



Food and Agriculture Organization  
of the United Nations



## ***FINAL REPORT***

**Pieve Tesino,  
Italy,  
22-24 September 2015**

### **EUROPEAN FORESTRY COMMISSION**

**Working Party on the Management of Mountain  
Watersheds**

**Thirtieth session**

## INTRODUCTION

1. The 30<sup>th</sup> Session of the European Forestry Commission Working Party on the Management of Mountain Watersheds (EFC WPMMW) was held in Pieve Tesino, Italy. The session was held 22- 24 of September 2015 and was jointly organized by the European Forest Institute (EFI) Project Centre on Mountain Forests (MOUNTFOR), the Autonomous Province of Trento (Italy), and FAO. The main topic under discussion during the seminar and of the national reports was “*Mountain Watersheds and Ecosystem Services: - Balancing multiple demands of forest management in head-watersheds*”. The agenda and the session programme are presented in ANNEX A.

2. On 23 September 2015 the hosts of the session organized a study tour.

3. The session was attended by delegates, lecturers and observers from the following countries and international organizations: Australia, Austria, Canada, Czech Republic, Finland, France, Italy, Japan, Poland, Spain, Romania and Switzerland, International Union of Forest Research Organizations (IUFRO), Alpine Convention, FAO sub regional office for central Asia and FAO. The list of participants can be found in ANNEX B.

## OPENING OF THE SESSION

4. Welcoming words were delivered by Giuseppe SCARASCIA MUGNOZZA (Tuscia University), Roberto TOGNETTI (University of Molise), Alessandro RUGGIERI (Tuscia University), Gernot FIEBIGER (on behalf of IUFRO), Chiara AVANZO (Region of Trento), Olivier MARCO (Chair of the Working Party), and Antonio BALLARIN DENTI (Catholic University of Brescia).

The speakers welcomed the participants on behalf of the institutions they represented. Giuseppe SCARASCIA thanked the organizers and FAO for accepting the invitation to the research centre in Pieve Tesino and explained the organizational structure of this centre. The speakers underlined that sustainable management of watersheds and mountain forests is key to sustainable development and the provision of ecosystem services. Further, the good cooperation between the universities and the region, especially related to the MOUNTFOR research centre was highlighted. Finally, the speakers wished for an interesting and successful session.

5. Antonio BALLARIN DENTI representing Paolo ANGELINI, Head of the Italian delegation to the Alpine Convention, introduced the stakeholder training dialogue that was organized in cooperation with the Alpine Convention. He underlined that the Italian Ministry for the Environment, Land and Sea appreciated the organization and that stakeholders are drivers for launching a new complementary bottom-up approach. He highlighted that knowledge brokerage is a new method in policy making and - on behalf of the Italian Ministry for the Environment - he wished a successful meeting and a nice stay in the region.

## ADOPTION OF THE AGENDA

6. The agenda was discussed and adopted. It is presented in ANNEX A.

## REPORT ON INTER-SESSIONAL ACTIVITIES FOLLOWING THE 29<sup>TH</sup> SESSION

7. Thomas HOFER (Secretariat of the EFC WPMMW) introduced the Working Party and reported on the inter-sessional activities conducted during the period between the two sessions.

- The members of the WP are officially designated by the respective governments of the member countries of the EFC.
- A new Governance and Strategy was approved by the Steering Committee in 2015. The following main changes were highlighted by Thomas HOFER:
  - framed by the vision of the Working Party to **promote sustainable development in mountain watersheds** with a view to enhance resilience to climate change and natural disasters and to **ensure the long-term provision of environmental services** by watersheds for both upstream and downstream areas”
  - Regional or thematic Working Groups form the main implementation mechanism to fulfill the mission of the WPMMW and to satisfy the different needs and priorities within the European region.
  - The newsletter and the website form the pillars of the communication of the WPMMW.
- Activities that took place since the 29<sup>th</sup> session in France:
  - European Forest Week was held from 9-13 December 2013 in Rovaniemi, Finland. At this meeting the suggestion to prepare a new Governance and Strategy was endorsed by the EFC.
  - Annual Steering Committee meetings were held in 2014 in Rome, Italy and in 2015 in Annecy, France.
  - Formulation and approval of Governance and Strategy in spring 2015 by the Steering Committee.
  - Establishment of two Working Groups: Forest & Water and Hazard and Disaster Risk Management in Mountains.
  - Revision of the homepage; preparation of the 30<sup>th</sup> session.
- Working Group 1 Forest & Water:
  - Project proposal ECORES for Horizon 2020
  - COST action
  - Lots of involvement and initiatives in the countries of the Working Group on Forest & Water
  - Planned side event with Silvamed at 3<sup>rd</sup> European Forest week in November in Engelberg, Switzerland.
- Working Group 2 Hazard and Disaster Risk Management in Mountains:
  - Workshop for practitioners.
  - FAO Workshop in Bosnia and Herzegovina on Event documentation and hazard zone mapping for efficient prevention work with a special consideration of forests.
  - Potential contribution to a FAO project on Disaster Risk Management in the Western Balkans.

- Preparations for the 30th session:
  - a. Session planning with the Italian hosts, Steering Committee and Alpine Convention;
  - b. Invitation to countries via national heads of Forest Services (EFC members);
  - c. Follow up with countries;
  - d. Coordination with Italian hosts.

## **TECHNICAL SESSION: BALANCING ECOSYSTEM SERVICES IN HEAD WATERSHEDS**

8. **Marika FERRARI and Roberto COALI**, Service of Torrent Control of the Autonomous Province of Trento, Italy, presented *“Flood management on small alpine basins: the current approach of the Autonomous Province of Trento.”*

The presentation focused on the balance of hazard security from flood/debris flows events and water quality service. Trento is a region in the north of Italy where there are approximately 16 000 watersheds and hence multiple ecosystem services. These are mainly classified in: food supply, raw material supply, energy supply, water supply, water cycle regulation, atmosphere components regulation, natural hazard regulation, opportunities for tourism, and opportunities for recreational activities. Ecosystem Services comprise supporting, provisioning, regulating and cultural services and forests contribute to all these categories. The services provided by forests in head watersheds range, among others, from erosion control, clean water to biodiversity and recreation. These multiple roles and the high sensitivity of head watersheds to environmental and socioeconomic changes encompass the need of balancing the different demands on forests by sustainable forest management. It is necessary to try to establish dialogue with inhabitants so that they understand this situation and also know about the existing risks.

