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**ECONOMIC COMMISSION FOR EUROPE**

**MEETING OF THE PARTIES TO THE CONVENTION ON  
THE PROTECTION AND USE OF TRANSBOUNDARY  
WATERCOURSES AND INTERNATIONAL LAKES**

Fourth meeting  
Bonn (Germany), 20–22 November 2006  
Item 6(a) of the provisional agenda

**MODEL PROVISIONS ON TRANSBOUNDARY FLOOD MANAGEMENT**

Submitted by the Flood Task Force and the Legal Board

1. The draft model provisions on transboundary flood management and their commentary in the annex were finalized by the Flood Task Force and the Legal Board, at their joint meeting on 20–21 June 2006 in Geneva, on the basis of a draft prepared by Ms. Phani Daskalopoulou-Livada (Greece), Mr. Otto Malek (Germany) and Mr. Alexandros Kolliopoulos (Greece). They were subsequently endorsed by the Working Group on Integrated Water Resources Management at its second meeting (Geneva, 26–27 June 2006).
2. The Meeting of the Parties may wish to:
  - (a) Adopt the model provisions and their commentary (see annex);
  - (b) Invite Parties and non-Parties to the Convention to apply these model provisions when entering into or reviewing bilateral or multilateral normative instruments on transboundary water issues or flood-specific ones;
  - (c) Commend the Flood Task Force and the Legal Board for their excellent work;
  - (d) Express its gratitude to the Governments of Germany and Greece for their leadership and financial support in the development of the model provisions and their commentary;

(e) Include in its workplan for 2007–2009 (see ECE/MP.WAT/2006/3) a follow-up activity related to the promotion of the model provisions; and

(f) Request the secretariat to publish the model provisions and distribute them as widely as possible.

Annex**MODEL PROVISIONS ON TRANSBOUNDARY FLOOD MANAGEMENT****Introduction**

The following model provisions on transboundary flood management are meant to be used as part of either a general bilateral or multilateral normative instrument on transboundary water issues or a flood-specific one among riparian States, in order to address transboundary flood prevention, protection and mitigation and enhance preparedness thereto. This does not exclude the possibility of States adapting these provisions according to their specific needs. On the other hand, States may adopt further provisions dealing with these matters in more detail or opt for more stringent measures, such as those contained in Part III of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (hereinafter the UN 1997 Watercourses Convention) and in the UNECE 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (hereinafter the UNECE 1992 Water Convention).

It is understood that general principles of international law related to matters covered by these model provisions are fully applicable, as appropriate.

For the purposes of these provisions:

“Parties” means parties to any instrument in which these provisions may be incorporated;

“Riparian Parties” means Parties bordering the same transboundary watercourse.

Throughout the provisions, wording suitable to legally binding instruments has been used (e.g. “shall do”). If States choose a soft law type of instrument, then different wording (e.g. “should do”) should be used.

**Provision 1**

**1. The Riparian Parties shall take all appropriate measures to prevent, protect and mitigate flood risks in transboundary river basins. Flood risks are the probability of flood occurrence combined with its possible adverse impact.**

**2. Each Party shall refrain from adopting measures which may, directly or indirectly, result in a transfer of flood risks to other Riparian States or generate flood risks in such other Riparian States.**

Paragraph 1 of provision 1 is an enunciatory statement covering the whole model provisions, reflecting the most fundamental principle thereof and also defining the term “flood risks”. As to

the definition of “impact”, reference can be made to article 1, paragraph 2 of the UNECE 1992 Water Convention.

As far as paragraph 2 is concerned, national flood protection measures should always take into account their possible impact on other Riparian States. Paragraph 3.2 (bullet 4) of the 2004 Action Programme for Sustainable Flood Protection in the Danube River Basin states that “rivers do not recognize national borders. Experience has shown that local flood protection measures can have negative effects both downstream and directly upstream. Therefore these effects need to be assessed...” The term “generate flood risks” is intended to include man-made floods.

### **Provision 2**

**1. The Parties shall without delay inform each other about any critical situation likely to cause flooding in the other Parties’ territory. The Riparian Parties shall set up and operate coordinated or joint communication, warning and alarm systems with the aim of obtaining and transmitting information. These systems shall operate on the basis of compatible data transmission and processing procedures and facilities to be agreed upon by the Riparian Parties. The Riparian Parties shall designate competent authorities and points of contact at all appropriate levels and inform each other thereof.**

**2. Whenever one Party ascertains the existence of a situation likely to cause flooding in the other Parties’ territory or in the process of flooding the other Parties’ territory, it shall:**

**(a) Immediately convey this information to the competent authorities and points of contact of the other Parties following the agreed-on procedure. Such information shall contain, *inter alia*, the available data on precipitation, run-off and water level;**

