at the time of this study.

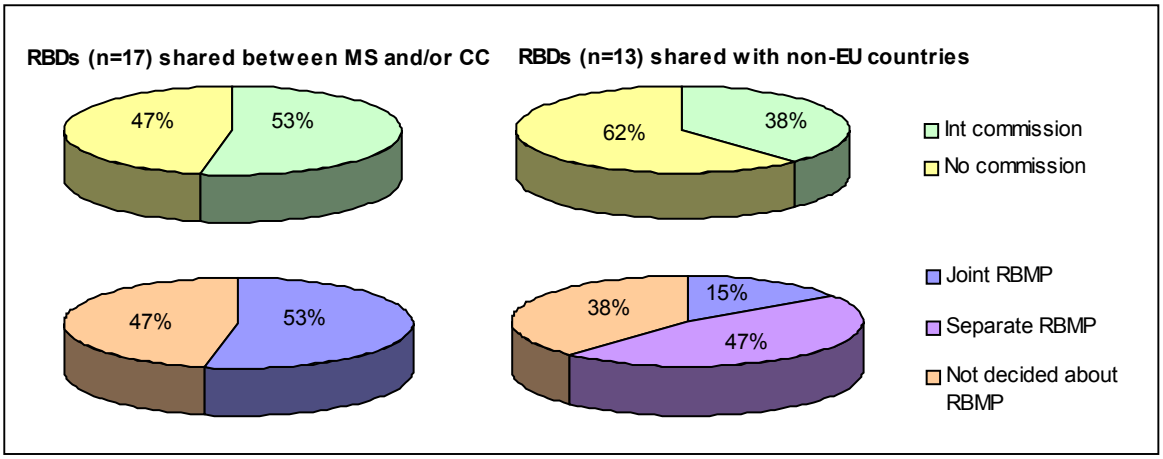

Figure 3. Summary statistics regarding international water commissions and RBMPs. The two uppermost diagrams show presence of international water commissions in prospective international RBDs. The two diagrams below show plans or ambitions for RBMPs in prospective international RBDs. Note that the RBD covering Estonia, north Latvia and west Russia has been counted both as a RBD shared between MS and/or CC (because of Gauja River basin shared between EE and LV) and as a RBD shared with non-EU countries (because of Narva River/Lake Peipsi basin shared between EE, LV and RU).