The actual flood management strategy of the Torrent Control Service is based on three strategic lines: ensuring watershed stability, ensuring safety conditions for inhabitants and dialogue on hazard. It is expected by the population and EC to develop different activities and technologies to maintain the activities more natural, e.g. morphological restoration.

Regarding the payments private companies are involved but most of the work is done by public administration and partly by private companies. Concerning the interaction with the forest service: one part is forest management and collaboration when e.g. creating protection structures within forests. Due to the fact that forest road construction is not done anymore by the forest service itself, the collaboration of relevant actors needs to be improved.

9. **Marco CIOLLI and Maria Giulia CANTIANI**, University of Trento, Italy, presented *“DDS, ESS and participation method in planning: experiences and lessons learned”*

The ecosystem services (ESS) concept is particularly helpful when dealing with the relationship that links human and natural environment systems. It refers, to the entire sphere of benefits (goods and services) that human societies obtain, directly or indirectly, from ecosystems functions, and shows how deeply human well-being depends on healthy ecosystems.

Alpine landscapes supply numerous goods and services useful for people living there and in surrounding areas. A sustainable development of these territories requires that economic and ecological issues are carefully taken into account and balanced. To this aim, the consideration of ESS is a tool showing great potential, provided that it is applied to the right scale of analysis. The regional watershed scale makes it possible to address landscape management and planning issues with a sound and realistic approach.

A methodological approach, applied in different study areas and based on the realization and implementation of a Decision Support System for eliciting, evaluating in a spatially explicit form and balancing ESS is described. The work describes the experiences carried out in the development and the application of DSS and participation methods in planning in real cases in the frame of different national (Biomassfor) and European (recharge.green see Recharge.green project site: <http://www.recharge-green.eu/>) research projects. The different projects offered the possibility to test different approaches and to develop, test and improve a dedicated Open Source DSS software (r.green) a DSS that is able to estimate the energy potential of renewable energies.

The test areas selected to be compared and involved in the projects are Trentino, Parco Naturale delle Alpi Marittime (Piedmont, Italy), Triglav National Park (Slovenia). The results will be used to carry out further meetings in order to define the parameters of possible forest bioenergy development scenarios. The analysis of citizens' perceptions/preferences provides useful information to support local social acceptance on RE. The inclusion in DSS increases social acceptance of the tools and decisions & reduces the potential conflicts between groups of interests and allows to better define the strategies of RE planning. The members of communities should be informed and actively involved in the application (& improvement) of DSS tools. The whole procedure can be easily integrated in SEA. There is a large space for improvement, both for logical procedures and for software performances. It is released with an open-source license to encourage further development and to spread and share knowledge and science.

10. **Francesco COMITI**, Free University of Bozen-Bolzano, Italy, presented "*Fluvial woods in mountain basins*".

Several studies have recently addressed the complex and beneficial interactions at various spatial scales among channel morphology, riparian vegetation and in-channel wood storage. Little is still known about the role of flood events – of different frequency/magnitude – on several aspects of vegetation-wood-channel dynamics, e.g. entrainment conditions of in-channel wood, erosion rates of vegetation from channel margins and islands, transport efficiency of wood elements along the channel network. Even less understood is how each river's evolutionary trajectory may affect these processes, and thus the degree to which conceptual models derivable from near-natural systems could be applicable to human-disturbed channels. Indeed, the different human pressures – present on most river basins worldwide – have greatly impaired the morphological and ecological functions of in-channel wood, and the attempts to "restore" wood storage have been implemented without a sufficient understanding of wood transport processes occurring during floods. On the other hand, the capability to correctly predict the magnitude of large wood transport during large floods is now seen as crucial – especially in mountain basins – for flood hazard mapping, as is the identification and ranking of the potential wood sources (e.g. landslides, floodplains, islands) for sound and effective hazard mitigation measures.

The presentation first outlined the current knowledge on the effects of in-channel wood within river systems, highlighting positive and negative aspects, with a particular focus on mountain rivers. The effects of floods on vegetation, erosion and wood transport were addressed presenting some study cases from rivers in the Italian Apennines and in the European Alps,

where wood budgeting was carried out. The current tools to predict wood volumes were discussed, followed by the pros and cons of different alternatives for the management of vegetation and wood in rivers.

11. **Edoardo COSTANTINI**, Council of research in agriculture and analysis of agrarian economy CREA-ABP Centre of research for agrobiological and pedology Italy, presented *“Management of forest stands to enhance soil ecosystem services: innovations and projects carried out by the CREA-ABP.”*

A set of soil related projects which are of particular interest to the Management of Mountain Watersheds were presented. They were “Research on Italian Silviculture” (Ri.Selv.Italia – MiPAAF, 2001-2007); “Monitoring for soil protection”(SOILPRO – EU LIFE, 2010-2014); “Silviculture and biodiversity”(SelPiBioLife – EU LIFE, 2014-2019) and “Recovery of degraded coniferous Forests and climate change mitigation” (FoResMit – EU LIFE, 2015-2019). The Riselvitalia Subproject 4.3 “Models and indexes for sustainable forest management” dealt with assessing the protective role of the forest cover against hydrogeological disturbances and producing a GIS-based tool for forest planning. The role of vegetation in the context of different types of shallow landslides, direct runoff, and soil water erosion was assessed in six study sites in Italy using either artificial neural networks or original spreadsheets implementing well known algorithms (RUSLE, SCS-RN). The SOILPRO project interested two European regions, Sicily and Peloponnesus, and developed a web-based application tool (Soil Monitoring Software, SMS) to support local and regional authorities in their efforts to identify areas at risk of soil degradation, in order to implement soil protection measures as well as to monitor their effectiveness. The current SelPiBioLife project is aimed at demonstrating the effectiveness of innovative silvicultural treatments to enhance soil biodiversity in artificial black pine stands. The innovative thinning is based on the identification of the dominant plants and removing of the plants around. Proposed methodology aims at creating small to moderate gaps in the tree crown layer (patch thinning) or at reducing regularly the crown coverage density (progressive thinning). Expected results are aimed to: enhance the pine succession and increase the economic value of the product, enhance the pine’s dendrometric stability, reduce the canopy cover and enhance the rate of light, water and temperature at the soil level. The global effect should be an increasing of the functionality of the ecosystem and of soil biodiversity. Finally, the FoResMitproject will implement the recovery of degraded coniferous forests for environmental sustainability restoration and climate change mitigation.