**(b) Adopt, to the extent possible, all appropriate measures to prevent or mitigate the adverse impact of the flood in the other Parties’ territory;**

**(c) Consult the other Parties without delay in order to arrive at common remedial action.**

The first paragraph of this provision draws from article 14 of the UNECE 1992 Water Convention. This article puts upon the Riparian States the obligation to inform each other about any critical situation that may have transboundary impact and also to set up, where appropriate, coordinated or joint communication, warning and alarm systems. Some bilateral agreements also provide for such a communication procedure or for a common warning model.<sup>1</sup>

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<sup>1</sup> Article 16, paragraph 1, of the 1994 Convention on Cooperation for the Protection and Sustainable Use of the Danube River (Danube River Protection Convention); article 8, paragraph 1 (c), of the 1999 Convention for the Protection of the Rhine; article 11, paragraph 1, of the 1998 Convention on Cooperation for the Protection and Sustainable Use of the Waters of the Hispano-Portuguese Catchment Areas. See also paragraph 25 of the UNECE Guidelines on Sustainable Flood Prevention (UNECE Guidelines).

The second paragraph draws inspiration from article 28 of the UN 1997 Watercourses Convention. The first such obligation (i.e. the obligation to inform) is contained in paragraph 2 of article 28 as well as in many bilateral agreements dealing with floods.<sup>2</sup> The usefulness of the information provided is contingent upon the prior establishment of a bilateral warning arrangement ensuring that the information gets as early as possible to the right people. Therefore, subparagraph (a) mentions the need for an agreed procedure for communicating the relevant data.

The obligation to prevent or mitigate, to the extent possible, the adverse impact of a flood in the other Parties' territory can be considered as an expression of solidarity among States and peoples in cases of national disasters. Article 28, paragraph 3, of the 1997 UN Watercourses Convention provides that "A watercourse State within whose territory an emergency originates shall, in cooperation with potentially affected States and, where appropriate, competent international organizations, immediately take all practicable measures necessitated by the circumstances to prevent, mitigate and eliminate harmful effects of the emergency".<sup>3</sup> Provisions similar to the rule in subparagraph (b) are contained in article 18, paragraph 5, of the 1998 Convention between Portugal and Spain and in article 3 of the 2001 Agreement between the Government of the Republic of Kazakhstan and the Government of the People's Republic of China on cooperation regarding the protection and use of transboundary rivers.

Situations likely to cause flooding include those generated by excess water of meteorological origin as well as man-made floods, including those from failure of hydraulic infrastructures, such as dams and levees, and from reservoir operation. Making information available to riparian States on reservoir management, with special regard to discharge rate, timing of discharge and its duration, has proven to be essential in such situations.

In order to identify the measures to be taken in accordance with paragraph 2, subparagraph (b) of this provision, the UNECE Guidelines, the conclusions and recommendations of the UNECE Seminar on the Prevention of Chemical Accidents and Limitation of Their Impact on Transboundary Waters (Hamburg, Germany, 1999) and the EU "Best Practices on Flood Prevention, Protection and Mitigation" can be consulted for guidance.

The duty to consult the other riparian Parties is provided for in express terms only in article 10 of the 1995 Agreement on the Mekong River. However, it can be argued that the silence of the other bilateral agreements is due to the fact that such an obligation in case of emergency is

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<sup>2</sup> See article 3, paragraph 6, of the 1999 Convention for the Protection of the Rhine; article 18, paragraph 3, of the 1998 Convention on Cooperation for the Protection and Sustainable Use of the Waters of the Hispano-Portuguese Catchment Areas (1998 Convention between Portugal and Spain); article 16, paragraph 2, of the Danube River Protection Convention; article 8 of the 2000 Agreement between the Government of the Republic of Kazakhstan and the Government of the Kyrgyz Republic on the Use of Interstate Water Management Installations on the Rivers Chu and Talas; article 3 of the 1999 Agreement between the Government of the Republic of Kazakhstan, the Government of the Kyrgyz Republic, the Government of the Republic of Tajikistan and the Government of the Republic of Uzbekistan on Cooperation on Hydrometeorology. See also paragraph 24 (a) of the UNECE Guidelines.

<sup>3</sup> See also article 27 of the same Convention.

inherent to the rules of *bona fides* between riparian States which, moreover, have concluded a bilateral agreement regarding their transboundary waters.

