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Water legal provisions with special focus on the quality of fresh waters needing protection or improvement in order to support fish life. Considerations on Romania's progress

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Abstract. The article argues the necessity of a coherent legal framework in the field of water protection with a special focus on the Fresh Water Fish Directive and on the Water Framework Directive. The WFD retains all the obligations established under the Fish Directive, but put them into a more unitary framework covering all waters. The poor transposition and the lack of economic analysis are the biggest gaps in WFD implementation so far, nevertheless important improvements have been observed in some regions, such as the Danube. Further progress is needed in areas like integration of water policy into other policies. Together with the water-related directives that are still under negotiation, the WFD provides all the tools needed to achieve a sustainable water management in the EU for years to come.
Key Words: water quality, water legislation, directives, Romanian legislation.

Resumen. El articulo argumenta la importancia del marco legal coherente sobre la protección de aguas, con un especial enfoque en la Directiva relativa a la calidad de las aguas continentales que requieren protección o mejora para ser aptas para la vida de los peces y en la Directiva marco en el sector del agua. La última guarda todas las obligaciones establecidas en la Directiva sobre peces, pero le confiere un marco más unitario que cubra todo los tipos de aguas. La escasa transposición y la falta del análisis económico son los mayores obstáculos ante la implementación de la DMA, sin embargo avances considerables se han visto en algunas regiones como la de Danubio. Progresos tiene que darse en el ámbito de la integración de los requisitos de protección de las aguas en los demás ámbitos de las políticas de la Unión Europea. Con el resto de directivas relativas a las aguas, que se encuentran en fase de negociación, la DMA ofrece todos los instrumentos necesarios para lograr una gestión durable de las aguas en toda la Unión Europea.
Palabras clave: calidad del agua, legislacion del agua, directivas, legislacion rumana.

Rezumat. Articolul evidenţiază importanţa unui cadru legal coerent in sectorul protecţiei apelor, punând accentul pe Directiva asupra calităţii apelor dulci care necesită protecţie sau îmbunătăţire pentru a susţine viaţa peştilor (Directiva Peşti) şi pe Directiva Cadru Apă. DCA cuprinde toate obligaţiile prezente în Directiva Peşti, dar le oferă o structură unitară care acoperă toate tipurile de apă. Slaba transpunere şi lipsa unei analize economice sunt principalele obstacole existente în implementarea directivei, dar cu toatea acestea făcându-se paşi importanţi în unele regiuni, de exemplu în zona Dunării. Progrese în privinţa integrării cerinţelor de protecţie a apelor în celelalte arii politice trebuie realizate în continuare. Împreună cu restul directivelor referitoare la ape, aflate în stadiu de negocierere, DCA oferă instrumentele necesare în vederea promovării unui management durabil al apelor în UE în anii ce vor urma.
Cuvinte cheie: calitatea apei, legislaţie în sectorul apei, directive, legislaţie românească.

Introduction. "Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such"[1]. Human species use water directly for domestic needs, growing food, generating power and for industrial processes. Ensuring sufficient water for people for these purposes is an important ethical question (Acreman 2001). Hence, policy makers all over the world have to reconsider and to promote policies for sustainable development that implies the need for equitable and

[1]Recital 1 of the Water Framework Directive (Directive2000/60/EC)