12. **Antonio DEL CAMPO**, Polytechnic University of Valencia, Spain, presented *“Ecohydrological-based forest management in semi-arid forests”.*

New drivers in forest management such as multiple-use resource management, adaptive/mitigation silviculture, payments for environmental services, etc. must be specially considered in the case of protective semiarid forests. In most cases, factors to be considered in the management of these forests share an eco-hydrological background: water and soil protection, biogeoclimatic cycles, improving stand growth and resilience against wildfires and climate perturbations, green and blue water budgets, etc., so sustainable forest management in this case must be based and oriented on eco-hydrology.

The low incomes from forest products in semiarid forests are usually caused by a lack of management and to the abandonment of rural activities, which in turn causes forest densification and encroachment, thus increasing fire risk and blue to green water impairment. In addition, the global change increases the risk of drought stress and wildland fires so proactive adaptive silviculture is specially recommended in these stands (Fitzgerald et al., 2013). In many situations, indirect benefits (not timber) are by far the most important forest

“products” from semiarid forests. In this sense, the emerging importance of valuing forests goods and services (e.g. water, PWS) might catalyze an eco-hydrologically-oriented forest management (EHFM).

EHFM must address specifically the following five objectives:

- Improve tree/stand growth and vigor. This is in fact the traditional approach when forest management is focused on productive functions of forests.
- Improve water budget, so silviculture improves the blue water outflow (streamflow and/or aquifer recharge) from the watershed.
- Protect and improve (at least do not harm) soil biological properties and nutrient cycles.
- Improve tree-climate sensitivity, so it is less affected by climatic irregularities (especially droughts).
- Improve stand susceptibility to wildfire risk, by both diminishing fuel load and enhancing more favorable microclimatic conditions.

The challenging point when planning an EHFM is to link, quantify, and value these five eco-hydrological objectives.

13. **Roy SIDLE**, University of the Sunshine Coast, Australia, presented “*Hydrological processes in Forest Headwater Catchments*”.

Headwaters exhibit unique and complex hydrologic responses at various scales which contribute to stormflow generation, as well as the generation and delivery of sediments, nutrients, and biota to stream systems. Understanding the dynamics of both surface and subsurface flow paths is key to accurately predicting storm runoff, and more importantly, to assess the effects of spatially distributed land management practices on stormflow generation. The dominance of particular flow paths can change over different scales and with different antecedent moisture. In this presentation, the focus was on headwater catchments in temperate forest environments.

Infiltration-excess (Hortonian) overland flow is generally not a dominant mechanism for stormflow generation because temperate forest soils typically have high infiltration. However, in degraded temperate forests where little organic matter is present on the land surface, Hortonian overland flow can occur during high intensity storms. The propagation of runoff downslope determines the significance of this pathway as a contributor to stormflow.

Insights gained from several investigations in temperate forest catchments can improve estimates of stormflow response from steep headwaters, particularly how spatially and temporally explicit changes in land cover and other forest management practices may affect storm runoff regime. Timber harvesting by itself mainly affects stormflow through changes in evapotranspiration related to altered canopy structure, forest species and age, and related water use demands. However, ground disturbances associated with forest management can create avenues conducive to overland flow. Particularly highly interconnected roads and trails exacerbate storm runoff by shunting overland flow to streams due to runoff from these compacted surfaces and interception of subsurface flow at road cuts.

14. **Aronne ARMANINI**, University of Trento, Italy, presented “*Mountain watersheds: water and even more*”.

A current climatic trend at large basins scale is identified by the decrease on the annual average precipitation. On the other hand, in the small mountain catchments there has been an increase of the intense rainfall events, and the flood events of mixtures of water and sediments known as debris flows. Compared to liquid floods, debris flows may not occur at all for relatively long periods (30-50 years). The population of areas potentially prone to debris flows does not perceive the risk (false sense of security). There is an increase of damage

potential due to the expansion of tourism and handicrafts activities. Debris flows cause more victims, because they evolve in a much shorter time (often < 1 hour), without giving time to the people involved to take shelter. Some of the defense strategies against debris flows are the construction of retention structures diffused along the channel, and the design of a system of check dams. Driftwood represents *per se* an important element of increasing the risk but which is not accounted in the risk and hazardous map procedures. Several actions are necessary in order to solve the problems associated to the driftwood.

15. **Hans SCHREIER**, University of British Columbia, Canada, presented “*Too much and too little: How to share water in Mountain Watersheds*”.

Increased climatic variability combined with land use changes are the main reasons for the increase in the frequency of floods and droughts in mountains. Examples of recent events in the Pacific Northwest in Canada and the USA indicate that it is no longer adequate to rely on historic storm return period graphs (IDF-Curves) for flood protection planning. At the same time less snow, earlier snow melt and increased waters demand is resulting in water shortages for communities and this creates problems for maintaining adequate environmental services in streams in late summer. Both types of extreme events are now appearing in the same year in a number of watersheds. Mountain communities need to develop more sophisticated adaptation strategies in order to minimize the impacts on infrastructure and the surrounding environment. The main forest issues in British Columbia are an increased extent of forest fires, massive infestation of pine beetle and subsequent logging. All these have large effects on the hydrological cycle and are resulting in increased sediment transport and stream water contamination. A comprehensive range of adaptation methods are needed to protect watersheds and to ensure that environmental services can be sustained. Some of the effective ways to adapt to floods and droughts includes watershed based initiatives to maintain and improve riparian buffer zones, designate areas for temporary storage of flood waters, focusing on improved green water management, promote wetland construction, and improve the infiltration and water storage capacity of soils.