### **Provision 3**

**The Parties shall jointly develop a long-term flood management strategy and measures covering the transboundary river basin. Their cooperation shall include:**

- (a) Exchange of hydrological and meteorological data, monitoring/data collection, and development of a forecasting model covering the whole river basin or of a linkage between the Parties' respective forecasting models;**
- (b) Preparation of surveys, studies (including cost-benefit or cost-effectiveness analysis), flood plain maps, flood risk assessments and flood risk maps, taking due account of local knowledge, and exchange of relevant national data and documentation;**
- (c) Development of a comprehensive flood action plan addressing prevention, protection, preparedness and response and providing for common objectives, joint action, contingency plans, information policy, flood plain management and, where appropriate, flood control works and financing mechanisms;**
- (d) Raising awareness and providing access to information, public participation and access to justice.**

This provision establishes the principle of long-term cooperation between Riparian Parties on flood issues for the whole river basin as part of an integrated river basin management. Paragraph 2.1 of the communication of the European Commission on flood risk management (document COM (2004) 472) rightly states that “if one area implements engineering solutions to evacuate the water from its stretch of the river as quickly as possible, this simply means that the water arrives faster to their downstream neighbours. Therefore it is imperative that flood protection is dealt with in a concerted and coordinated manner along the whole length of the river.”<sup>4</sup> In this context, flood risk management should be coordinated with and, where appropriate, integrated into river basin management planning and be linked with other policy fields, such as urban planning, rural and industrial development, agriculture, transport and recreation. Established joint bodies between the Riparian Parties constitute the appropriate framework for such cooperation.

The fields of cooperation mentioned in subparagraphs (a)–(d) are of an illustrative character, and no hierarchy is established among them, as it is for the Parties to fix the priorities of their common action in accordance with the specific needs of each river basin. The matters suggested in subparagraphs (a)–(d) are often mentioned in bilateral conventions, the UNECE Guidelines and also the New York Flood Control Rules (1972) of the International Law Association (ILA),

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<sup>4</sup> See also paragraph 3.2 of the 2004 Action Programme for Sustainable Flood Protection in the Danube River Basin and paragraphs 13(c) and 22(a) of the UNECE Guidelines.

as updated and incorporated in article 34, paragraph 4, of the 2004 Berlin Rules on Water Resources of the ILA.

As far as exchange of data and joint development of a forecasting model are concerned, similar provisions are contained in article 9 of the 1997 UN Watercourses Convention; in articles 3 and 6 of the 1999 Agreement between the Government of the Republic of Kazakhstan, the Government of the Kyrgyz Republic, the Government of the Republic of Tajikistan and the Government of the Republic of Uzbekistan on cooperation on hydrometeorology; and in paragraphs 24 and 28 of appendix I to the UNECE Guidelines. Note should also be taken of paragraph 1 of Resolution 25 (Cg-XII) of the World Meteorological Organization (1999) on the exchange of hydrological data, according to which Members should provide on a free and unrestricted basis those hydrological data and products which are necessary for the provision of services in support of the protection of life and property and for the well-being of peoples.

The wording of subparagraph (b) is modelled on that of subparagraph (b), paragraph 4, of article 34 of the Berlin Rules on Water Resources of the ILA (see also paragraph 23 of the UNECE Guidelines).

Concerning subparagraph (c), mention should be made of article 13, paragraph 1, of the 2002 Framework Agreement on the Sava River Basin and of articles 7 and 8 of the 2000 Agreement between the Government of the Republic of Kazakhstan and the Government of the Kyrgyz Republic on the use of interstate water management's installations on the rivers Chu and Talas.

The use of cost-benefit and/or cost-effectiveness analysis allows finding the most appropriate measures, with a fair sharing of costs and responsibilities, in the framework of solidarity among Riparian Parties. The establishment of suitable financial mechanisms can support the implementation of joint action.

These provisions provide for joint action and measures by the Parties in the field of flood protection. The adoption of joint action plans by the Riparian Parties is also suggested in paragraph 22 (d) of the UNECE Guidelines and in annex A, paragraph 1 (a), of the communication of the European Commission on flood risk management (document COM (2004) 472).

Subparagraph (d) draws inspiration from section V of the UNECE Guidelines and from the Action Programme for Sustainable Flood Protection in the Danube River Basin (of the International Commission for the Protection of the Danube River).