sustainable management of water resources in the interests of society as a whole. Today over 1 billion people lack access to safe drinking water, over 2.4 billion people do not have adequate sanitation, and 2.2 million people in developing countries, most of them children, die every year from diseases associated with lack of access to safe water, inadequate sanitation and poor hygiene, namely preventable diseases[2]. Water legislation was one of the first sectors to be covered by the EU environmental policy and comprises more than 25 water-related directives and decisions. The first wave of legislation took place from 1975 to 1980, resulting in a number of directives and decisions which either lay down environmental quality standards (EQS) for specific types of water, like the Surface Water, Fish Water, Shellfish Water, Bathing Water and Drinking Water Directives, or establish emission limit values (ELV) for specific water uses, like the Dangerous Substances Directive and the Groundwater Directive. During the first wave of water legislation, Member States (MS) were not obliged to report in detail about any progress in implementing and transposing EU water legislation. As a result, a lot of cases never came before the Commission and a huge number of infringements are likely not to have been the subject of legal proceedings. With Council Directive 91/692/EEC of 23 December 1991 on Standardising and Rationalising Reports on the Implementation of Certain Directives Relating to the Environment, MS are obliged to report in detail on the implementation of environmental directives. Consequently, the number of cases against MS that are brought before the European Court of Justice by the Commission because of implementation shortcomings has risen sharply in recent years[3] (EEB 2001). In 1988 the Frankfurt ministerial seminar on water reviewed the existing legislation. This resulted in the second wave of water legislation, the first results of this were, in 1991, the adoption of the Urban Waste Water Treatment Directive, providing for secondary (biological) waste water treatment, and even more stringent treatment where necessary, the Nitrates Directive, addressing water pollution by nitrates from agriculture. Other legislative results of these developments were Commission proposals for action on a new Drinking Water Directive, reviewing the quality standards and, where necessary, tightening them (adopted on November 1998), a Directive for Integrated Pollution and Prevention Control (IPPC), adopted in 1996, addressing pollution from large industrial installations[4]. The Water Framework Directive[5] (WFD) came into force in the EU in December 2000 and it establishes a legal framework for the protection and management of water resources throughout the EU. The WFD is the most important EU directive in the water field over the past decades. It covers whole environmental sector water in one in one instrument (Chave 2001).

Fish Water and Water Framework Directive. The objective of the 1978 Fish Water Directive[6] (known as well as Fresh Water Fish Directive) was to protect and improve the quality of fresh waters that support or could support, certain species of fish. In order to achieve the objectives of the directive, MS have to designate the relevant water bodies, to monitor the quality of these water bodies and to take measures to ensure compliance

[2] Data from EUWI Water Initiative available at: http://www.euwi.net/

[3] The Commission launched eleven infringement cases (till 2007) and the Court of Justice ruled against five Member States for not communicating transposition of the WF: Belgium (C-33/05), Luxemburg (C-32/05), Germany (C-67/05), Italy (C-85/05) and Portugal (C-118/05). In addition, the Court clarified a number of issues regarding transposition.

[4] WISE, http://ec.europa.eu/environment/water/water-framework/info/intro_en.htm

[5] Directive2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, Official Journal of the European Communities, L 327/1, 22.12.2000.

[6] Council Directive 78/659/EEC of 18 July 1978 on the quality of fresh waters needing protection or improvement in order to support fish life, Official Journal L 222 , 14/08/1978 P. 0001 – 0010. Directive 78/659/EEC was successively amended by
-Council Directive 78/659/EEC,
-Council Directive 91/692/EEC (Annex I, point (c) only)
-Council Regulation (EC) No 807/2003 (Annex III, point 26 only)
-The EC Freshwater Fish Directive (78/659/EEC) was updated in 2006 (2006/44/EC). Directive 2006/44/EC of the European Parliament and of the Council of 6 September 2006 on the quality of fresh waters needing protection or improvement in order to support fish life, Official Journal of the European Union, L 264/20, 25.9.2006.

with the minimum standards set by the Directives ("guide" as well as "imperative" values are laid down). The Fish Directive concerns the quality of fresh waters and applies to those waters designated by the MS as needing protection or improvement in order to support fish life. It requires that certain designated stretches of water (rivers, lakes or reservoirs) meet quality standards that should enable fish to live or breed in the designated water, although this will also depend on physical conditions. The physical and chemical parameters applicable to the waters designated by the Member States are listed in Annex I (presented in table 1 and 2). For the purposes of applying these parameters, waters are divided into salmonid waters and cyprinid waters. Therefore Fish Directive identifies two categories of water suitable for:

- salmonid fish (salmon *Salmo salar*, trout *Salmo trutta*, grayling *Thymallus thymallus* and whitefish *Coregonus*). These are generally fast flowing stretches of river that have high oxygen content and a low level of nutrients.
- cyprinid fish (Cyprinidae) or other species such as pike (*Esox lucius*), perch (*Perca fluviatilis*) and eel (*Anguilla anguilla*). These are slower flowing waters, which often flow through lowlands.