16. After the second set of presentations the discussion evolved around linking science to practice and how uncertainties can be communicated. Further it was discussed that translations are needed of the findings, otherwise practitioners will not be able to benefit from the information. There was a clear message for stakeholders to invest more in knowledge and not structural measures so existing knowledge can be detailed and communicated appropriately.

## PANEL DISCUSSION

17. The panel discussion was moderated by Bernhard WOLFSLEHNER (EFI) who started the discussion with the following questions: What are the different roles of forest and where do you see or experience a high conflict potential? What kind of policy instruments e.g. financial incentives etc. do you know to provide enhanced protection of forest ecosystems and how can international cooperation play a significant role in promoting contribution of the forest sector to sustainable management and development of mountain territories and watersheds?

18. Thomas HOFER engaged in the discussion giving an overview on the global activities and actions. Firstly the development goals which were approved in the same week as the 30<sup>th</sup> session and the related to forest and water targets within. Further he highlighted the role of the Mountain Partnership as a global network who also supported the role of mountains in these

highly important negotiations on the SDGs. Additionally Thomas HOFER underlined crucial questions related to payment or compensation of ecosystem services: the question of scale - who should compensate whom; and the acceptance of stakeholders – beneficiaries need to know for what they pay.

Antonio BARALLIN DENTI highlighted the importance of the cooperation within the Alpine Convention and also outside with other institution. She highly appreciates the work of the working group on Mountain Forests and regarding the topic of ecosystem services he emphasizes the cooperation with other platforms and working groups. The two neglected aspects, air pollution and forests as carbon sinks, need to be discussed more thoroughly because these are main elements in mainstreaming climate change on policy level.

Ekrem YAZICI underlined the imbalance of upstream and downstream areas as main issue for Southeast Europe and central Asia. It is difficult for upstream communities managing the land properly to provide protection and resources to communities in lower areas – it is very difficult to balance these needs and further develop a more intersectoral approach. Therefore Ekrem YAZICI highlighted the commitment of the EFC to the Working Party and also the Mountain Partnership and appreciated that this topic was also taken up for this session, as also the upcoming joint UNECE and FAO session at the European Forest Week in November in Switzerland which has as the overall topic the Value of forests.

Hans SCHREIER sees as a main problem, that decision makers were/are so occupied with geopolitical problems that it is difficult to address the problem of balancing ecosystem services to ensure their provision. A very critical issue for our future is water; because more and more people are moving to cities. Related to the subsequent resource conflict and to ensure the provision of water it is important to start to work on balancing the ecosystem services now. The questions arising are – how do we finance the protection areas when most politicians are occupied with day to day matters. We clearly need innovation and information technology and this group can be a good example as it shares information broadly and everybody can contribute.

19. The discussion evolved around the issues of forests in the Mediterranean being abandoned if the patches are too small. Further it focused on the population's concentration in some parts of the world, not necessarily in Europe, and the fact that water is available locally, not necessarily in the same areas, are a big issue. Subsequently land abandonment is an issue when it comes to forest management and the provision of ecosystem services. Further it was discussed that current literature has many examples of different payment schemes so it might be worth sharing the information on these.

20. The Stakeholder Training Dialogue was organized by the Italian Ministry for the Environment, Land and Sea within the framework of the Alpine Convention. It aimed at promoting discussion among forestry stakeholders and experts on several specific issues embraced in the 2015-2016 mandate of the Alpine Convention Working Group on Mountain Forests. The following relevant issues were discussed with both national and international stakeholder in three different groups before an overall conclusion in the plenary:

- **Topic 1 “Forest, Water, Natural hazard”**

Stakeholders discussed the EU framework, with reference to the EU directives (Floods Directive and Water Framework Directive) and the UN Sustainable Development Goals recently adopted. The participants stressed that the link between forests and water is not always well defined, and has to be further explored with a wide approach considering all the aspects of forest ecosystems.

Forests contribute significantly in providing and maintaining the planet's clean water supplies, while also ensuring a balanced water cycle by reducing soil erosion and the risk of landslides and avalanches. Climate change, demographic changes, geographical and geological aspects need to be considered. To this end, a forest management approach based on an ecosystem model has been identified as a key issue, in order to identify and quantify the ecosystem services provided by forests, to enhance the awareness of the role of forest within the water sector, and foster the definition of a methodology and criteria for involvement of stakeholders.

- **Topic 2 “Protective Forests”**

Protective forests (PF) issues were explored by the stakeholders. Definition, identification, management and communication resulted as the main challenges related to the protective function. There are significant differences in PF among the Alpine countries. A common definition seems to be widely accepted, although, in some countries it's not formally recognized by a national legal framework (e.g. Italy)., Stakeholders agreed that to provide an effective protection PFs should be actively/better managed. In many countries the public still has very little confidence in forest management as a tool to enhance ecosystems services, so there is a lack in communication and public awareness. Best silvicultural practices are collected in some reports and guidelines compiled in the context of cooperation projects, such as “Gestion durable des forêts de montagne à fonction de protection” supported by European Programme Interreg III (Alcotra). Lastly, modelling was recognized as a key tool for the mapping of PF and for the identification of suitable silvicultural treatments.

- **Topic 3 “Forests and green economy”**

The supply of goods and services can generate relevant conflicts between different stakeholders involved in forests management: it is therefore essential keep involving practitioners, enterprises and public bodies in order to discuss mechanisms of governance in line with opportunities offered by the Green Economy.

Alternative income-generating opportunities not linked to timber sector are for example products like mushrooms, honey, fruits, etc. These non-timber products and retail are gaining economic relevance, especially in local contexts, through new and innovative strategies.

Employment opportunities are relevant in the field of forest management as well as in the bio economy sector, especially in the management of forest biomass plants, these will be an employment opportunity if locally based promoting short supply chain.