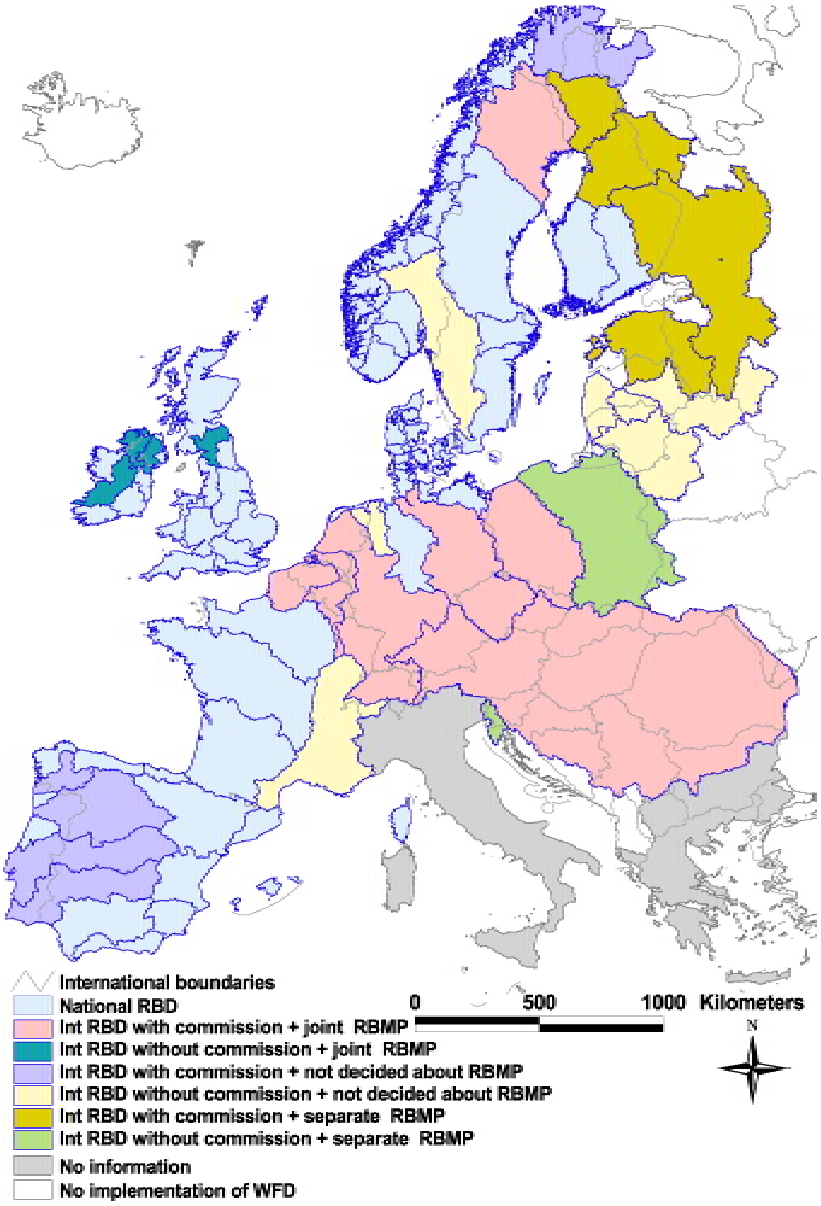

Figure 4. Different types of international RBDs, ranging from "International RBD with commission + joint RBMP" (regarded as "most cooperative") to "International RBD without commission + separate RBMP" (regarded as "least cooperative"). It should be noted that the RBD covering Estonia, north Latvia and west Russia, in fact, comprises two international river basins shared between different countries. For the Narva River/Lake Peipsi basin (EE, LV and RU) an Estonian-Russian commission has been established; however, they do not plan to coordinate a joint RBMP (indicated on the map). For the Gauja River basin (EE and LV) there is no commission established and it is not yet decided about the RBMP (not indicated on the map).

Table 5. Characteristics of international RBDs.

Type of int. RBD	Int. RBD	Int. river basin(s)	Countries[13]	Area RBD (km^2)[14]
Commission + joint RBMP	Danube	Danube	AL, AT, BA, BG, CH, CZ, DE, HR, HU, IT, MK, MD, PL, RO, SK, SI, UA, YU	806 238
	Rhine	Rhine	AT, BE, CH, DE, FR, IT, LI, LU, NL	186 797
	Elbe	Elbe	AT, CZ, DE, PL	146 849
	Bothnian Bay/Torniojoki	Torne River	FI, SE	128 190
	Oder	Oder	CZ, DE, PL	127 422
	Scheldt	Scheldt	BE, FR, NL	35 926
	Meuse	Meuse	BE, DE, FR, LU, NL	35 407
No commission + joint RBMP	Shannon	Shannon	IE, Northern IE	20 279
	England/Scotland cross-border	Approx. five river basins	England, Scotland	12 186
	North Western	Erne, Foyle, Melvin, Swilly	IE, Northern IE	11 430
	Neagh Bann	Neagh, Fane, Newry	IE, Northern IE	8 115
Commission + not decided about RBMP	Douro	Douro	ES, PT	97 766
	Tejo-Sado-Ribeiras do Oeste	Tejo	ES, PT	91 255
	Guadiana-Mira-Ribeiras do Algarve	Guadiana	ES, PT	77 304
	Finnmark/Tenojoki-Paatsjoki	Tenojoki-Paatsjoki	FI, NO, RU	98 777
	Minho-Lima	Minho, Lima	ES, PT	19 745
No commission + not decided about RBMP	Rhône et côtiers méditer-ranéens	Rhône	CH, FR	128 366
	Västerhavet/Östfold, Akerhus, Hedmark, Oppland	Göta River/Klarälven	NO, SE	120 559
	Estonia/Gauja	Gauja	EE, LV	97 255
	Nemunas	Nemunas	BY, LT, PL, RU	92 318
	Daugava	Daugava	BY, LT, LV, RU	86 052
	Venta	Venta	LT, LV	26 517
	Ems	Ems	DE, NL	17 989
	Lielupe	Lielupe	LT, LV	17 876
Commission + separate RBMP	Vuoksi	Vuoksi/Lake Ladoga-Neva River	FI, RU	290 629
	Oulujoki-Iijoki-Perämeri		FI, RU	102 947
	Estonia	Narva River/Lake Peipsi	EE, LV, RU	97 255
	Kemijoki	Kemijoki	FI, RU	55 545
No commission + separate RBMP	Vistula	Vistula	BY, PL, SK, UA	226 201
	Vistula	Pregola, Swieza, Jarft	PL, RU	226 201
	North Adriatic Sea	Soca	HR, IT, SI	8 951