The WFD retains all the obligations established under the Fish Directive, but put them into a more coherent framework covering all waters. One advantage of the framework directive approach is that it will rationalise the Community's water legislation by replacing seven of the "first wave" directives: those on surface water and the two related directives on measurement methods and sampling frequencies and exchanges of information on fresh water quality, the fish water, shellfish water and groundwater directives and the directive on dangerous substances discharges. The operative provisions of these directives will be taken over in the framework directive, allowing them to be repealed.

The issues of particular relevance of WFD are[7]:

- The incorporation of the Fish Directive (78/659/EEC) into the provisions of the Water Framework Directive and the subsequent repeal of the Fish Directive;
- The expansion of water protection to all waters, surface waters and groundwaters, and the obligation to achieve/maintain "good status" for all these waters. Good status is comprehensively defined in verbal terms, ensuring inter alia environmental conditions suitable for fish life;
- The use of provisions in the Urban Waste Water Treatment Directive (91/271/EEC), the IPPC Directive (96/61/EEC) and the Dangerous Substances Directive (74/464/EEC), to control pollutants which affect freshwater fish and the Nitrate Directive (91/676/EEC) to reduce eutrophication;
- Expanditure of water protection to all waters: inland and coastal surface waters and groundwater;
- Achievement of the "good status" for all waters by 2015;
- The concept of river basin management is introduced to all Member States through the establishment of river basin districts as the basic management units. For international rivers these river basin districts (RBDs) will transcend national boundaries;
- For each river basin district a river basin management plan must be developed, including a programme of measures, and these will form the basis for the achievement of water quality protection and improvement. The implementation of the WFD entails not simply the application of new technological standards but a requirement to introduce a whole new regime of management based on river basins, irrespective of existing administrative or, in the case of international rivers, national boundaries (Chave 2001);
- Although its prime aims are environmental, the directive embraces, all three principles of sustainable development. Environmental, economic and social needs must all be taken into account when river basin management plans are being developed;

[7]See also Handbook on the Implementation of EC Environmental Legislation, http://www.drinkingwaterquality.info/pdf/freshwater.pdf

- The polluter pays principle is incorporated through a review of measures for charging for water use, including full environmental cost recovery;
- To involve citizens more closely;
- To streamline legislation.

The WFD identified two areas where more specific legislation was needed: groundwater (art. 17) and priority substances (art. 16). The new Groundwater Directive[8] was adopted by the European Parliament and the Council only recently, whereas the proposal for a Directive on Priority Substances is still under negotiation. Two additional recent legislative proposals will broaden the scope of the EU water policy and complete its comprehensive management and protection framework. These are the the Directive on the assessment and management of floods[9] and for a Marine Strategy Directive[10].

As me mentioned before, the WFD requires "good water status" for all European waters by 2015, to be achieved through a system of participatory river basin management planning and supported by several assessments and extensive monitoring. The achievement of a good ecological and chemical status for all waters through the WFD should imply the achievement of quality standards to support fish and shellfish life. Nevertheless, nothing in the WFD explicitly prevents the lowering of standards from these Directives once they are repealed. In order to attain the objectives of this directive, MS should designate the water to which it will apply and set limit values corresponding to certain parameters. The water so designated should be brought into conformity with these values within five years of this designation. In line with art. 7 of Fish Directive the competent authorities in the MS shall carry out sampling operations with the frequency mentioned in Table 1 and 2. Member States may at any time set more stringent values for designated waters than those laid down in this directive. They may also lay down provisions relating to other parameters than those provided for in this directive. The directive institutionalises ecosystem-based objectives and planning processes at the level of the hydrographic basin as the basis for water resource management. Whereas fulfilment of the ultimate objective of a "good" overall quality of all waters is questionable in terms of the high costs entailed and the lack of adequate legal enforceability, the directive will transform water institutions and planning processes, generate information and ensure no further deterioration of waters. The directive, affecting 27 countries, marks an important trend towards an ecosystem-based approach for water policy and water resource Management (Kallis & Butler 2001).