During the plenary session, moderated by Hans SCHREIER (University of British Columbia, Canada), main outcomes from each group were reported and consequently conclusions were drawn.

## **BUSINESS SESSION: BALANCING ECOSYSTEM SERVICES IN HEAD WATERSHEDS**

## NATIONAL REPORTS

21. **Maria PATEK**, Federal Ministry of Agriculture, Forestry, Environment and Water, presented the *Austrian National Report*.

Forests cover about 48 percent of Austria's federal territory and are thus of great importance to the maintenance and enhancement of biodiversity. However, forests represent also a viable economic factor for Austria. They are predominantly privately owned and constitute the basis of life for many family farms. In this sense, an interdisciplinary planning and control of forests is necessary in order to avoid conflicts of interest between the many forest "users". In Austria this is endeavored by the Austrian Forest Dialogue, which is an open dialogue process open to all forest players established in 2003. Its main objective is to formulate strategies and measures that can be implemented on an operational basis on fields of action of relevance to forests. In the frame of this dialogue, all stakeholders will work to prepare the Austrian Forest Strategy 2020 until the end of 2015, with the overall purpose of ensuring and optimizing the ecological, economic and social dimensions of sustainable forest management in a well-balanced way.

The Forest Dialogue comprises two key planning instruments: the Forest Development Plan and the Hazard Zone Plan. The Hazard Zone Plan is an area-based expert opinion on the risks due to torrents, avalanches and erosion in municipalities. It serves as a basis for the planning of control measures and for the assessment of their urgency. The main targets of the protection forest policy in Austria concern: increasing the resilience of forests against natural caused influences as well as climate change, and optimizing the protection-capacity against natural caused risks while adopting the concept of sustainability.

22. **Olivier MARCO**, Office National des Forêts (ONF)/Restauration des Terrains en Montagne (RTM), presented the *French National Report*.

In France, a total surface of 16.2 million hectares corresponds to mainland forest (30 percent of the national territory), where 4.4 million ha are defined as "mountain forests". Headwatershed forests can be divided into: "state-owned RTM" (Restauration des terrains en Montagne) forests; "state-owned forests" (outside RTM) and public forests governed by the jurisdiction of the Forestry Department and managed by the ONF; and private forests not governed by the jurisdiction of the Forestry Department.

Even though the long term preservation of forest resources has been guiding the management of French public forests for the past few centuries, regulations, and especially management tools, have gone through substantial changes during the past decades in order to integrate new challenges such as biodiversity preservation and public access to forests. From a regulatory point of view, the National Guidelines for Management and Management Planning (ONAG) of public forests enhance the role of protection forests by introducing an obligation to assess relevant issues. From an operational point of view, the **Forest Management Plan**, the main document of forest planning and strategy approved by the Ministry of Agriculture and Forestry, guarantees the consideration of goods and services provided by forests. Also, it contains precise methodological frameworks that apply to all public forests, and that allow to encompass the multiple services provided by forests. Concerning the function of protection against natural hazards, forest management planning will be based on the **Hazard Control Index** – HCI - (*Indice de Maîtrise d'Aléa* – IMA – in French), the only criterion able to confirm or deny the protective role of forest stands and to quantify it on a scale from 0 to 6. Since protection forests need specific management to maintain their effectiveness, the

“Renewal of Protection Forest (RPF) Stands Programme” was implemented in 2007 in order to rank operations of renewal phases:

- a first phase focused in generating hazard zone mapping of mountain forests, targeting "high protection potential stands";
- a second phase which is still in progress, consist in application of HCI index on targeted forest areas, definition, planning and achievement of renewal operations.

23. **Edward PIERZGALSKI**, Professor, Polish Forest Research Institute (IBL), presented the *Polish National Report* which he jointly prepared with **Magdalena WOLICKA**, Ministry of Environment.

Forests in Poland cover 91 210 km<sup>2</sup> - nearly 30 percent of the country. The ownership structure of forests is as follows: 77.5 percent state-owned forests, 18.5 percent, private forests 4 percent is public forests (2 per cent of the national parks, 0.9 per cent communal forests and 1.1 percent other). Forests perform many ecosystem services, but in contrast to the lowland forests, a specific feature of Polish mountain forests is their important role in protecting soil and water.

The IV Conference "Forest and Water", organized by the Forest Research Institute in collaboration with the Directorate General of State Forests, Regional Directorate of State Forests in Łódź, University of Agriculture in Cracow and University of Technology in Cracow, took place in Smardzewice in 2013. The aim of the conference was to exchange current research results, and the views of researchers, experts and practitioners on the relationship between forestry and water management. Within its framework, experiences from large projects currently implemented in Poland by the National Forests in order to improve water conditions in lowland and mountain forests were presented.

Different projects are being implemented with the aim of protecting soils and water in the mountain forests by limiting runoff on slopes and increasing natural water retention. These projects are a very good example of balance between the forest ecosystems services, forestry management and water management.

In terms of water conditions in the Polish mountain forests there are different situations. There are several years with shorter dry periods, as well as years of rainfall much higher than the average of the multi-year. In mountain forests permanent water scarcity occurs in 10 percent and periodic in 90 percent of forest districts. Regarding the risks and consequences associated with excess water, these can be significantly reduced by properly maintained drainage devices. Nevertheless, water shortages can be much more dangerous for the forests especially for younger stands. It can be stated that in the view of 2030, a variety of measures and actions need to be taken in order to: reduce the amplitude of changes in water conditions to forest habitats, reduce the negative effects of extreme events that occur periodically, and to mitigate the effects of projected future climate change.

24. **Josef KREČEK**, Professor, Czech Technical University in Prague, presented the *Czech Republic National Report* on “*Management on Mountain Watersheds in the Czech Republic*”.

