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Ministerial Conference
on the Protection of Forests in Europe *growing life*



*Sustainable Forest Management and
Influences on Water Resources
– Coordinating Policies on Forests and Water*

**Workshop on Forests and Water
12-14 May 2009 in Antalya, Turkey**



Republic of Turkey
Ministry of Environment and Forestry
General Directorate of Forestry



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REPORT



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Foreword

Water is a vital element of all natural resources and essential to life. But availability and quality of fresh water in many regions of the world is increasingly endangered by overuse, misuse and pollution. Due to the growing imbalance between water supply and demand in the world, there is an increasing need for ensuring adequate water quality and quantity also in Europe.

Forests have a close relationship to our water resources. Sustainable forest management is of vital importance for supply of good-quality fresh water, protection against natural hazards like floods or soil erosion, and for combating desertification. Ten percent of European forests are designated primarily for the protection of soil and water.

The Fifth Ministerial Conference on the Protection of Forests in Europe (5th MCPFE), «*Forests for Quality of Life*», was convened on 5-7 November 2007 in Warsaw, Poland. At the conference ministers and high-level representatives of 46 European countries and the European Community endorsed the Warsaw Declaration and Resolutions. In Warsaw Resolution 2 on Forests and Water the role of sustainable forest management in protecting water quality and in overall watershed management is highlighted. The ministers responsible for forests committed themselves to maintaining and enhancing the protective functions of forests for water and soil, as well as for mitigating local water-related natural disasters, through sustainable forest management and public and private partnerships. They stressed the importance of developing, improving and coordinating policies for forest and water resources management.

To facilitate implementation of the commitments in the resolution, a workshop on Forests and Water, «*Sustainable forest management and influences on water resources - Coordinating policies on forests and water*», was convened on 12-14 May 2009, in Antalya, Turkey.

The workshop provided the possibility for both forest and water sectors to participate in discussing the linkages between forests and water, and how to strengthen cooperation between the two sectors. This report provides a summary of the workshop and its outcome.

I would like to use the opportunity to thank all the co-organisers for their active collaboration, and the Government of Switzerland and the FAO for providing financial support to the workshop.



Arne Ivar Sletnes

Arne Ivar Sletnes
Head of the MCPFE Liaison Unit Oslo

Introduction

At the 5th Ministerial Conference on the Protection of Forests in Europe (Warsaw, November 2007), the ministers responsible for forests adopted the Warsaw Resolution 2 on Forests and Water. To facilitate implementation of the resolution, the MCPFE Expert Level Meeting held in May 2008 decided to conduct a workshop on the topic of forests and water, as an activity of the MCPFE Work Programme. The workshop «*Sustainable forest management and influences on water resources - Coordinating policies on forests and water*» was convened on 12-14 May 2009 in Antalya, Turkey and jointly co-organised by Turkey, as the host country, Switzerland, the MCPFE, the UNECE Water Convention and the FAO.

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The Government of Switzerland and the FAO contributed to the workshop by providing financial support. This contribution enabled broad participation in the workshop.

The aim of the workshop was to examine the interrelations and mutual influences of forests and water, how countries approach these topics, and how they currently are and could be reflected in forest and water policies in the pan-European and UNECE regions. It was also a goal to contribute to the development of stronger linkages between the two sectors.

95 participants from both the forest and water sectors, representing 27 countries and 7 organisations in the MCPFE and UNECE regions and neighbouring countries, took part in the workshop. The meeting gave good grounds for discussions on how to implement the MCPFE Resolution on Forests and Water.

Background

The interactions of forests and water

The availability and quality of clean water in many regions of the world is increasingly threatened by overuse, misuse and pollution. In this context, the ministers responsible for forests in the pan-European region recognise the close interrelation between forests and water, and have committed to maintain and enhance the protective functions of forests (Warsaw Resolution 2 on Forests and Water, Annex 5).

A key challenge is to maximize this wide range of multi-sectoral forest benefits without detriment to water resources and ecosystem function. To address this challenge, there is an urgent need for a better understanding of the interface between forests/trees and water. It is also necessary to develop institutional mechanisms to enhance synergies in dealing with forests and water issues and to implement and enforce action programmes at the national and regional levels (*FAO Forestry Paper 155, Forests and water, 2008*).

It is in maintaining high water quality that forests make their most significant contribution to the supply of water. Through the stabilisation of soils, forests minimize erosion. Furthermore, by trapping sediments and pollutants from other up-slope land uses and activities, forests can protect water bodies and watercourses.

Other benefits of forests to 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.

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. 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.

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. An integrated approach and mutual awareness and recognition among the water and forest authorities are missing in many countries as well as internationally. In order to address this issue in a more coherent way, there is a need for cooperation between the forest and water sectors.

An additional problem is that despite significant advances in the scientific understanding of forest and water interactions, the role of forests in relation to the sustainable management of water resources still remains a contentious issue. The concrete impacts of forests on water resources are influenced by numerous factors. This 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 effectively to policy makers.

Cooperation on forests and water at the regional level

The interrelations between forests and water have been in focus at different levels in the pan-European and UNECE regions. On the management and policy level, both the Ministerial Conference on the Protection of Forests in Europe (MCPFE) and the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention) have taken significant steps forward.

MCPFE

The 5th MCPFE was held on 5-7 November 2007 in Warsaw, Poland. The Conference theme: «Forests for Quality of Life» highlighted the contemporary challenges and decisions to assure that Europe's forests continue to be managed sustainably and provide benefits to the best of their potential.

In the Warsaw Resolution on Forests and Water, the ministers responsible for forests in Europe recognise the importance of forests and forest management for water resources.

The ministers committed to maintain and enhance the protective functions of forests for water and soil, as well as to mitigate local water-related natural disasters through sustainable forest management and public and private partnerships. They also stressed the importance of developing, improving and coordinating policies for forest and water resources management (e.g. through national forest programmes and Integrated Water Resources Management plans), especially in the context of climate change. They addressed the need to facilitate financial measures to maintain the protective functions of forests.

By adopting the Warsaw Resolution the European forest ministers signalled that forests and water is one of the most important forest policy issues in Europe at present.

UNECE Water Convention

The UNECE Water Convention is intended to strengthen national measures for the protection and ecologically sound management of transboundary surface waters and groundwaters.

Under the Convention, work has been done on the issue of ecosystem services. Two seminars on the Role of ecosystems (13-14 December 2004) and Environmental services and financing (10-11 October 2005) have been conducted by the UNECE countries. In addition, the *Recommendations on Payments for Ecosystem Services in Integrated Water Resources Management* was adopted by the Parties to the Water Convention at their fourth meeting (20-22 November 2006). The MCPFE was represented in the drafting group for the recommendations.

Legal and policy frameworks and international meetings

The most important legal and policy frameworks in the pan-European and UNECE regions, as well as important regional documents and activities regarding or influencing policies on the interrelation of forests and water, are stated in Annex 6, Table 1.