As we mentioned at the beginning the physical and chemical parameters applicable to the salmonid and cyprinid waters designated by the Member States are listed in Annex I. There are two types of standards within each water category:

- Imperative (I) values - these are standards that must be met if the stretch is to pass the Directive (for the stretch to be "compliant"). Values have been set for dissolved oxygen, pH, non-ionised ammonia, total ammonium, total residual chlorine, zinc.
- Guideline (G) values - these are quality standards that should be achieved where possible. Values have been set here for other chemical parameters, such as copper, biochemical oxygen demand and suspended solids.

[8] Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration., OJ L 372, 27.12.2006.

[9] Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks, OJ L 288, 6.11.2007.

[10] Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council establishing a Framework for Community Action in the field of Marine Environmental Policy (Marine Strategy Directive), COM(2005) 505 final 2005/0211 (COD), [SEC(2005) 1290, Brussels, 24.10.2005.

Table 1

Fish Directive: summary of imperative standards

Parameter	Imperative standards			Notes	Minimum sampling and measuring frequency
	Units	Salmonid	Cyprinid		
Temperature	°C	1.5	3.0	Increase due to thermal discharge	Weekly, both upstream and downstream of the point of thermal discharge
	°C	21.5	28.0	Maximum at monitoring site	
	°C	10.0	10.0	Maximum for breeding season	
Dissolved oxygen	mg/l	50% ≥ 9	50% ≥ 7		Monthly, minimum one sample representative of low oxygen conditions of the day of sampling However, where major daily variations are suspected, a minimum of two day samples in one day shall be taken
pH	-	6 to 9	6 to 9		Monthly
Phenolic compounds	-	No odour	No odour		
Hydrocarbon oil	-	Non visible	Non visible		
Non-ionised ammonia	mg/l	≤ 0.025	≤ 0.025		Monthly
Total ammonium	mg/l	≤ 1.0	≤ 1.0		Monthly
Total residual chlorine	mg/l	≤ 0.005	≤ 0.005	The I- values correspond to pH=6 Higher concentration of total chlorine can be accepted if the pH is higher	Monthly
Total zinc	mg/l	≤0,3	≤1,0	The I-values correspond to a water hardness of 100 mg/l CaCO3 For hardness levels between 10 and 500 mg/l corresponding limit values can be found in Annex II	Monthly

Source: adapted after http://www.environment-agency.gov.uk and Annex 1 of Directive 2006/44/EC.

The implementation of the Water Framework Directive raises challenges, which are widely shared by Member States[11]. These include: an extremely demanding timetable, (in particular in the 9 preparatory years, for Romania see Table 3 and Table 4); the complexity of the text and the diversity of possible solutions to scientific, technical and practical questions; the problem of capacity building and an incomplete technical and scientific basis with a large number of fundamental issues in Annex II and V, which need further elaboration and substantiation to make the transition from principles and general

[11] See more in Common Implementation Strategy for the Water Framework Directive (2000/60/EC) WFD CIS Strategic Document as agreed by the Water Directors under Swedish Presidency, 2001, p.1

definitions to practical implementation successful; a strict limitation of human and financial resources in MS further adds to the challenge.

Table 2

Fish Directive: summary of guidenline standards

Parameter	Units	Guideline standards Salmonid	Cyprinid	Notes	Minimum sampling and measuring frequency
Dissolved oxygen	mg/l mg/l	50% ≥9 100%≥7	50% ≥8 100% ≥5		Monthly, minimum one sample representative of low oxygen conditions of the day of sampling However, where major daily variations are suspected, a minimum of two day samples in one day shall be taken
Suspended solids	mg/l	≤25	≤25		
BOD_5	mg/l	≤3	≤6		
Non-ionised ammonia	mg/l	≤0.005	≤0.005		Monthly
Total ammonium	mg/l	≤0.04	≤0.2		Monthly
Dissolved copper	mg/l	≤0,04	≤0,04	The G-values correspond to a water hardness of 100 mg/l CaCO3 For hardness levels between 10 and 300 mg/l corresponding limit values can be found in Annex II	

Source: adapted after http://www.environment-agency.gov.uk and Annex 1 of Directive 2006/44/EC.