In Czech Republic, mountain forests cover an area of 18 550 square kilometers, which is 70 percent of the forested area in the country and are mainly dominated by even-aged spruce stands (85 percent). The management of mountain forests controls 80 percent of national water resources and 38 000 km of headwater streams. The most important owner of those mountain forests is the state. Some of the existing problems in the country’s mountain watersheds are commercial forestry, extreme acid atmospheric deposition, and expected climate change impacts related to potential reduction of the water yield, occurrence of more intensive extreme events – floods and draughts, and endangered spruce monocultures. With

the Sulphur Protocol adopted in Europe, nowadays, mountain watersheds in the Czech Republic recovered from the “strongly acidified” to the “moderately acidified”. The progress has been done particularly in the stabilization of headwater catchments, reforestation respecting stands near the native composition, and recovery of aquatic ecosystems.

25. **Roberto TOGNETTI**, University of Molise, Coordinator of the European Forest Research Institute (EFI) Research Centre MOUNTFOR, prepared and presented the *Italian National Report*.

In Italy, the forests classified as mountain forests are 35.2 percent of the total national surface, and about 52 percent of forests and woodlands are above 600 m.a.s.l. Mountain forests are expanding significantly, following natural encroachment processes, at a mean annual rate of approximately 0.3 percent. In mountain areas, 50 percent of farms are less than or equal to 2 ha. From 1982 to 2010, the reduction of the number of farms has been of 60 percent, at the national level (up to 74 percent in the north-east), and in the mountain territory the agricultural surface has diminished by about 30 percent. However, in the majority of farms with forest surface (more than 62 percent), the current dimensions may allow for profitable forest management and utilization. Nevertheless, even in private and public properties of large dimensions (> 200-300 ha), forest planning is only rarely implemented (about 16 percent of national forest surface). In the last few years the costs of silvicultural practices have increased more than the revenues from forest management. In general, timber wood shows a decreasing trend, while for fire wood a positive trend is indicated.

Mountain forests provide important ecosystem services (ES), such as protection against natural hazards, carbon sequestration and plant and animal biodiversity. Natural disturbances occurring in forests can alter the provision of ecosystem services to local and offsite communities, but their influence on multiple service tradeoffs has rarely been analyzed. Considering the ecosystem service issues and the recent enormous efforts by the EU Member States to implement the ES approach within development strategies, Italy does not yet have its own proposal.

Understanding the role stakeholders play in management and forest ecosystem service (FES) provision is extremely important improve the relationship between humans and the environment. Moreover, adaptive forest management builds on the sharing of management responsibility among different sets of stakeholders operating at different levels.

26. **Benjamin LANGE**, Federal Office for the Environment FOEN, Hazard Prevention Division, Bern, presented the *Swiss National Report*.

In Switzerland, the cantons or departments are responsible for hazard zone mapping. However it is the confederation that publishes the guidelines for hazard zone mapping and also subsidizes 50 percent of the costs. Hazard zone mapping is more or less completed in Switzerland, nonetheless older hazard zone maps need to be reviewed.

In 2015, the project entitled **ProtectBio** was finished. The aim of this project was to assess the effects of biological protection measures in such a way that they can be compared to the effect of technical measures with the same objectives. For this reason, it was evaluated that the principles for technical protection measures, as defined in the guideline PROTECT, could be applied for protection forests. In effect, it was found that these principles can be applied to protection forests, however there are some restrictions, especially since the quantification of the protective effect of forests on deep and medium landslides as well as on floods is hardly possible.

In Switzerland, protection forest management has to be conducted according to the guidelines «Sustainability and success monitoring in protection forests», which is legally binding. Also, a new online tool for the treatment of rock fall protection forests was developed. This tool

provides a target profile of tree diameter classes at given conditions. The idea behind was to combine two approaches: the first one is rock fall protection and the second factor takes into account is the sustainability of the forest. About 80 percent of the protection forests in Switzerland prevent channels from driftwood and sediment transport that may reach the damage potential. This is the most common type of protection forest in Switzerland. In the current issue of the guideline «Sustainability and success monitoring in protection forests», the main focus is on driftwood, meaning on the stability of the stands, however processes that transport material into the channels as avalanches, slides and rock fall are hardly considered.

The project “**Driftwood management along channels – a practice-oriented research project**” (2015-2018) is a cooperation between the ETH Zürich, Swiss Federal Institute for Forest, Snow and Landscape Research, the Dendrolab (University of Berne) and the Bern University of Applied Science. The aims of the project are to develop scientific foundations to meet the challenges associated with driftwood management along channels, and to put the scientific knowledge to the practice.

27. **Soner TÜMÜKLÜ**, Forest Engineer, General Directorate of Forestry, T.C Forest and Water Ministry, prepared the *Turkish National Report* on “*Mountainous areas studies in Turkey*”.

Please note that this was not presented during the session because unfortunately Turkey could not attend the meeting.

Mountains are home to about 12 percent of the world’s population and are crucial for sustainable development. They also contribute significantly to food security, water supply, biodiversity conservation and to the provision of environmental goods and services. Nonetheless, mountains are one of the most vulnerable areas affected by global changes in particular climate change. They should be considered high priority areas to be sustainably protected and managed, especially to ensure ecosystems stability and the livelihoods of upstream and downstream populations.

The Erosion Control and Rangeland Rehabilitation Expert Committee, which is one of the Sub-Working Group of Ministries Expert Committee, has organized a meeting in Bolu from July 21<sup>st</sup> to 23<sup>rd</sup>, 2014. They also organized a second meeting in Kayseri on 13-14 October 2014, targeted at discussing mountainous areas with NGO’s representatives and tourism associations by taking into account the features of mountainous areas of the participant countries present at the meeting.

International Mountain Day is celebrated every year all over the world under the coordination of the Food and Agriculture Organization (FAO) of the United Nations, which is the lead Agency mandated to lead the celebrations. Given its comparative advantage, some of these activities including the production of communication materials are outsourced to the Mountain Partnership Secretariat. In Turkey, the General Directorate of Forestry organized the 2014 celebration in Ankara on December 11th.

One ongoing project in mountainous areas is the Murat River Watershed Rehabilitation Project, where besides the rehabilitation of natural recourse, has as its aim to improve the income of the people living in that watershed and create alternative income resources. With this objective, training and sample field visits are carried out in order to improve the capacity of the villagers and the personnel working in the institutions and organizations.