[13] AT – Austria, AL – Albania, BA – Bosnia-Herzegovina, BE – Belgium, BG – Bulgaria, BY – Belarus, CH – Switzerland, CY – Cyprus, CZ – Czech Republic, DE – Germany, DK – Denmark, EE – Estonia, ES – Spain, FI – Finland, FR – France, GR – Greece, HR – Croatia, HU – Hungary, IE – Ireland, IT – Italy, LI – Liechtenstein, LT – Lithuania, LU – Luxemburg, LV – Latvia, MD – Moldavia, MK – Macedonia, MT – Malta, NL – The Netherlands, NO – Norway, PL – Poland, PT – Portugal, RO – Romania, RU – Russia, SE – Sweden, SI – Slovenia, SK – Slovak Republic, UA- Ukraine, UK – United Kingdom, YU – Serbia and Montenegro.

[14] Area derived from the GIS data register.

4. Strategies for cooperation: examples from the prospective RBDs Estonia and Danube

A key political issue in the step to decide upon international RBDs and appoint competent authorities is the inherent resource conflict. Several countries have apparently chosen to reduce the number of RBDs to a politically acceptable minimum, while at the same time trying to respect the aims of the WFD. This choice is justified since the public costs to establish and operate new RBD authorities, or alternatively provide substantive new resources to existing ones to meet the requirements of the WFD, will be significant, and increasing with the number of RBD authorities. As noted in the results of our study, another important premise in national considerations regarding identification of international RBDs appears to be the presence or absence of bi- or multi-lateral agreements for international river basins, and even more so the presence or absence of well-functioning international water commissions. Another consideration related to the identification of international RBDs is the uncertainty with respect to the actual formal obligations in implementing the WFD for the international districts.

4.1 RBD Estonia

Given Estonia's status as a coastal country with many rivers ending in the Baltic Sea, theoretically the country could decide upon several RBDs composed of one or several river basins. Due to its small overall area and for economic reasons Estonia have though decided to group all its identified river basins into one, single RBD. The principle to group many river basins into one, single RBD is the same solution chosen for virtually all coastal states with many river basins entering into the sea (cf. Sweden and Finland). However, in the other coastal states with a larger overall area the number of RDBs is more than one. When more closely examining the issue of international RBDs, Estonia has also at this stage, by using the political country boundaries as the outer boundary of the official RBD, decided not to resolve the issues regarding its two international river basins.