Throughout 2008, we have additionally seen several conferences and international meetings concerning forests and water issues in the region (Annex 6, Table 2)

Survey on Forests and Water, April 2009

To gain a clear picture of the experiences made and obstacles faced regarding forests and water at national level and how best to accommodate further needs in the area of forests and water, a survey was distributed to all focal points of the MCPFE and the UNECE Water Convention in February-April 2009.

The survey had the primary objective to support the organisers in preparing the workshop on Forests and Water. Some of the results are however presented in Annex 4 of this report.

Workshop on *Forests and Water*

The first day of the workshop in Antalya on 12-14 May 2009 was devoted to national presentations and plenary discussions. At the second day, group discussions were facilitated, and finally a field trip was conducted on the last day of the workshop.

Presentations and exchange of experiences

The workshop presentations and discussions showed that there is a lot of interest and work conducted in the area of forests and water in the MCPFE and UNECE regions. It is an important topic which needs to be worked on further, through strengthened cooperation between forest and water sectors.

Key note presentations were given by Mr. Thomas Hofer, FAO and Mr. Paul Reiter, International Water Association. They introduced international meetings addressing the topic in recent years, the scientific relationship between forests and water, as well as the linkages to the threats of climate change, and how forests and water should play an important role in this context.

A short introductory speech was made by Ms. Kjersti Bakkebø Fjellstad, MCPFE Liaison Unit Oslo, presenting the MCPFE Resolution on Forests and Water as well as the survey on forests and water, which was conducted in the MCPFE and UNECE regions between February and April 2009 (see Annex 4 for the survey results). Tomaz Juszczak introduced the UNECE Water Convention work on forests and water.

The following country presentations, with examples and experiences in the field of forests and water, were given:

Presentations were given by three representatives from the host country Turkey, Mr. Mustafa Yurdaer, Mr. Ismail Uzmez and Mr. Ibrahim Ciftci. They gave a general overview over work related to forests and water in a country with 21,188,747 hectares of forests, mostly publicly owned. Since 2006, Turkey has initiated functional forest management plans, dividing forests into 10 functions or uses, with hydrologic function as one important aspect. Water management plans are further coordinated with reforestation mapping.

Examples of reforested sand barrier projects and water pools for forest fire protection were underscored.

The importance of sustainable management of mountain forests in relation to water protection and management was highlighted in presentations given by Mr. Ismail Dairov (Regional Mountain Centre of Central Asia situated in Kyrgyzstan), as well as by Mr. Hubert Siegel (Austria) and Mr. Jaroslav Kubista (Czech Republic).

Mr. Siegel put emphasis on spatial planning and the protective functions of mountain forests in Austria. 30 % of forests in Austria are protective forests, mostly for the protection against natural hazards and for water protection. New guidelines in pilot actions will be tested through a new project in the European Territorial Cooperation Programme in the South East European Space, called «Climate Change-Related Water Supply». By law, the owners of forests are compensated for the services of their forests.

Mr. Kubista focused on the close relationship between forests and water, and the need for integrated management of the two. He stressed that the value of environmental forest functions, including hydrological functions, needs to be better assessed and compensated, and that legislative tools need to be developed further. Mr. Kubista also informed about a relevant book on forests and water, «Forest and water in the heart of Europe», Karel Vančura et al (2007), which has recently been published in the Czech Republic.

The EU Water Framework Directive has a direct relevance to forests and forest management. Ms. Elisabet Andersson (Sweden) presented the work on implementing the directive in the Swedish forest sector. At present, the Swedish Forest Agency is reviewing their national Forestry Act to assess whether the quality of water environments is sufficiently addressed. The results of the review will be ready by March 2010.

Mr. Tom Nisbet (United Kingdom) informed that guidelines for forests and water have been developed in the United Kingdom, providing a wide range of measures to protect and enhance the freshwater environment. Regular review

ensures that they continue to reflect recent legislation, policy, experience and research. Mr. Nisbet presented examples of how woodland benefits for water have been promoted, e.g., for sediment control and flood reduction. He underlined that better integration of forest and water policies, plans and measures will be vital to achieving good water status in the frame of the Water Framework Directive.

Mr. Andrey Filipchuk (Russian Federation) made a presentation on the water protective forests, which are of crucial importance for water bodies, as they help to regulate water flow and erosion.

Experiences from France on cooperation between the forest and water sectors were prepared by Mr. Eric Toppan (France) and presented by Ms. Sibylle Vermont (Switzerland). In France a study is being conducted on the development of a contract implementation method between water distributors and forest owners. The study will be completed by September 2009, and is expected to promote experiences on payments for ecosystem services to move towards better protection of water resources at a low cost.

Several additional presentations were made in the plenary session of the workshop, including on the work of the FAO/European Forestry Commission Working Party on the Management of Mountain Watersheds and the outcome of the III International Conference on Forest and Water, held in Mragowo, Poland in September 2008.

The summaries of the presentations given at the workshop are to be found in Annex 1. The full presentations can be downloaded from the MCPFE web site at www.mcpfe.org/forests_and_water/workshop.

Group discussions

On the second day of the workshop, participants discussed specific topics related to national and regional level policies in two working groups, chaired by Mr. Andrey Filipchuk and Mr. Tom Nisbet, respectively.

The following questions guided the discussion in both groups:

- **Topic 1:** *How to improve the coordination of policies on forests and water (benefits, obstacles and solutions)*
- **Topic 2:** *Exploring the financial basis for water-related forest services, with a focus on payments for ecosystem services (mechanisms, incentives and agreements to promote forest management for water)*

Topic 1: How to improve the coordination of policies on forests and water

Participants underlined that close cooperation between the forest and water sectors would be beneficial with regard to promoting services provided by forests, solving water-related problems in a sustainable way and to further developing forest tools (e.g. management practices, selection/composition of species, protection zones) to specifically address water problems. A holistic perspective on forests and water would make it easier to manage ecosystems, and provide for additional economic benefits and employment opportunities. This should be done by joint planning, decision-making and implementation.

Participants stressed that lack of trust between the two sectors, lack of finances and lack of adequate legislation and political commitment often are serious obstacles to cooperation at the national level. Institutional constraints such as different ministries and departments were mentioned as problems. There is also a lack of coordination at water basins, including at transboundary levels. Further, poor information flow and poor communication between sectors and different institutions, and lack in communication between scientists and policy makers were stated as barriers. The manifold of water users and the diversity of interests are difficult to coordinate, since decisions are taken beyond the water and forest sectors, such as in the energy sector (hydropower). The water users are often poorly informed, and important stakeholders are left out of decision making processes.

No obstacles were recognised at the international level. Existing structures, processes and institutions in the UNECE and MCPFE regions are already available to foster collaboration.

To solve the problems described above and to promote cooperation between the forest and water sectors, the participants proposed to put more efforts in awareness raising on water-related forest services among water managers, communication with the broad public, capacity building and training of people in different sectors and stakeholder groups. There is a need to identify the different functions of forests, to develop cross-sectoral curricula, «translate» research results for policy makers and managers, and to develop strategies for different water uses.