## **OBSERVER REPORTS**

28. **Hideaki MARIU**, Professor, Research Institute for Natural Hazards and Disaster Recovery, Niigata University (Japan), gave a presentation entitled “*Current State of*

***Research and Mitigation Strategy on Large Scale Landslide Disasters in Mountain Watersheds***”.

Mr. Marui presented the current circumstances of landslide disaster mitigation in Japan and also the recent research results found on large scale landslides. Various scales and types are included in the categories of “large scale landslides”. It is considered that the evaluation of “relative danger degree” and the identification of areas with “high danger degree” can be predicted with accuracy. However, the prediction of an individual large scale landslide event and its occurrence time is considered to be very difficult to assess. Some of the research currently being developed in the area deal with: “Geological and geomorphological approach to detect dangerous slopes on large scale landslides” by Prof. Chigira (Kyoto University); “Prediction of occurrence of large scale landslides by monitoring of electric conductivity of torrent water” by Prof. Jitozono (Kagoshima University); “Detection of dangerous slopes concerning occurrence of large scale landslides” by Prof. Jitozono (Kagoshima University) and “Prediction of occurrence time of large scale landslides using effective rainfall amount” by Prof. Kosugi (Kyoto University). The principal triggering factors of large scale landslides are intensive rainfall caused by an increase of groundwater level, and earthquakes caused by the perceptible shaking of the surface of the earth. Further, structural counter measures (hard measures) are limited for large scale landslides (both in the source and downstream areas), and non-structural measures (soft measures) are mostly focused on arrangement of evacuation and appropriate land-use.

29. **Cholpon ALIBAKIEVA**, Food and Agriculture Organization of the United Nations, gave a presentation about the project entitled ***“Sustainable management of mountainous forest and land resources under climate change conditions”***.

Cholpon ALIBAKIEVA presented the aforementioned project which is currently being developed with the State Agency for Environment and Forest Protection, and the Ministry of Agriculture and Melioration of the Kyrgyz Republic as executing partners. The implementation period of the project is from September 2014 to August 2018 and the project is financed by the GEF. The goal of the project is to achieve an “enhanced enabling environment in the forestry and agricultural sectors and sustained flow of ecosystem services, including enhancement of carbon stocks in forests and agro-ecosystems”. In this sense, its principal objective is to contribute to the sustainable management and enhanced productivity of mountainous silvo-agro-pastoral ecosystems and improved mountain livelihoods in the Kyrgyz Republic”. In order to accomplish these targets, four components have been established. To date, each one of them has reached important outcomes:

- **Component 1** consists of “Strengthening the enabling environment for sustainable forest and land management (agriculture, rangelands and transitional areas) (SFM/SLM)”. The principal outcomes to be achieved are enhanced policy, legal and institutional framework in forestry and land management for integrating SFM/SLM principles and practices into national and local level land-use plans; also an increased understanding and awareness on roles of SFM/SLM;
- **Component 2** is “Enhancing carbon stocks in dryland forest through innovative management and rehabilitation practices”. In this sense, management of existing forests and trees has improved; dryland forests areas have been rehabilitated and afforested through the introduction and demonstration of innovative technologies and practices; pressures on forests have been reduced;
- **Component 3** is “Promoting and demonstrating climate-smart agriculture, including pastures as part of sustainable land and water management in dryland”. The principal outcome accomplished has been the improvement in agricultural management and rehabilitation techniques in drylands by demonstrating and adopting agricultural and

agroforestry best practices that: increase vegetative cover and soil fertility, reduce soil degradation, and avoid greenhouse gas emissions;

- **Component 4** focuses on the knowledge management, monitoring and evaluation. In this regard, the principal outcomes are: monitoring and evaluation of project progress for adaptive results-based management to mitigate risks and changing conditions; Knowledge Dissemination of information and best practices through knowledge management platforms, national and international cooperation and awareness raising.

30. **Giulia GAGGIA** and **Francesco DELLAGIACOMA** introduced the Alpine Convention and the Working Group on Mountain Forests of the Alpine Convention with a presentation entitled *“An international treaty for the protection and sustainable development of the Alps”*.

The Alps, with their biodiversity capital, water and wood reserves, are the natural, cultural, living and economic environment for nearly 14 million people and an attractive tourist destination for approximately 120 million guests every year. *The Alpine Convention* is an international treaty between the Alpine Countries (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland) as well as the EU, for the sustainable development and protection of the Alps. The aims of the Alpine Convention are:

- Promoting sustainable development in the Alpine area
- Protecting the interests of the people living in the Alps
- Embracing the environmental, social, economic and cultural dimensions of the Alps

Among the principal instruments of the Alpine Convention are: Protocols, Working Groups and Platforms, Multilateral projects of the Contracting Parties, activities of the Permanent Secretariat, and cooperation with networks and other partners. The Convention is a framework that sets out the basic principles of all the activities of the Alpine Convention and contains general measures for the sustainable development in the Alpine region. It entered into force as from March 1995. The Protocols are focused on cooperation (particularly on research), and environmental protection considering development perspective. The existing Protocols cover many different issues such as: spatial planning and sustainable development, conservation of nature and countryside, mountain farming, mountain forests, tourism, energy, soil conservation, transport, etc. The **Mountain Forests Protocol** has been implemented with the purpose to preserve the mountain forests as a near-natural habitat and, whenever necessary, to develop them or increase their extent and improve their stability. In order to support the work and activities in the framework of the Protocol "Mountain Forests" of the Alpine Convention, the **Working Group "Mountain Forests"** was established in 2012. It contributes to the intersectional cooperation according to the multiannual work programme of the Alpine Convention, particularly in the following areas: climate change, biodiversity, tourism and green economy. Also, it has an important role for the forest system in the field of development of adaptation policies at regional and local level as well as in the light of its potential absorption function. In the areas of adaptation policies, the Working Group is acting in accordance with the **Action Plan on Climate Change in the Alps**, which aims at recommending Alpine-specific measures, bring long-term initiatives, promote the development of concrete regional cooperation and the exchange of experiences, and support specific scientific research projects.