Table 3

Transposition into Romanian legislation

Community legislation	*National legislation*
Directive 2000/60/EC	Water Law no.107/25.09.1996 (MO no. 244/08.10.1996) amended by Law no. 310/28.06.2004 (MO nr.584/30.06.2004) Subsequent legislation: Governmental Decision (HG) no. 472/09.06.2000 (MO nor. 272/15.06.2000) regarding measures for the quality of the aquatic environment. Ministry Order no. 281/11.04.1997 (MO nr.100 bis/ 26.05.1997) regarding the approval of the public water information access mechanism Amended by 301D2455 Ministry Order no. 913/15.10.2001 regarding endorsement of the framework structure of the rivers basins management plan.
Directive 78/659/EEC updated by Directive 2006/44/EC	Governmental Decision (HG) no.202/28.02.2002 (MO no. 196/22.03.2002) for the endorsment of the tecnic provisions on surfacewater quality which need protection and improvment for fish live environment, modified by Governmental Decision (HG) no. 563/2006 Law no.192/19.04.2001 (MO nr. 627/02.09.2001) on fish stock, fishery, aquaculture.

Table 4

The Romanian River Basin Management Plan: stages and reporting

Activities	Articles from WFD 2000/60/EC	Deadlines
Legal framework		
- Enforcement of the legal provisions	24	December 2003
- Identification of the national competent authority	3 (7)	December 2003
- Member States shall provide the Commission with a list of their competent authority	3 (8)	June 2004
Characterisation of the river basins		
- An analysis of the river basins characteristics	5 (1)	December 2004
- Register of protected areas	6 (1)	December 2004
- A review of the impact of human activity on the status of surface waters and on groundwater	5 (1)	December 2004
- An economic analysis of water use	5 (1)	December 2004
- The analyses and reviews	5 (2)	Dec.2013/Dec. 2019
Monitoring programmes		
- The establishment of programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status within each river basin district	8	December 2006
Public information and consultation		
- Publishing a timetable and a work programme	14 (1a)	December 2006
- Publishing of of the significant water management issues identified in the river basin	14 (1b)	December 2007
- Publishing of the draft copies of the river basin management plan	14 (1c)	December 2008
River basin management plans		
- Member States shall ensure that a river basin management plan is produced for each river basin district lying entirely within their territory. River basin management plans shall be published.	13 (6)	December 2009
- Review of the river basin management plans	13 (7)	December 2015
Environmental objectives		
- Achievement of good surfacewater status	4 (1a)	December 2015
- Achievement of good groundwater status	4 (1b)	December 2015
- Achieve compliance with any standards and objectives regarding protected areas	4 (1c)	December 2015
- Extensions for objective achievement	4 (4)	Dec. 2021/2027
Recovery of costs for water services	9 (1)	2010

Source: after MMGA 2007, p.9.

For Romania, the river basins plans represent the main instrument for the WFD implementation, having as main goal the achievement by 2015 the status of good water. The river plans for all 11 basins are drafted in accordance with the provisions of WFD, Annex VII. In 2004 the 2004 National Report of the River Basin Management Plan was worked out. It followed the reporting obligations settled by the European Commission in line with art.5, Annex II and III of WFD (they referred to the first analyse and characterization of the rivers basins). Information on the implementation progresses, art. 6 and Annex IV on the protected area register and on art 14 – Public information and communication, was sent to the Commission. The 2004 Report, that had the purpose to assess the surface and groundwater status and to identify water which are at risk, highlighted that 2356 permanent fresh water bodies, represented 43%, are or are likely to be at risk of failing the the environmental objectives, and 57% of the water bodies, especially from the mountainous regions have not suffered anthropogenic alterations so far (MMGA 2007, p. 6-7). Nevertheless, comparing with the rest of the EU countries, as it is shown in Figure 1, Romania is one of the countries that manages to stay in the group of those who have less problems on water. The identification of the main problemes of the rivers basins management shows the following four major cathegories: water quality

alteration, eutrophication, loss of aquatic flora and fauna biodiversity, Romanian Black Sea coastal erosion[12]. Nowadays the status of Romania's costierwater has been improved because of the reducement (after `90s) of economic activities of the Central and Eastern countries from Danube basin and also due to the modernisation of German and Austrian water treatment stations.