National policies and guidelines on forest and water should be developed. Spatial planning should be the overall umbrella for this development. Inter-sectoral institutional structures and water basins committees should handle the coordination between the sectors from the national to the local basin level. Participatory processes for solving problems should be encouraged. Needs and priorities of local populations should be assessed and strategies to gain politicians' support should be envisaged. At the transboundary level, international agreements should be used to favour cooperation. The participants also proposed to bring forest and water issues more prominently into the climate change discussions and negotiations.

Topic 2: Exploring the financial basis for water related forest services, with a focus on PES

An introductory presentation on the topic of payments for ecosystem services (PES) was given by Mr. Tomasz Juszczak (UNECE Water Convention) at the beginning of the group discussion.

PES is still a new concept, which needs to be further communicated to the broad public and the different sectors. The real life examples on establishing markets for such services are scarce.

Participants from several countries, including Turkey, Switzerland, Czech Republic, Liechtenstein, Austria, Finland, Bosnia-Herzegovina, Belarus and the Russian Federation outlined the development and implementation of PES within their respective countries.

In order to explore the financial basis for water related forest services, with a focus on PES, the workshop participants concluded that awareness raising and capacity building is essential. They also stressed a need for analyses of benefits and costs in specific management areas for the purpose of PES. Ideally, both sectors should work together to initiate the mechanisms needed.

The issue of bundling services was brought up during the discussions. Apart from services to water, forests also provide services such as carbon sequestration, clean air, conservation of biodiversity and recreation. The working groups stressed that PES should be incorporated into policies/strategies addressing climate change mitigation and adaptation. Valuation of services is still an issue that needs to be addressed. Ideally, PES should be initiated and jointly developed by both sectors working together.

Within a PES scheme, transparency about where the money is going may be important, to make the system trustworthy for the general public. The money from PES should be used for sustainable forest management. The private sector has an important role to play, including through private-public partnerships.

Furthermore, some participants proposed to conduct a public relations exercise such as launching a forest and water website with examples on best practices and link it to other mechanisms and institutions (e.g. UNECE Water Convention, MCPFE and FAO).

The full results from the group discussions and other presentations from the workshop are available from the MCPFE web site at www.mcpfe.org/forests_and_water/workshop.

Field trip

A field trip on the topic of forests fires was arranged on the last day of the workshop. The field trip showed the impressive knowledge and implementation skills of the foresters in Turkey. Their experience should be promoted at the regional and global levels. A short paper on the field trip was produced by Mr. Serdar Yegül, Ministry of Environment and Forestry, Turkey (Annex 2).

Conclusions and remarks

The workshop presentations and discussions show that there is a lot of interest and work conducted in the area of forests and water in the MCPFE and UNECE regions.

General conclusions and remarks were made for future work in this field, to continue cooperation at both the national and international level, with the network of participants from the workshop and beyond, including broad stakeholder participation.

National level

The cooperation of the two sectors should be further promoted at national level.

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It is important to maintain focus by spreading the word about the workshop and the connections between forests and water. The MCPFE Warsaw Resolution on Forests and Water should be communicated broadly.

Possible future regional actions

Seminar on forests and water in low forest cover

countries in the UNECE + wider Mediterranean region

The UNECE Water Convention 5th meeting of the parties will be held on 10-12 November 2009 in Geneva, Switzerland (www.unece.org/env/water/mop5/mop5_docs.htm). Switzerland will work towards having forest and water and ecosystem services as one important topic with activities in the new work programme of the convention for 2010-2012 (see Item 14. Workplan for 2010-2012 and resources needed for its implementation in the agenda of the 5th Meeting of the Parties). The seminar could be organized with the MCPFE, the FAO and other partners.

Pilot projects on forests and water

Capacity building is a key issue to gain knowledge on how to manage forests for the quality and quantity of waters, considering site-specific conditions such as climate, topography, soil, forest type, etc. The need to conduct pilot projects was therefore recognised. Turkey was one of the countries interested in hosting such a pilot project. This could be conducted within the framework of the UNECE Water Convention, in collaboration with other actors (see Item 7. Proposed programme of pilot projects, under the website of the

Water Convention 5th Meeting of the Parties - www.unece.org/env/water/mop5/mop5_docs.htm). A call for further pilot projects in this field runs until the end of December 2009.

Information on forests and water

There is a need to promote relevant examples and work done on the topic of forests and water. The participants of the workshop were asked to provide further information on work conducted.

During the World Forestry Congress in Buenos Aires on 18-23 October 2009 a side event on Forests and Water was arranged. The side event was conducted alongside the main sessions, where forests and water was also one of the topics.

Annexes

Annex 1. Summaries of presentations

Forests and Water: Process Understanding and International Momentum

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The interactions between forests and water and the benefits of forests for water supply 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. Finally, forests make a key contribution in the mitigation of water-related hazards such as floods (at the small scale), landslides and droughts. In view of climate change and the likely increase in the frequency of extreme weather events, this mitigation function of forests will get additional importance.

The relationship between forests and water is getting increasing international attention and momentum. An important milestone was the «International Expert Meeting on Forests and Water» held in 2002 in Shiga, Japan, in the context of the 3rd World Water Forum. The adoption of the MCPFE Warsaw Resolution 2 in November 2007 was a further milestone and triggered a series of important events in 2008 such as the Third International Conference on Forests and Water (Mragowo, Poland), the plenary

session on forests and water during the European Forest Week (Rome, Italy) and the conference on «Water and Forests: a Convenient Truth?» (Barcelona, Spain). This series of events resulted in a number of key issues and challenges and evidenced the need to:

- improve the process understanding of the forest and water interactions and of their differentiation according to agro-ecological zones
- bridge the communication gap between research and policy-making
- enhance the collaboration between the forest and water sectors
- develop policy frameworks which embed both forest and water concerns
- generalize case studies / local experiences into policy advice
- develop institutional mechanisms which cross administrative boundaries
- pay particular attention to payment for ecosystem services
- enhance information exchange and communication
- develop integrated response strategies of the forest and water sector to global drivers of change

The MCPFE Workshop in Antalya will be another important opportunity to bring the forests and water agenda a step further.

Short biography

Thomas Hofer is a Geographer from Berne, Switzerland. After extended research work on watershed management and mountain development in the Himalayan region (India, Nepal, Pakistan, Bangladesh and China), he joined the Food and Agriculture Organization of the United Nations (FAO) in 1998. Thomas Hofer is in charge of FAO's regular programme on forest hydrology, watershed management and sustainable mountain development. He is responsible for many field projects, for conceptual activities and for FAO's support to international processes.

Forests and Water at the Regional Level; Main Findings from the Survey on Forests and Water

Kjersti Bakkebø Fjellstad

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The interrelations between forests and water have been in focus at different levels in the pan-European and UNECE region. On the management and policy level, both the Ministerial Conference on the Protection of Forests in Europe (MCPFE) and the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention) have taken significant steps forward.

