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

Working Group on Integrated Water Resources Management

Third meeting
Rome, 22–24 October 2008

FORESTS AND WATER

Note by the secretariat

Summary

This note has been prepared for the plenary session of the European Forest Week on “Forests and Water” taking place on Thursday, 23 October 2008¹. Its objective is to stimulate a lively and well informed discussion by providing the reader with background information and proposing questions which participants in the session may wish to address during the discussion. The note presents linkages between the forest and water sectors, discusses collaboration between the communities and presents international legal and policy frameworks.

¹ This document was mandated by the Timber Committee at its 65th session. The report of this session is on the Committee website in English only (<http://www.unece.org/trade/timber/tc-docs.htm>).

Participants are invited to share their views on forests and water, addressing if they wish the questions set out in this paper. The Chair will prepare a summary of the discussions, on her own responsibility, which will be tabled at the end of the week.

I. Introduction

1. The relationship between forests and water has been a topic of interest of scientists for many years. Nowadays, it has become common knowledge that forests influence the hydrological circle which has an effect on water resources both quantitatively and qualitatively. Vice-versa the role of water in forming forest sites cannot be underestimated.

2. Although forests and water are closely related, both issues have been discussed separately for a long time. On the one hand, the management of water resources used to be based on a single sector approach, mainly focusing on engineering aspects. On the other hand, forest managers focused significantly on wood production for their income, not taking full advantage of other possible sources of income for other protective functions provided by the forest and the interaction with other sectors in this regard.

3. However, this situation is changing, as both forest and water management shift towards a more holistic and integrated approach. As a result, in recent years we have witnessed meetings bringing together experts from different fields with different backgrounds specializing in forestry, water management, landscape or nature conservation, where the relationship between forests and water is being discussed. This is also the case for the plenary session “Forests and Water” during the European Forest Week with participants representing two different communities, with different objectives, programmes of work, terminologies, however with significant potential for common activities from which the water and forest sectors could benefit.

4. One of the main goals of the session on “Forests and Water” is to bring these communities together, strengthen the mutual recognition and communicate benefits of enhanced cooperation.

II. Linkages between Forests and Water

5. Policy makers should be aware of the important interactions between forests and water. The benefits of forests for the supply of water are multiple: by intercepting precipitation, evaporating moisture from vegetative surfaces, transpiring soil moisture, capturing fog water and maintaining soil infiltration, forests influence the **amount** of water available. By maintaining or improving soil infiltration and soil water-storage capacity, they influence the **timing** of water delivery. It is however in maintaining high water **quality** that forests make their most significant contribution. Through the stabilisation of soils, forests minimize erosion and hence reduce the impairment of water quality due to sedimentation. Furthermore, by trapping sediments and pollutants from other up-slope land uses and activities, forests can protect water bodies and watercourses.

6. In the future, **climate change** and the increased frequency of **extreme weather events** will have a considerable impact on hydrology and water resources possibly resulting in catastrophes such as landslides, floods and droughts that may themselves be influenced by forest cover. Research has shown that proper maintenance as well as the restoration of damaged and degraded forest ecosystems can play a **protective role** and cushion the effects of climate change.

7. These numerous interactions and benefits highlight the need for strong linkages between the forest and water sectors and indicate the importance of fostering interaction and collaboration. Being aware of these linkages and interactions is of particular importance as the forest and water sectors need to shape their response to climate change, resulting in possible adjustments of forest management strategies and plans and integrated water resource management.

III. Enhancing Cooperation between the Forest and Water Communities

A. Current Challenges

8. The number and variety of stakeholders within and beyond a watershed, their different and sometimes contrasting interests regarding water and forest resources as well as the overlap of administrative responsibilities of different regional authorities could pose a challenge for enhanced cooperation between the forest and water sectors. In the case of transboundary watersheds, authorities and communities from different countries are implicated, which requires close cooperation and exchange of information.