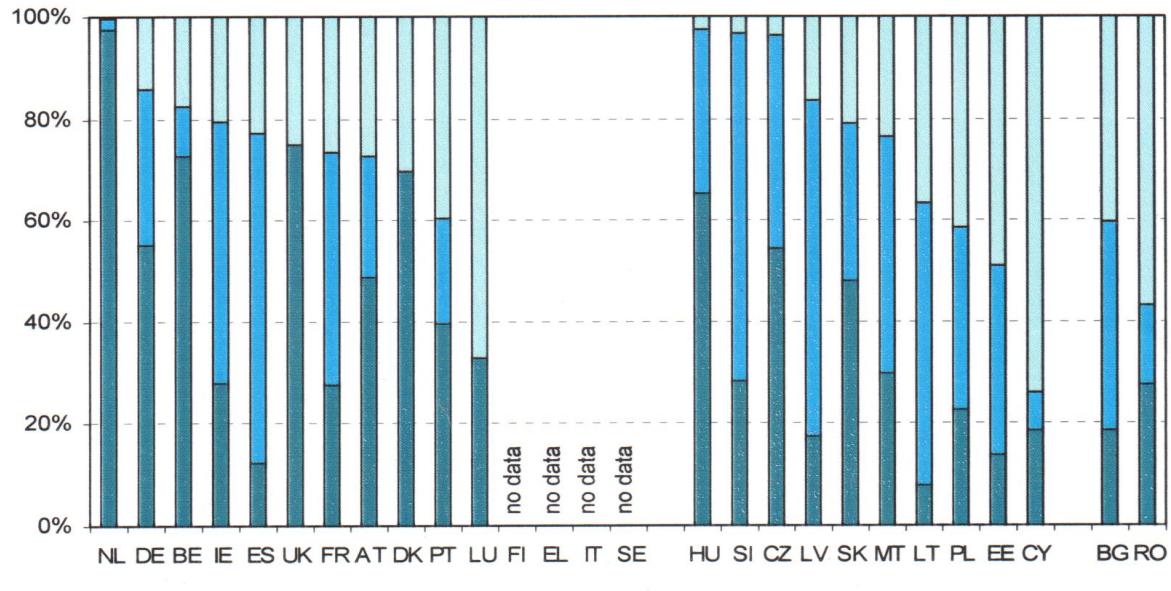

Figure 1. Percentage of surface water bodies at risk of failing WFD objectives per Member State - ■= *'at risk',* ■= *'insufficient data',* ■= *'not at risk' (based on Member States' Reports. Source:* Commission of the European Communities, Communication from the Commission to the European Parliament and the Council Towards sustainable water management in the European Union- First stage in the implementation of the Water Framework Directive 2000/60/EC – COM(2007) 128 final [SEC(2007) 362][SEC(2007) 363], Brussels, 22.3.2007, p.4.

Conclusions. As it is highlighted in Communication[13] from the Commission to the European Parliament and the Council the MS's reports on their initial obligations under the Water Framework Directive show some major shortcomings in someareas. Nevertheless, there is still time to remedy the gaps before 2010, when the first river basin management plans have to be adopted. The poor transposition and the lack of economic analysis are the biggest gaps in WFD implementation so far. While international cooperation needs to be enhanced in many cases, significant improvements have been observed in some regions, such as the Danube. Further progress is needed in areas like integration of water policy into other policies. The first report on the implementation of the WFD illustrates that have been made significant steps forward *Towards Sustainable Water Management in the European Union*. Together with the water-related directives that are still under negotiation, the WFD provides all the tools needed to achieve truly sustainable water management in the EU for years to come. Taking over 10 years to develop, the new EU Water Framework Directive is the most significant legal instrument in the water field to emerge from Brussels for some time and will have a profound effect on how water is managed (Chave 2001)

[12] Coastal erosion affects almost 127 km (57% of the Romanian lenght shore). It is caused mostly by the diminishment of the drift quantities transported by Danube river (consequence of the hidrotehnic establishments alongside Danube) and because of reducement of biogene sand due to the lost of shelfish, the last one as a consequence of the coastalwater pollution.

[13] Commission of the European Communities, Communication from the Commission to the European Parliament and the Council Towards sustainable water management in the European Union- First stage in the implementation of the Water Framework Directive 2000/60/EC – COM(2007) 128 final [SEC(2007) 362][SEC(2007) 363], Brussels, 22.3.2007,p.12-13.

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