The importance of forests and forest management to water resources was stated by the ministers responsible for forests in Europe through Warsaw Resolution 2: Forests and Water. The resolution was endorsed at the 5th MCPFE, held on 5-7 November 2007 in Warsaw, Poland.

To compile experiences made and obstacles faced in the pan-European and UNECE region, a survey was distributed to all focal points of the MCPFE and the UNECE Water Convention in February 2009. A short summary of the results of the survey is presented in chapter 4 of the background document for the workshop on Forests and Water in Antalya, Turkey (pages 7-9).

Short biography

Kjersti Bakkebø Fjellstad is a policy adviser at the MCPFE Liaison Unit, which is currently situated in Oslo, Norway. Among her main responsibilities is the follow-up of Warsaw Resolution 2: Forests and Water from the 5th MCPFE.

Country Report on Forest and Water Resources Management

Republic of Turkey

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Forest and Water Resources of Turkey

Turkey is a mountainous country with regional climatic differences. Turkey is located on a land area characterized by rough topography and variable ecologic, economic, and social conditions. This situation caused the formation of a heterogeneous forest cover throughout the country, existence of diverse ecosystems, and therefore the need for different forest management strategies. The total area is 779,452 km², of which 6500 km² are covered by inland waters.

The latest figures show that there are 21,188,747 hectares of forest in Turkey. Forests are generally located in mountainous areas, and are generally semi-natural with a high biodiversity value.

Forest management planning is a very prestigious discipline in Turkish forestry. All forests have to be managed in accordance with management plans. Since the first management plan in 1917, the planning system has evolved in terms of techniques used. After a long period of forest management planning practices which were wood-production oriented, the General Directorate of Forestry has declared to initiate functional planning.

The predominant species in Turkey are *Pinus brutia*, *Pinus nigra*, *Pinus silvestris*, *Abies spp.* (*A. cilicica*, *A. nordmannia*, *A. equi-trojani* are unique), *Picea orientalis*, *Cedrus libani*, *Juniperus spp.*, *Pinus, pinea*, *Cupressus sempervirens*, *Pinus halepensis*, *Fagus orientalis*, *Quercus spp.*, *Alnus spp.*, *Castanea sativa*, *Carpinus betulus*.

The forests in Turkey are also home to most of the 120 mammal, 454 bird and 93 reptile species found in the country.

The presentation also includes the population growth, urbanization and migration, deforestation and ecosystem degradation due to human settlements and its consequences on water quality and quantity, erosion, and desertification in Turkey. Forestry for Establishing Sustainable Water Resources Management Policies, the principles of watershed management in Turkey, climate change and the threat on implementation of a sustainable forest management policy, the integration principle and coordination necessity between forest and water resources management are also presented.

A brief biography

Mr. Mustafa Yurdaer was born in 1963 in İstanbul. He received his education from the University of İstanbul - Faculty of Forestry. He has been working for the General Directorate of Forestry - Turkey since 1994. He has taken part in many projects since 1994. His major topics have been forest inventory and forest planning. Since 2003, he has been the head of the forest administration and planning department which is responsible for managing Turkey's forests. He is married with two children.

Forest Management in Central Asia Based on the Example of Kyrgyzstan

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Kyrgyzstan is a country located in the northeastern part of Central Asia, surrounded by the Tien-Shan mountains in the northeast and Pamir-Alai in the southwest.

The territory of the Kyrgyz Republic is 19,994 thousand hectares (4.3 % forest, 4.4 % water, 54.0 % agricultural land, 37.3 % other land). Almost 95 % of the territory is located in the mountains at altitudes of more than 1500 m above sea level. The population is 5.17 million.

Forests of Kyrgyzstan are accumulators of moisture. Growing on slopes of the mountains, they contribute to prevention of mudflows, landslides and snow avalanches; regulate water flow in the rivers, keeping their water balance a whole year. It is really a unique role of the forestland both for Kyrgyzstan and Central Asia, where agriculture is based on irrigation.

All forests of the republic are state property. According to the Forestry Code of the Kyrgyz Republic, the forests were given nature protection status, aiming mainly towards environmental and sanitary-hygienic recovery and other protective goals, including a ban on industrial timber production.

The total area of the State Forest Fund of the Kyrgyz Republic is 3321.5 thousand hectares, including territory covered by the forest - 864.9 thousand hectares or 4.32 % of the country's total land area. At present, a forest inventory is being conducted in the republic, and shall be completed at the end of the current year. This inventory helps to clarify data related to status of the forests in the republic. Since 1930, the country's forests have been through changes in size, species composition and forest structure. During 1930-1966, the forest territory was reduced by 574.2

thousand hectares, or 2.91 %, because of final harvest (to restore economy before and after the Second World War), and from 1966 to 2003 the republic's forest area increased by 245.1 thousand hectares, or 1.23 %, as a result of the termination of extensive logging, natural (re?)forestation and transformation of land from the state land reserve into the forest fund. The goal of the forest policy is to increase the forest area in the country to the level of the 1930s, i.e. to 6 %, which is 1200 thousand hectares.

Forests of the Kyrgyz Republic can be divided into four types: walnuts, coniferous, juniper and flood-plain forests. The forestry system includes 42 forest farms, 9 forest areas, 9 reserves and 8 national parks.

Taking into account environmental, social and economic aspects of mountain forest management and the increasing role of the forestry sector in sustainable development of the Kyrgyz Republic, a new forestry policy of Kyrgyzstan was developed, including the following components:

- Concept of the forestry sector development till 2025;
- Forestry Code and nature protection legislation;
- National Forest Programme till 2015;
- Five-year Action Plan till 2010.

Kyrgyzstan is one of the first CIS countries to elaborate the concept of the forestry sector development in 1999. The Concept of Forestry Sector Development is a principle document determining the strategy of the state on forestry sector development, which defined three objectives:

- Ensure sustainable development of the forest sector;
- Involve the population and local communities in participatory forest management;
- Increase the role of the state in the forestry sector development.

The Concept contains ten strategic directions for forestry sector development, which are aimed at increasing the forest area in the republic to its extent of the 1930s, i.e. to 6 %. Strategic directions of the Concept:

- Ensure conservation of all forests and biological diversity in the country;
- Specify technical norms for sustainable forest management;
- Deliver a part of production functions to the private sector;
- Improve the system of participatory forest management and leasing relations;
- Rationalize the forest service structure at regional and national level;
- Carry out economic reform in structural units of the State Forestry Service;
- Increase status of the personnel of the State Forestry Service;
- Improve silvics (science and education);
- Increase efficiency of financing system in the forestry sector;
- Raise awareness about the forestry sector.