As seen in figure 5, the upper reaches of the Mustõe/Gauja River that enters the Baltic Sea in Latvia belongs to Estonia. The inclusion of this upper part as also belonging to a national Estonian RBD is not appropriate according to Article 3 (3) of the WFD. Latvia, which on their side has decided upon four RBDs, has defined the Latvian part of Mustõe/Gauja River and a few adjoining national river basins as one RBD. At this stage, it does not appear likely that the Estonian part of Mustõe/Gauja River will be combined with the Latvian downstream RBD (as done in figure 5) and managed as one entity. Rather, it is more likely that each district initially will be managed on national, Estonian respectively Latvian, level. However, as the attitudes to cooperation on the Latvian side are positive to developing a joint RBMP, and Estonian representatives have expressed similar attitudes [8], one might possibly envisage a new, combined RBD in the future.

Figure 5. The RBD Estonia/Gauja as it appears when combining information provided by Estonia and Latvia. The RBD includes a number of national river basins both in Estonia and Latvia, as well as two international river basins: the Narva River/Lake Peipsi basin (EE, LV and RU) and the Mustõe/Gauja River basin (EE and LV).

When it concerns the Estonian decision not to identify the Narva River/Lake Peipsi basin as an international RBD this appears legally more acceptable. Major parts of this river basin are found in Russia, outside current and prospective EU territory. For such international RBDs the WFD is more relaxed with respect to coordination and joint implementation as reflected in Article 3 (5) where the term "shall endeavour" implies a softer requirement, actually not being a requirement *sensu stricto*. Still, the decision not to define the Narva River/Lake Peipsi river basin as an international RBD is a bit surprising given that Estonia already has a bi-lateral agreement with Russia on the protection and sustainable use of transboundary water bodies [9], and following its signing in 1997 established an Estonian-Russian Transboundary Water Commission. Furthermore, the commission at its second meeting in 1999 adopted a decision to start preparing a comprehensive basin management programme based on the principles outlined in the (at that time) draft WFD [10]. Preparation of the comprehensive Lake Peipsi Basin Management Programme started in 2001. There are currently three[15] on-going EU co-funded projects that support the implementation of the WFD for the international Narva River/Lake Peipsi basin either on the international level or for national sub-basins. Addition-

[15] MANTRA-East project http://www.mantraeast.org, Viru-Peipsi CAMP project http://www.envir.ee/viru_peipsi/ and a TACIS project targeting the Pskov Oblast.

ally, a Global Environment Facility project, Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Program, has recently been launched. All in all, these projects provide considerable resources in support of the implementation of the WFD, in particular in the development of a joint RBMP, for the international Narva River/Lake Peipsi basin. One interpretation of Estonia's reluctance to identify and report the entire Narva River/Lake Peipsi basin as either a separate RBD or as part of another larger may be the uncertainty in the legal requirements concerning the implementation of the WFD for international RBDs coupled to the (lack of) possibility for Russia to meet the (anticipated) requirements.

4.2 RBD Danube

The Danube River with its river basin is by far the most transboundary river basin in the world in terms of number of intersected countries [4]. It is, in addition, the largest river basin crossing EU borders. All in all, 18 countries contribute with small or large land areas. With three[16] of them being Member States, seven[17] Candidate Countries and eight[18] being non-EU countries (figure 6), the implementation of the WFD is an excellent challenge. In such a setting Article 3 (3) of the WFD, concerning assignment of international river basin districts, obviously must apply. Contrasting with Estonia the countries along the Danube follow Article 3 (3) and assign their river basins (within the Danube river basin) to the international Danube RBD.