9. Despite the wide range of services provided by forests, their role in the regulation of water flows and safe water supply is often overlooked and not taken into account when developing policies or water management plans. Even though forests constitute “natural infrastructure” for water supply and protection against hazards, other technical infrastructure measures (e.g. dams, reservoirs or filtration plants) are often preferred. An integrated approach and mutual awareness and recognition among the water and forest authorities is missing in most countries as well as internationally. This lack of cooperation and coordination often results in problems when working on specific water and forest related issues (e.g. floods). In order to address this issue in a more coherent way, there is a need for cooperation between the forest and water sectors.

10. An additional problem is that despite significant advances in scientific understanding of forest and water interactions, the role of forests in relation to the sustainable management of water resources remains a contentious issue. The concrete impacts of forests on water resources are influenced by numerous factors including climate, topography, soil, forest type (age and species of trees), watershed area under forest as well as forest management practices. This indicates the difficulties in transferring research findings to different countries, regions or even watershed scales and shows that for any concrete intervention a site-specific examination regarding the interaction of forests and water resources is necessary. Furthermore, there is a gap between research and policy. This gap persists partly because of the difficulties to formulate general principles about forest and water interactions and partly because of a failure to communicate results of hydrological and forestry research as well as findings about the

interaction of the two effectively to policy-makers. Further education and capacity building across disciplines is necessary in order to address this problem.

B. Opportunities and Tools for Collaboration between the Forest and Water Sectors

11. Translating the non-timber goods and services provided by forests into economic values has been a long time standing issue on the forest sector's agenda. As a "natural infrastructure" providing goods and services, forests are being increasingly recognized by the water community. In this context 'Payments for Ecosystem Services' (PES) constitute an important area of work with significant potential and of common interests for both: forest and water sectors.

12. The Recommendations on Payments for Ecosystem Services in Integrated Water Resources Management (UNECE, 2007) define PES as a "contractual transaction between a buyer and a seller for an ecosystem service or a land/management practice likely to secure that service". PES schemes in watersheds usually involve the implementation of market mechanisms to compensate upstream landowners for maintaining or modifying a particular land use, e.g. maintenance or reforestation of forested areas, which positively affects the availability and/or quality of downstream water resources.

13. Due to the complexity of watershed ecosystems it is, however, difficult to demonstrate and quantify land and water linkages on a large scale. In order to overcome this problem, there is currently an increased focus on small-scale pilot initiatives that could be scaled up to address problems as capacity is developed. Additionally, such measures at least partly solve the problem of the difficult communication between distant stakeholders and facilitate implementation.

14. PES schemes take on various forms ranging from informal, community-based initiatives, to more formal, voluntary contractual arrangements between individual parties, or complex arrangements among multiple parties facilitated by intermediary organisations. Whereas transfer payments within a small, informal scheme might be organised by the community itself, larger projects normally require government or donor funding and use local cost-recovery mechanisms to provide complementary finances. Additional means for resource generation are so-called watershed funds. These are capital asset funds established through central government allocations, donor grants and local tax revenues, invested in financial markets. Via interest payments, they ensure a steady source of funding for watershed management programmes.

IV. International Legal and Policy Framework

15. In order to foster collaboration between the forest and water communities, a number of national and international documents and frameworks have been elaborated, negotiated and endorsed. On the international level, the most important legal and policy frameworks are the following:

(a) **Warsaw Resolution 2 "Forests and Water"**. (http://5th.mcpfe.org/file/Warsaw_Resolution_2.pdf): The resolution was formulated by the Ministerial Conference on the Protection of Forest in Europe and is structured into four main

parts: sustainable management of forests in relation to water; coordinating policies on forests and water; forests, water and climate change and the economic valuation of water-related forest services.