The National Forestry Programme for 2005-2015 was adopted for consistent implementation of the Concept. At present, the National Action Plan on Forestry Sector Development for 2006-2010 is implemented. In a framework of this Action Plan, planting trees/forestation on an area of 3 thousand hectares is anticipated annually. The Concept is based on the following pillars: institutional reform, legal reform, silvics development, and raise of public awareness. All these reforms are based on strategic directions of the Concept, the National Forestry Programme and the Action Plan.

The main institutional reform is division of control, regulatory and economic functions, establishing market relations between state bodies and private sector. This reform is conducted under support of the Kyrgyz-Swiss Forestry Support Programme and the Kyrgyz-Norwegian Programme «Forest and Environment».

Within implementation of approved programmes and projects, the introduction of information-communication technologies (ICT) is planned as well as dissemination of information on forestry sector development among the local population and the public in general. In education,

focus is on organizing advanced training courses for forestry specialists and conducting a set of measures on environmental education of the growing generation. It is important to point out that in a framework of adaptation to climate change, the selection of species under consideration of changed conditions is made to improve the establishment of planted forest. For example, seeds of draught-resistant almond gathered in the south of the republic are planted in northern parts of the country; haloxylon/saxaul is cultivated in the south since this plant is adaptive to dry climate.

Up to now, substantial interaction between the forestry and water sectors has not been observed. However, introduction of Integrated Water Resources Management (IWRM) was launched in the republic due to approval of the new Water Code. Closer cooperation between these sectors is envisaged within IWRM.

Ysmayil Dairov

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The Role of Forests in Austria Protecting against Natural Disasters Protecting the Water Resources

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Austria is a mountainous country in the centre of the Alps. Nearly two thirds of its total area belongs to mountainous regions, according to the definitions of the Alpine Convention.

More than the half of this area is covered by forests: these are about 40.000 km²

Common sense: Forest Use for cutting wood

In detail 4 functions of forests: utilization, welfare, recreation and protection

Protection function is most important in the mountainous regions.

Forest spatial planning has the task to determine the priority of the protection function

More than 30 % of forests in this region fulfil the function of protection against natural hazards related to the disastrous forces of water, such as avalanches, floods, bed load transport and mud streams.

About 15 % of the Austrian forests are restricted in their use due to the function of water protection. These areas include spring areas, karst regions, floodplain and riparian forests and ground water protection areas.

To fulfil these functions in the best manner, several programmes for redeveloping the wood cover on the steep and naked slopes in the valleys of the Alps are being run.

Annually an amount of € 15 Million is spent for different measures, including:

- Reforestation of former grassland in the alpine regions
- Rejuvenation of existing forests by removing the oldest trees
- Construction of roads for logging
- Technical measures to improve the conditions for young tree establishment

Nearly half of the money is spent in the federal region of Tyrol due to its mountainous conditions, followed by Salzburg, Carintia and Styria.

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The work is particularly done by the Forest Technical Service, a subordinate agency of the Federal Ministry of Agriculture, Forestry and Water Management, with its 28 district offices and 7 regional agencies.

Within several programmes initiated by the Spatial Planning direction of EC, planning methods and determining of land use in agreement with natural conditions is being improved, especially in cooperation with the new member countries in the region.

Forest and Water in the Czech Republic

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Abstract

This presentation summarises current forest and water management policies and legislative tools, as well as the country's situation regarding forest ecosystem services after the 5th MCPFE in Warsaw 2007. The second phase of the National Forest Programme is mentioned in this connection as well.

Of course, the importance and complex interactions between forests and water in the Czech Republic are also underlined, particularly in relation to floods, torrents and mountain watersheds, and an example of forest/water relation in the air-polluted region is presented.

The situation of funding in forestry is not very gratifying and this also concerns PES, including important water services offered to society. In conclusion, an idea for improvement of the described situation is presented, concerning the integration of non-wood benefits and forest services into the economic structure of forestry, as its economic component of its production part.

Short biography

Mr. Jaroslav Kubišta is the branch director of the Forest Management Institute (FMI) in the Czech Republic. The Forest Management Institute, in Czech «ÚHÚL», is a government organization established by the Ministry of Agriculture of the Czech Republic. The main activities are the Forest Inventory in the Czech Republic (FI), an independent survey of forest lands and their development, the compilation and administration of Regional Plans of Forest Development (RPF) and the Information and Data Centre (IDC) for the forest and game management sector of the Czech Republic.

The Ministry of Agriculture of the Czech Republic and the Forest Management Institute have recently published a book about forest and water, «Forest and Water in the Heart of Europe», Karel Vančura et al (2007).

Implementing the EU Water Framework Directive in Swedish Forestry

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Within Sweden, there is a great potential for forestry to affect the status of water. Forests cover 55 % of the land area, and the stream density is high in the landscape - forests border many thousands of kilometres of streams, rivers and lakes.

The interest in water environments in the forest landscape is generally considerable among forest stakeholders. Also the knowledge about effects of forestry operations on fresh water fauna is rather good, but the knowledge of effects on water chemistry has to improve. No one wants to impair water quality on purpose. One main task for the Swedish Forest Agency is to give advice to forest owners on best practice forest management, and since the implementation of the EU Water Framework Directive (2000/60/EC), water environments are getting much more attention than before.

In the Forestry Act there is a paragraph regulating considerations to biological and cultural values. It contains a few statements about consideration to water environments, but these may not be enough to ensure that the quality of water environments is protected according to the EU Water Framework Directive. Therefore, at the request of the Swedish government, the Forest Agency is reviewing the formulations in the Act. That commission is to be reported to the government in March 2010.

Another way to integrate forests and water in Swedish environmental politics has been through a suggested new interim target in the national environmental quality objective «Sustainable forests». New interim targets may be set by the Swedish Parliament during 2010.

Sustainable Forest Management and Protection of Water in the UK

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Forests and forest management practices can have a major impact on the freshwater environment. Good forest management can help counter diffuse water pollution, enhance aquatic and riparian habitats, conserve water resources and reduce downstream flooding. In contrast, poor planning and management can exacerbate water shortages, contribute to local flooding, and lead to increased acidification, eutrophication and siltation. These can damage wildlife and fisheries, and increase costs of treatment for drinking water.

The principal guidance on protecting freshwaters within UK forests is the Forestry Commission's Forests & Water Guidelines. They were first published in 1988 to advise forest owners and managers how forests influence the freshwater ecosystem and how operations should be carried out to protect and enhance the water environment. The Guidelines apply equally to state and private forestry sectors and it is a condition of approval for forestry grants, felling licences and forest plans that all operations meet the required standards.

The Guidelines are now in their fourth edition and a further review is underway to ensure they continue to reflect the most recent legislation, policy, practice and research, as well as deal with new challenges such as the impact of climate change, expansion of energy forests and drive to extract more woody residues for wood fuel. A sub-set of the measures on good practice have been translated into legislation in Scotland as General Binding Rules. The success of the Guidelines in addressing the potential threats posed by forestry to water is shifting attention to how woodland creation can be used to improve the ecological status of water bodies and help meet the objectives of the EU Water Framework Directive (WFD).