#### **Provision 4**

**1. The Parties shall strive to incorporate environmental requirements into their flood management strategy. In particular, they shall take, to the extent possible, all appropriate measures to maintain, improve and restore the natural function of the watercourse; protect and restore water-related ecosystems; ensure that flow management takes into account the**

**natural flow of solid matter; enhance interactions between river, groundwater and alluvial areas; and conserve, protect and reactivate alluvial areas as natural floodplains.**

**2. The Parties shall also promote, to the extent possible, measures to maintain, improve and restore the retention capacity of small watercourses, wetlands, forests, soils and grasslands throughout the river basin. To this end, they shall pursue an active policy against deforestation; support good agricultural practice; and promote schemes for payment for ecosystem services, where appropriate.**

When formulating their flood management strategy, States should not underestimate the storage effect of soil or the importance of vegetation for regulating erosion. The water retention capacity of nature should not be set aside in favour of purely technical works. In addition to flood mitigation, the preservation and restoration, to the extent possible, of the river's flood zones also has ecological benefits in the form of preserving landscape and biodiversity, thus contributing to the fulfilment by the Riparian States of their obligation to protect and preserve the ecosystems of international watercourses, proclaimed in article 20 of the 1997 UN Watercourses Convention and also in article 2, paragraph 2 (d), of the UNECE 1992 Water Convention.

The environmental dimension of flood protection strategies has not been taken into account in the older bilateral treaties reported in the commentary to the New York Flood Control Rules (1972) of the International Law Association.<sup>5</sup> Nowadays there is a widespread feeling that a purely technical consideration of flood protection is outdated. The environmental dimension of flood strategy has already been taken into account in article 3, paragraphs 1 (c) and 1 (f), of the 1999 Convention on the Protection of the Rhine and in paragraphs 3.2 and 3.4.1 of the 2004 Action Programme for Sustainable Flood Protection in the Danube River Basin, where clear emphasis is placed upon the flood mitigation impact that elements of nature have. The wording of the first paragraph of this article draws inspiration from the above-mentioned paragraphs 1(c) and 1(f) of article 3 of the Rhine Convention.

To this end, flood action plans should, where feasible, be linked with general river basin management plans, as flood strategy should “promote the coordinated development, management and conservation of water, land and related resources. Such a holistic approach is based on multilateral and even multinational cooperation, including interdisciplinary planning for the entire catchment areas” (see the 2004 Action Programme for Sustainable Flood Protection in the Danube River Basin, para. 3.2).

“Payments for ecosystem services (PES)” means a contractual transaction between a buyer and a seller for an ecosystem service or a land use/management practice likely to secure that service (see document ECE/MP.WAT/2006/5). Water-related ecosystem services include flood prevention, protection and mitigation; regulating runoff and water supply; improving the quality

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<sup>5</sup> However, see article 16, paragraph 2, of the 1963 Treaty Concerning the Regime of the Hungarian-Romanian State Frontier and Cooperation in Frontier Matters: “the position and direction of frontier watercourses must, in so far as possible, be preserved unchanged. To this end the two Parties shall, by agreement, take the necessary steps to remove any obstacles which may cause displacement of the beds of frontier rivers or streams or a change in the position of canals or which obstruct the natural flow of water.”

of surface waters and groundwaters; withholding sediments, reducing erosion, stabilizing river banks and shorelines and lowering the potential of landslides; improving water infiltration and supporting water storage in the soil; and facilitating groundwater recharge. It follows from the above that flood protection is an important service that different ecosystems – forests and wetlands in particular – do provide within a given basin. PES can be an environmentally effective, economically efficient and socially equitable tool for implementing integrated water resources management, including flood management.

### **Provision 5**

**Each Party shall consult the other Party/Parties for every project which might cause, directly or due to accumulation with existing projects and activities, a significant change in the flow regime of the hydromorphological characteristics of the watercourse or of the alluvial areas which is likely to increase flood risk.**

Paragraph 10 (c) of the annex to the report of the Berlin Seminar on Flood Prevention, Protection and Mitigation (MP.WAT/SEM.3/2004/3) refers to the need to take into account the principles of the Convention on Environmental Impact Assessment in a Transboundary Context (UNECE 1991 Espoo EIA Convention) and its Protocol on Strategic Environmental Assessment in order to better integrate environmental and health considerations into the preparation of flood action plans and programmes. The Espoo Convention provides, in its appendix I in conjunction with article 3, for an obligation to notify and involve in an environmental impact assessment procedure any Party that might be affected by the transboundary impact of large dams and reservoirs. The proposed provision goes further and, in accordance with the spirit of Part III of the 1997 UN Watercourses Convention, sets the obligation to consult the other Party for any project that might endanger the ecosystem and hydromorphological conditions of the basin in a manner likely to increase the risk of floods for it. An obligation to consult the other Party is included in paragraph 3 (b) of annex II of the 1998 Agreement between Spain and Portugal, which covers cases of significant change in the flow regime and the canalization and regularization of the riverbeds within 10 kilometres of the border. As far as the flow regime is concerned, article 25, paragraph 1, of the 1997 UN Watercourses Convention puts upon States a general obligation of cooperation for the regulation of the flow of transboundary waters.