(b) **UNECE Water Convention** (<http://www.unece.org/env/water/pdf/watercon.pdf>). In the UNECE, work on the ecosystem approach to water management dates back to the 1990s. The *Guidelines on the Ecosystem Approach in Water Management* (UNECE, 1993) promoted the idea that water resources should not be managed in isolation from other ecosystem components, such as forests, present in a river basin. The ecosystem approach is also firmly embedded in the the Convention of the Protection and Use of Transboundary Watercourses and International Lakes which is intended to strengthen national measures for the protection and ecologically sound management of transboundary surface waters and groundwaters. The *Recommendations on Payments for Ecosystem Services in Integrated Water Resources Management* were adopted by the Parties to the Water Convention in November 2006.

(c) **EU Water Framework Directive** (<http://www.euwfd.com/index.html>). The Directive requires that all surface waters and groundwaters within defined river basin districts must reach at least ‘good status’ by 2015. The Directive’s combined approach explicitly requires cooperation of the water sector with other policy sectors (including forestry) that have an impact on water resources.

V. Outlook

16. Due to the multiple benefits forests provide for water resources, there is no doubt that the linkage between the two communities has to be reinforced, respectively established in the first place. Economic valuation, as in the case of PES schemes, will allow awareness-raising on the importance of environmental services and equitable sharing of costs and benefits between resource users and providers. Local and national decision-makers could further enhance forest and water policies and practices by considering, adapting and adopting the following:

(a) Specific cross-sectoral laws and plans (i.e. such as cross-referenced Integrated Water Resources Management (IWRM) plans and national forest programmes), measures and institutional reorientations;

(b) Programmes for effective awareness-raising, linking of science and policies, and capacity building for various target groups ranging from local watershed inhabitants to high-level policy-makers;

(c) Initiatives to improve the scientific understanding of forest-water interactions, local knowledge and monitoring to support evidence-based interventions;

(d) Harmonised micro- and macro-level linkage of experiences, initiatives and mechanisms in the context of sustainable forest and water management;

(e) Expanded evaluation of projects based on real changes and progress;

(f) Locally adapted mechanisms for valuation of and payment for services, financing of long-term collaborative watershed management processes;

(g) Regional and global fora for exchanging experiences, identifying common interests and responsibilities and negotiating agreements, especially for transboundary waters.

VI. ‘Forests and Water Session’: Questions for Discussion

17. The main goal of the session on ‘Forests and Water’ during the European Forest Week is to contribute to the development of stronger linkages between the two sectors. In order to achieve this goal, the discussion of the following issues could stimulate further efforts:

(a) Where do participants see concrete benefits of collaboration between the forest and the water sectors? Do national strategies make the link between forest and water risk management to deal with floods, droughts, soil erosion, landslides in the context of climate change, predication of drier summers and water shortages?

(b) Where do the representatives of each sector see obstacles that hinder collaboration? How could they be overcome?

(c) How could collaboration between the two sectors be fostered? Within their particular area of work, where do the participants see concrete areas for collaboration at national and regional levels? How can the implementation of the Warsaw Resolution 2 be promoted?

(d) Are there national examples of cooperation between the forest and the water sectors? Are there concrete examples of the use of payments for ecosystem services (PES) schemes in the region, which benefit the forest, or the water sector, or both? Are PES addressed in your national policies and strategies on forests and water?

Annex I

Important Events addressing Forest and Water in 2008 and 2009

- 26th Session of the EFC Working Party on the Management of Mountain Watersheds, 19-22 August 2008, Oulu, Finland.
- International Conference Forest and Water, 14-17 September 2008, Mragowo, Poland.
- European Forest Week, 20-24 October 2008, Rome, Italy – with a special session on forests and water.
- International conference “Water and forests: a convenient truth?”, 30-31 October 2008, Barcelona, Spain.
- First World Landslide Forum, 18-22 November 2008, Tokyo, Japan – especially session 18.
- 5th World Water Forum “Bridging Divides for Water”, 15-22 March 2009, Istanbul, Turkey.
- 5th Meeting of the Parties to the Convention of the Protection and Use of Transboundary Watercourses and International Lakes, 10-12 November 2009, Geneva, Switzerland.