Devolved country forestry strategies in the UK recognise the benefits of forests for water and support targeted woodland planting to help control diffuse pollution from more intensive agricultural and urban activities, as well as alleviate downstream flooding in towns and cities. 'Opportunity mapping' has been used to direct woodland planting towards preferred sites for protecting sediment sources and intercepting sediment pathways, and to reduce rapid runoff and attenuate flood flows. However, securing these opportunities will require closer integration and co-ordination of forest and water policy and plans to enable better decisions to be made and available incentives and regulatory controls used more effectively.

A particular need is to raise awareness amongst policy makers and planners of the benefits of woodland for water. For example, the potential of woodland to aid water management merits a much higher profile within River Basin and Sub-basin Management Plans, local farm plans, and Catchment Flood Management Plans. Woodland also deserves greater prominence within relevant water regulatory guidance, WFD Programmes of Measures and agricultural best management practice handbooks. Another key issue constraining progress is the lack of sufficient financial incentives to persuade landowners to plant woodland on higher value farmland, such as in the floodplain. Payments for water and related ecosystem services remain to be developed in the UK but a start has been made by using locational premiums to raise the value of woodland grants for securing land use change where water benefits are greatest.

While much remains to be done, recent experience suggests that forests and woodland will have an increasingly important role to play in the sustainable management of Europe's water resources and helping to mitigate the impacts of climate change.

Short Biography

Dr Tom Nisbet is Head of the Changing Physical Environment Research Group within the Centre for Forestry and Climate Change in Forest Research. He has worked for the Forestry Commission since 1987 and leads

the Commission's forest hydrology research programme. His primary interests are in studying the impacts of forestry on the quality and quantity of water resources, and evaluating the effectiveness of good forest management practice and woodland creation in protecting and enhancing the freshwater environment and reducing flood risk. He has played a central role in the development of national forest and water guidelines and maintains strong links with end users through the provision of expert advice and involvement in key stakeholder groups.

Water Protective Forests in Russia

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Water protective forests grow at river and stream sources, on the banks of lakes and streams and in watershed areas determining the water content of basins. Water protective forests are designated to regulate the water flow, preserve water sources from silting up and river sides from eroding. To some degree, all forests possess water protective properties. However, some forests are crucially important for the protection of water bodies. These are forests of water protective zones.

A water protective zone is an area adjoining the coastline of seas, rivers, streams, canals, lakes and reservoirs. The width of water protective zones should be in accordance with the Water Code of the Russian Federation (RF). For example, the width of a water protective zone is established for rivers or streams:

Up to 10 km length - at 50 m (each side);
From 10 to 50 km length - equivalent to 100 m;
Of 50 km length or more - up to 200 m.
Widths of water protective zones of lakes are 500 m.

The specific regime of management activity is established in the water protective zones in order to prevent contamination, damage and silt up of water bodies and depletion of water resources and to preserve the aquatic fauna's and flora's habitats and biological resources as a whole (Part 1 of Article 65 of the Water Code of the RF). Clear cuts and the use of toxic chemicals are prohibited in forests located in water protective zones.

Prior to the adoption of the Forest Code of the RF in 2006, water protective forests were classified as first group

protective forest categories and were mentioned in the forest legislation as protective forests along rivers, lakes, reservoirs and other water bodies and forest belts to protect spawning areas of valuable fish.

In accordance with the Forest Code of the RF, one category of protective forests was determined, namely:

- forests located in water protective zones;
- forests located in the first and second belts of sanitary protection zones of drinking water and household water supply sources;
- prohibited forest belts along water bodies;
- soil protective forests along water bodies or on ravine slopes.

About 75 % of forest estate of the Russian Federation consisted of water protective forests, according to the State Forest Inventory on 01.01.2008. Prohibited forest belts along water bodies are located on more than 55 million hectares.

Andrey N. Filipchuk

Doctor of Agriculture, Deputy Director for Science, Professor and Head of the Forest Management and Forest Preservation Department of Moscow University of Forest, deals with the research on the use of new information technologies in forestry, remote sensing methods in forest exploration, processing and analysing information about forest stocks, as well as the activities of the International Centre for Forests, representing Russia at the FAO as an FRA national correspondent.

Forest Management and Water Quality

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In collaboration with INRA (National Research Institute on Agriculture) and the Economic Forestry Institute in Nancy, the Private Forestry Federation is involved in a study on the development of a contract implementation method between users of drinking water and foresters.

Eric Toppan will present on cooperation between water and forest managers in France, and will draw attention to the problem of improving water quality and the filtration role of forests.

The main objective of the French Private Forestry Federation is to demonstrate the importance of promoting experiences with contracts between water users and foresters in order to move towards better protection of water resources at a low cost!

Forest management can be contract-based. The main aim of the task force INRA/Private Forestry organization called «forest and water» is to develop contract implementation methods between users of drinking water and foresters. The project is conducting econometric studies in order to quantify the economic gain in the medium term for water users, as compared to the alternative solutions of water treatment or switching to other supply sources. This activity will be completed in September 2009, with concrete results on demonstration sites.

Short biography

Eric Toppan graduated from the University of Sorbonne in Paris in 1997 with a post-graduate degree in Economics. Thereafter he went on to complete a Master's Degree in Political Science.

His master thesis report was completed during an internship at the French Embassy in Italy.

Thereafter he started his career as a lecturer in economics at the University Institute of Sceaux, where he worked from 1997 to 2000.

Since 2000 he has been in charge of the Economics Affairs at the French Forest Owners Federation where he collates and analyses the main economic data. After the 1999 storms, he coordinated a study mission for the Ministry of Agriculture with the Forestry Development Institute on the Forest Insurance in France. He also conducted a study on the impact of different kinds of sales modes on the timber prices for the Ministry of Agriculture. He is involved in several studies on forestry and carbon markets.

Since 2006, he is the coordinator of the national observatory on forest and wood products with all the partners in the forestry and timber sector.

Annex 2. Field trip report

Field Trip: Forest Fires, Fire Extinguishment and Regeneration

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The field trip was carried out on the third day of the workshop (14 May 2009) in Serik-Taşagıl, an area burnt by a catastrophic forest fire on 31 July 2008 in Antalya. The burnt area was 15,785 hectares. After the fire, a project YARDOP (Rehabilitation of burned areas and fire resistant Forestry Field Installation Project) was initiated by General Directorate of Forestry, Turkey. Stopping at a few different points, the burnt area was examined in the trip. Participants were informed on the starting points of the fire, the direction of its expansion and regeneration activities.

According to the Turkish forest law, the burnt areas should be regenerated in one year. In the first step, the burnt areas are enclosed with a barbed wire fence to protect them from invasion. Illegal settlements in the forest areas are very serious challenges in Turkey. It is expected that natural regeneration in the burned areas will grow up for 1-2 years. In the second step, planting activities are carried out in the areas in which natural regeneration is not possible for technical reasons or when a change of species is desired, such as introducing broad-leaved trees (Ficus sp., Quercus sp., Ceratonia sp.), as these are more resistant to fires.