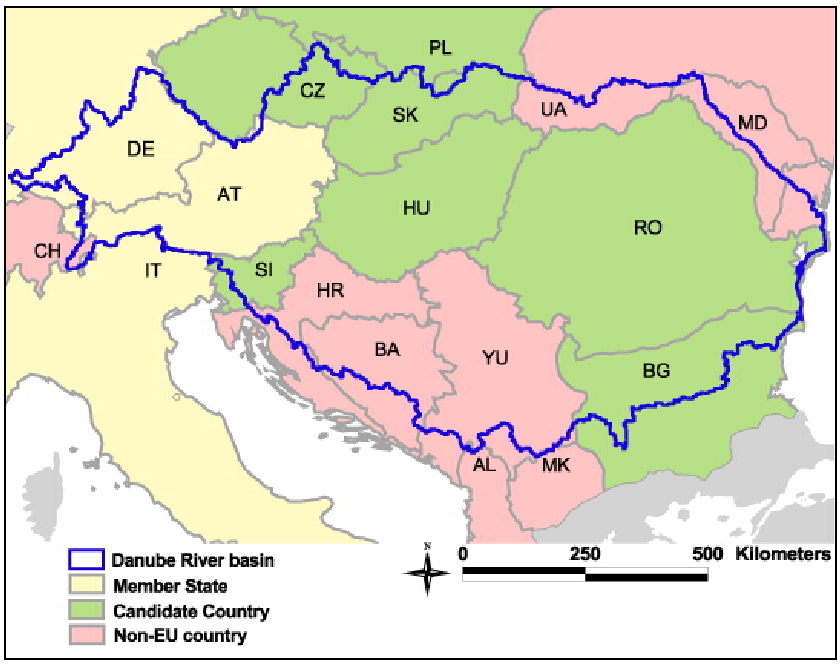

Figure 6. The Danube River basin.

[16] AT, DE and IT.
[17] BG, CZ, HU, PL, RO, SK and SI.
[18] AL, BA, HR, MK, MD, CH, UA and YU.

The International Commission for the Protection of Danube River (ICPDR) was established in order to facilitate the implementation of the Danube Convention[19], ratified in 1998, and is today the institutionalised body for basin wide cooperation. As the WFD was approaching in 2000, ICPDR took a lead role, pushed by the Member States and Candidate Countries to include the WFD implementation as the main goal for Danube wide river basin management. All countries cooperating under the Danube River Protection Convention agreed and WFD implementation is now the highest priority for the ICPDR [11, 12]. Parties have agreed that ICPDR will provide the platform for the coordination necessary to develop and establish a joint RBMP for the Danube River Basin [11], and thereby use the opportunity provided in WFD Article 3 (4) to use an already existing structure for the coordination process. ICPDR will, however, not formally be competent authority. The coordination and competent authority structures in the Danube RDB are listed in table 6.

Table 6. WFD implementation coordination at different levels in the Danube RBD. Amended from ICPDR [13].

Level	Coordinating body/ competent authority	Amount of coordination
1) Danube river basin	ICPDR is coordinating body, not competent authority	limited to the absolutely necessary (issues affecting the whole DRBD)
2) Bilateral/multilateral	respective countries, e.g. in the frame of bilateral/multilateral agreements	a lot (in case of transboundary effects)
3) National	countries or designated authorities	a lot (for all issues regarding implementation)

As the ICPDR does not take on any formal legal responsibility concerning WFD reporting, leaving this to the countries, the joint RBMP will primarily contain national RBMPs and with an added "roof-report" for the whole Danube RBD. As the roof report will not have a legally binding status as a report document it is questionable whether Article 13 (3) of the WFD, concerning the production of a single RBMP, in reality can be said to be fulfilled.

[19] Parties that ratified the Danube River Protection Convention (DRPC): Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Romania, Slovak Republic, Slovenia, Ukraine and EU.