One of Turkey's natural tree species is Calabrian Pine/ Red Pine (Pinus brutia). It expands especially in the Mediterranean region of Turkey. Forest fires positively affect Calabrian Pine to germinate. Turkey has an important advantage in terms of Calabrian Pine germinating after forest fires. You can see many seedlings in the burnt areas after the fire.

The dead trees in the burnt areas are logged and classified by sizes for auction. The speedy activities for recovering from the forest fire have created work in the region.

The attendees at the workshop were informed of the importance and types of fire pools that are built in the middle of the forest to allow rapid fire extinguishment in poorly accessible areas.

Information about «cross fire method» as an alternative way to put out forest fires was also given. According to this method, during forest fires, the belt (band) which will be opened should be double the length of the trees in the area. The cross fire method can be used when the conditions, especially wind, are appropriate. Previous experience from implementing cross fire is vital when using this method. Cross fire should certainly be initiated by experienced staff. Turkish foresters are ready to share their experiences on cross forest fire techniques with foreign colleagues.

Annex 3. List of participants

Forests and Water, Antalya, Turkey, 12-14 May 2009

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Annex 4. Survey on Forests and Water, April 2009

To gain a clear picture of the experiences made and obstacles faced in the pan-European and UNECE region, and how best to accommodate further needs in the area of forests and water, a survey was distributed to all focal points of the MCPFE and the UNECE Water Convention in February 2009.

The survey had the primary objective to support the organisers in preparing the workshop on Forests and Water. Some of the results are presented below.

In total, 38 respondents from 29 countries answered the questionnaire (April 2009). The findings of the survey are not to be regarded as full national reports, but they give a picture of the state of the art in the countries from the point of view of the respondents.

Policy and management instruments

The respondents of the survey were asked if policy and management instruments addressing the interrelation between forests and water were developed in their countries. The response shows that most of the countries have developed such instruments, but only a few have separate documents or specific guidelines dealing with the interactions of forests and water.

Importance of forests and forest management

The respondents were asked to assess the importance of forests and forest management for water, in relation to reducing floods, erosion, landslides and droughts, improving water quality and reducing forest fires.

The replies show that there is a difference regarding both the water related issues for which forest management is considered important, and the assessment of overall importance of forest management with regard to water, with slight differences between countries and sub regions (Table 1). The regional grouping of the countries is not a complete picture or even a categorisation of the countries, but

rather a simplistic way to look at any regional differences concerning assessed importance of forests and forest management for water.

Coordination of instruments

Both the forest and water sectors have developed overall regional instruments to be implemented at national or water basin levels. Three such instruments are national forest programmes (as developed by the forest sector), Integrated Water Resources Management Plans (as approved by the Johannesburg World Summit on Sustainable Development) and the Water Framework Directive/River Basin Management Plans (as developed within the EU).

The survey reveals that there is good coordination of these instruments between forest and water sectors in 6 of the countries, whereas 17 countries say that their coordination is either poor or lacking.

Obstacles for coordination and solutions

The survey aimed at identifying the obstacles in the countries for coordination between forest and water sectors. A few countries did not answer this question. One of the country respondents says specifically that there are no obstacles for cooperation and that there are already common working groups between the two sectors for the development of rural areas and for the management of natural hazards. Among the other respondents (19 countries), several obstacles are identified. The responded obstacles have been merged and are for simplicity divided into five groups (institutional, financial, laws and regulations, knowledge related and other):

Institutional obstacles

- High number of stakeholders dealing with forest and water management
- Differences in responsibilities of the two sectors and different ministries

	Floods	Erosion	Landslides	Droughts	Water quality	Forest fires	Sum
Southern Europe	4	4,2	3,8	4,2	4,3	4,8	4,2
Sentral Europe	4,4	5	4,1	3	4,6	2,3	3,9
Eastern Europe/ Sentral Asia	5	5	3,7	3,3	4,7	5,3	4,5
Western Europe	4	3,2	3,8	2,8	5,4	5,5	4,1
Northern Europe	1,8	2,5	1,5	2,5	4,3	1,8	2,4
Sum	3,8	4,0	3,4	3,2	4,7	3,9	3,8

Table 1. Importance of forest management for water (6=most important, 1= not important)

- Contradictory interests
- No reference to the important water-protection function of the forests in policy documents and no joint management plans
- National forest programmes often considered as being sectoral, and no governmental responsibility for implementation

Financial obstacles

- Lack of financial resources
- Non-existence of motivation tools for forest owners to perform the proactive measures for water sources

Laws and regulations

- Inadequate laws and institutional interests

Knowledge

- Scientific debates and contradiction on the positive and negative aspects of forests on water. Need for precise knowledge.
- Potential goal conflicts and to some extent a lack of knowledge
- Outdated views on old-style forestry as a source of diffuse pollution and water problems

Other obstacles

- Often coordination starts after damage has occurred
- Lack of clear political commitments

The survey also asked the respondents to suggest measures on how to overcome these obstacles. Below you will find some of the stated solutions, divided into the same groups:

Institutional measures

- Creation of interdepartmental advisory groups, establishment of inter-entities and intersectoral bodies
- Joint work in assessing the role of forests for water quality and quantity and the prevention functions. Establishment of a national joint working group between experts in these two sectors.
- Participatory approach in forest and water management planning
- To use NFP (national forest programmes) as a real integrated programme for coordination of forest and water policies

Financial measures

- Integrated water and forest management plans including budgets

- Compensations and motivation schemes to forest owners (e.g. tax reliefs, PES, direct payments)

Laws and regulations

- Further improvement of laws and regulations

Knowledge

- Demonstrative local projects to increase political awareness
- Better awareness and evaluation not only of environmental but also of socio-economic impacts
- Increasing knowledge about inter-relationship between causes and effects among forest owners and operators - information and dialogue to build consensus and a shared understanding

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Economic valuation of water-related forest services

Finally, the survey also asked for examples and experiences on payments for ecosystem services (PES) and other measures that aim to broaden and diversify the financial basis for sustainable forest management and to maintain the protective functions of forests for water in the countries of this region.

Ten countries state that the PES related to forests and water interactions are addressed in national policies/strategies in their country. However, the financial measures stated are above all public subsidies for protection of forests. No examples of private payment schemes were addressed.

Fifth Ministerial Conference on the Protection of Forest in Europe
5-7 November, 2007, Warsaw, Poland



WARSAW RESOLUTION 2

Forests and Water

1. Recognising the close interrelation between forests and water.
2. Concerned that there is a growing imbalance between freshwater supply and demand.
3. Aware of the need to ensure adequate water quality and quantity.
4. Stressing the need for adequate water conditions in order to sustain European society.
5. Emphasising the role of forests and forest management for biodiversity of water ecosystems.
6. Concerned that climate change will have severe effects on the frequency, scale and intensity of natural hazards such as floods, debris flow, avalanches, storms, and droughts and will have an impact on forest and water resources and their management.
7. Stressing the role of forests and forest management in protecting water quality, managing water resources for the quantity of all waters, flood alleviation, combating desertification and soil protection as well as the importance of mountain forests in the reduction of land slides, erosion and effects of avalanches.
8. Concerned that the frequency and size of forest fires is increasing and that fires occur more frequently, even at higher latitudes and altitudes, resulting in severe impacts on watersheds, water quality, quantity and soil erosion.
9. Emphasising that the full economic value of forests has to be adequately recognised and in particular the value of providing ecosystem services.
10. Recognising that forest owners have rights and responsibilities and noting the importance of prior consultations regarding the provision of water-related services.

11. Stressing the need to involve local communities and other relevant stakeholders in planning and implementation of water related forest policies.
12. Building on previous MCPFE commitments and recognising the ongoing work in the area of forests and water carried out by international conventions, organizations and processes.

The Signatory States and the European Community, commit themselves to:

I. Sustainable management of forests in relation to water

13. maintain and enhance the protective functions of forests for water and soil, as well as for mitigating local water-related natural disasters through sustainable forest management, including through public and private partnerships,
14. assess afforestation and reforestation programmes in terms of their effects on quality and quantity of water resources, flood alleviation and soil,
15. promote the restoration of degraded forests, particularly in floodplains and upper watershed areas for the benefit of the water environment, flood reduction, conservation of biodiversity and soil protection,

II. Coordinating policies on forests and water

16. develop and improve policies for forest and water resources management that contribute to the maintenance of ecosystems and the sustainable provision of their services,
17. coordinate forest and water resources management policies through national forest programmes or equivalents and integrated water resources management plans and strategies at the appropriate levels,
18. develop adequate or improve the existing institutional arrangements to better cooperate in addressing the interrelation between forest and water issues,
19. address the management of forests and water at the transboundary watershed level through enhanced international cooperation,
20. enhance education, training, research and extension services to promote knowledge and understanding of forest and water interactions,
21. increase awareness of the relationship between forests and water as well as the potential of forests and their sustainable management to improve the water environment,

III. Forests, water and climate change

22. develop a deeper understanding of the potential consequences of climate change on forest and water interactions, including desertification and biodiversity loss as well as the frequency, scale and intensity of floods, storms, droughts, forest fires, pests and diseases,
23. develop appropriate policies and strategies for managing forests and water resources sustainably to adapt to climate change and contribute to its mitigation,

IV. Economic valuation of water-related forest services

24. assess the economic value of forest services related to quality and quantity of water resources and flood alleviation from which society benefits,
25. incorporate the economic valuation of water-related forest services into relevant policies and strategies on forests and water,
26. facilitate the development and implementation of measures, which may include economic tools such as payments for ecosystem services (PES)¹ in order to broaden and diversify the financial basis for sustainable forest management and to maintain the protective functions of forests.

¹ payments for ecosystem services (PES) – contractual transactions between buyers and sellers for ecosystem services or land use/management practices likely to secure those services. In: “Recommendations on payments for ecosystem services in Integrated Water Resources Management”, UNECE Water Convention, 2006.

Annex 6. Legal and policy frameworks and international meetings

Table 1. Commitments and work of relevance to the interrelations between forests and water

Commitments and work conducted	Relevance	In the frame of
Ramsar Convention, Wetland management plans (1971, http://www.ramsar.org/)	Forests and wetlands	Ramsar Convention
MCPFE Resolution S4: Adapting the Management of Mountain Forests to New Environmental Conditions (1990, http://www.mcpfe.org/conferences/strasbourg)	Restoration of degraded forests in upper watershed areas (paragraph 4)	MCPFE
MCPFE Resolution L2 /4th MCPFE in Vienna: Pan-European Criteria, Indicators and Operational Level Guidelines for Sustainable Forest Management/Improved Pan-European Indicators for Sustainable Forest Management. (1998, http://www.mcpfe.org/www-mcpfe/conferences/lisbon and 2003, http://www.mcpfe.org/www-mcpfe/conferences/vienna)	Maintenance and Appropriate Enhancement of Protective Functions in Forest Management - notably soil and water (Criterion 5)	MCPFE
Integrated Water Resources Management, developed in the frame of WSSD in Johannesburg (2002, http://www.un.org/events/wssd/)	An holistic approach to water resources management.	World Summit on Sustainable Development (WSSD)
MCPFE Resolution V1: Strengthen Synergies For Sustainable Forest Management in Europe Through Cross-Sectoral Co-Operation and National Forest Programmes (2003, http://www.mcpfe.org/www-mcpfe/conferences/vienna)	Cross-sectoral cooperation	MCPFE
Seminar on the role of ecosystems as water suppliers (2004, http://www.unece.org/env/water/meetings/ecosystem/seminar.htm)	Forests as an important contributor to the ecosystem services for water.	UNECE Water Convention
Seminar on environmental services and financing for the protection and sustainable use of water-related ecosystems (2005, http://www.unece.org/env/water/meetings/payment_ecosystems/seminar.htm)	Forests as an important contributor to the environmental services for water.	UNECE Water Convention
Recommendations on Payments for Ecosystem Services in Integrated Water Resources Management (2006, http://www.unece.org/env/water/publications/documents/PES_Recommendations_web.pdf)	Payment schemes for e.g. forest ecosystem services in integrated water resources management.	UNECE Water Convention
MCPFE resolution W2: Forests and Water (November 2007: http://www.mcpfe.org/files/u1/warsaw_resolution_2.pdf)	Addressing four main challenges: <ul style="list-style-type: none"> • Sustainable management of forests in relation to water • Coordinating policies on forests and water • Forests, water and climate change • Economic valuation of water-related forest services. 	MCPFE
Guidelines for Afforestation and Reforestation (adopted at the MCPFE Expert Level Meeting, November 2008: http://www.mcpfe.org/node/156)	Recommendations for afforestation and reforestation programmes with regard to impacts on water resources, specifically addressed in paragraphs 5, 11, 12, 25, 26 and 31.	MCPFE
EU Water Framework Directive (adopted October 2000, for implementation by 2015: http://ec.europa.eu/environment/water/water-framework/index_en.html)	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.	European Union

Table 2. Conferences and international meetings addressing forests and water issues in the pan-European and UNECE region.

Activity	Time	Venue
26th Session of the European Forestry Commission Working Party on the Management of Mountain Watersheds on «Forests, water and climate change in high altitude and high latitude watersheds»	19-22 August 2008	Oulu, Finland
III International conference «Forest and Water»	14-17 September 2008	Mragowo, Poland
Plenary session «Forests and Water» during the European Forest Week	20-24 October 2008	Rome, Italy
International Conference on Water and Forests: a convenient truth?	30-31 October 2008	Barcelona, Spain



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