5. Discussion

Our study showed that 30% of the prospective RBDs identified under the WFD are international. Area wise, the international RBDs constitute 66% of the total area of prospective RBDs. It is thereby quite clear that for fulfilling the intentions of the WFD regarding management according to river basins, this must imply *international* management. Savenije and van der Zaag [14] argue that management of international or transboundary river basins requires a common legal framework and one may, thus, discuss whether or not the WFD will be able to serve as this common framework and enforce joint international management. The directive addresses international river basins in, e.g., the designation of RBDs, where it requires international river basins to be assigned to international RBDs. On the other hand, as already stated, the directive is much less strict and more ambiguous in its demands for international RBDs compared to its demands for national districts [5]. As such a large proportion of the prospective RBDs covers the territory of more than one country, we see a risk that the "soft" requirements of the WFD regarding international RBDs may undermine the intentions of the directive of management according to river basins. Rather than strictly enforcing international management, the directive appears to serve as an incentive for joint management. Yet, how extensive this joint management ultimately will be depends upon the willingness and resources of the countries involved. It may be interesting to note that, according to the questionnaire, it appeared as if some countries at least so far not had coordinated the identification of RBDs with their neighbouring countries (as exemplified in the description of the RBD Estonia). Thus, one key issue for the future will be to see if countries will choose to follow the intentions of the WFD and coordinate the management for whole river basins or if they will restrict the implementation to the national level.

Our study also tried to address this issue. Using the presence of international water commissions, and plans and ambitions for the RBMPs as measures, we saw that large RBDs in western and central Europe are "most cooperative". In these cases there exist water commissions that intend to coordinate joint RBMPs for the districts. It shall though be pointed out that these joint RBMPs not will replace the production of national RBMPs. This appears to be a consequence of the fact that EU directives only are enforceable towards Member States. Thus, the concept of Joint Implementation as incorporated into several key international environmental legal instruments, most prominently the Kyoto Protocol to the Framework Convention on Climate Change, has not been introduced in the WFD. Our study also showed that RBDs located on the eastern (future) border of the EU are "least cooperative". Although joint commissions have been established in some of these districts, little effort will probably be placed upon coordinating joint RBMPs. Thus, the intention of the WFD that all waters in the community shall be managed according to hydrological rather than political borders is probably unrealistic.

One may speculate in the reasons behind Member States and Candidate Countries' choices during the identification of RBDs. The example from the prospective RBD Estonia showed that the district not will fulfil the intentions of river basin management according to the WFD. It is still unclear how the management of the international Mustõe/Gauja River, shared by Estonia and Latvia, will be designed. Currently, there is no water commission established and the question of the RBMP has not yet been solved. Regarding Estonia's second international river basin, the Narva River/Lake Peipsi basin shared with Russia, Estonia has decided to not coordinate a joint RBMP. This is a bit surprising given that an international water commission

is established and several projects in the region supports WFD related activities. We believe that reasons for Estonia's quite defensive approach in the identification of RBDs are related to lack of economical resources and uncertainty about the possibilities and willingness for Russia to implement the WFD. The Danube RBD is, on the other hand, an example of an international river basin where a coordinated implementation of the WFD on a basin level will take place. Although the main effort will be on the production of national RBMPs, the international water commission, ICPDR, intends to coordinate a joint plan. The reasons for this joint approach may, among other things, depend on the fact that the ICPDR is a well established regime, having the EU as contracting party to the convention.

6. Conclusions

Based on our study the following conclusions can be drawn[20]:

- The number and area of prospective international RBDs identified under the WFD are significant, nearly 1/3 of the districts are international and they cover around 2/3 of the total area;
- With regard to the "soft" requirements in the WFD concerning international RBDs it is uncertain if the directive's ambition of management according to river basins actually will be fulfilled;
- The WFD allows for quite different interpretations regarding identification and management of international RBDs;
- Many countries appear to be highly uncertain as to how to interpret and implement the WFD for international RBDs; thus, it appears imperative to establish a working group under the Common Implementation Strategy to specifically address this dimension.

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[20] It should be noted that the results of the study to quite a large extent was based upon preliminary proposals for RBDs in Member States, Candidate Countries, Norway and Switzerland. According to the WFD countries should have reported their RBDs to the European Commission on December 22, 2003. Thus, if this has been done properly it should in the near future be possible to update and correct the GIS data register over RBDs. Likewise, an update of the plans and ambitions for the RBMPs will be possible when more countries have settled on approaches for the plans.

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