## KEYNOTE

31. **Mia SUOMINEN**, Business Area Director Vapo Ventures, gave a keynote presentation entitled *“Water conservation business arising from company’s responsibility”*.

Vapo Group is a Finnish non-listed joint-stock company owned by the Finnish State (50,1 percent) and the Suomen Energiavarat Oy (49,9 percent). It produces energy and environmental peat, forest fuel and pellet for heat, steam and electricity customers in Finland, Sweden and Baltic countries. Peat energy fulfills 4-5 percent of the total energy demand in Finland although only 0.7 percent of the total area is used for energy purposes. Peatland area is a valuable energy storage (energy content 13 000 TWh). Peat production can be started in such areas only, which are no more in natural state. Starting of peat production requires natural value assessment and an environmental permit.

Vapo started to produce energy peat in the 1970's. Very soon it was noticed that there is a water protection need related to peat production and that need was tackled. Vapo has built thousands of water treatment solutions for its own needs. It has also created additional actions for responsible peat production (responsibility programme 2011-2016). A unique know-how of waters treatment and conservation has been accumulated in the organisation throughout the years. In fall 2012 the idea arose of offering this know-how more widely outside the own organisation.

A corporate Start-up called Clean Waters was created to produce/disseminate the know-how. Today Clean Waters is reality and is offering high quality natural water treatment solutions. Vapo has succeeded in generating new ecologically sustainable business from its corporate responsibility.

Pollution and eutrophication is threatening the quality of water systems worldwide. Degradation of natural waters is caused by the loading of different land use on waters. With natural water treatment actions it is possible to improve and maintain good quality of natural waters. Clean Waters uses natural treatment methods which are based on nature's own biological, chemical and physical processes. Such methods are e.g. sedimentation ponds, flow control dams, overland flow fields, vegetation fields, biofiltration and wetlands. In special cases chemical treatment can be used.

The forest water conservation is even more important in the future because of climate change and increased forest biomass harvest in order to maintain lakes and rivers in good/excellent ecological state (European Water Framework Directive). It is important to develop and use water conservation management practices with more detailed and tailored water conservation. The target should be to use the best available water treatment methods with good effectiveness in forest management operations. Clean Waters is implementing forest water conservation projects, in particular where special know-how and tailoring to local conditions is required. Clean Waters has implemented forest water conservation projects like comprehensive water protection design, restoration of streams and construction of forest wetlands. More information available: <http://www.cleanwaters.fi/en>.

## **REPORT ON WORKING PARTY ACTIVITIES AND OPERATIONAL MATTERS**

32. As part of the implementation of the new structure and modus operandi of the European Forestry Commission Working Party on the Management of Mountain Watersheds (EFC WPMMW), two pilot Working Groups were established: Working Group I "Forests and water" (WGI) and Working Group II Hazards and Disaster Risk Management (DRM) in Mountains" (WGII).

33. The critical themes in WGI are the role of forests in landscape ecology for soil and water conservation and impacts of forest management on water quality and quantity for ecosystem services. An additional focus is on forest - water relationships in the context of extreme events (floods and droughts). An important target to develop WGI activities has been to participate in the **ECORES-HEADWATERS** project proposal for Horizon2020. This

project aims at a systematic assessment of representative headwater ecosystem types in six European ecological regions from northern Finland to Spain. In the project, one basic hypothesis is that headwater environments are threatened by environmental changes due to human action. However, this project was not funded and so the content is now used for applying to a COST action.

During the period 2013-2015, the WGI supported international projects, seminars and conferences on impacts of forest practices on water phenomena, respecting also ecological considerations, global climate change, and the atmospheric deposition:

- In **Turkey** two big scale watershed projects executed by the Forestry General Directorate are proceeding in order to execute activities towards mountainous areas. In the watershed planning activities, together with the agricultural sector and NGO's, the aim is to cooperate with the different public institutions which are active in the field. Additionally the Erosion Control and Rangeland Rehabilitation Expert Committee has organized a meeting in Bolu, July 2014. The Mountainous Areas Sub working group has organized a meeting in Kayseri in October 2014, and the International Mountain Day was celebrated in Ankara in December 2014.
- **Poland** is a partner in the network "Forests and Water of Baltic countries" and participated in a project proposal titled: "Water management in Baltic Forest". Further they have almost finished two large projects (2007-2015) addressed to water infrastructures in forests: "Mitigation of water erosion in mountainous areas and maintenance of torrents and connected infrastructure in good state" and "Increase water resources in lowland forest". A new "Water Act and National Forest Programme" is under preparation.
- In **Finland**, the CAR-ES network meeting was organized in October 2014 to discuss water problems. In Helsinki, the conference on "Bioenergy from forests" including investigations on the forest and water theme was organized in September 2014. The 9<sup>th</sup> European Conference on Ecological Restoration was held in Oulu, August 2014, where the WGI had two presentations in the session on "Environmental education and active citizenship in restoration of headwater catchments".
- The conference "Stump harvesting – effects on climate and environment" was organized in Stockholm on March 2015. Further new findings and approaches on interactions between hydrology and ecology were presented and discussed during the HydroEco conference in Vienna in April 2015. At the moment, a conference related to boreal forest and water relationship together with EFI Nord is under preparation.
- 34. The Working Group II "Hazards and Disaster Risk Management (DRM) in Mountains" mainly focuses its work on the relationship between forests, water and hazards occurring in mountainous regions. For the period 2014-2015, the objective of the WGII's activities focused on building capacities and exchanging technical knowledge. In this sense, two events were conducted in October 2014: one focused on exchange of experience in hazard zone mapping and the role of forest, the other one on capacity building in the field of event documentation and hazard zone mapping.

The first workshop "*Hazard zone mapping and the integration of the forest protection function*" took place in the municipality of Sixt Fer-à-Cheval in the department of Haute-Savoie (France), with a total of 10 participants. The aim of the workshop was to exchange experiences, practices and ideas between practitioners about hazard zone mapping and the integration of the forest role and to report lessons learned and interesting ideas of practitioners for improvement of policies and processes at national and provincial levels. Austria, France, Italy, Turkey and Switzerland participated in a three day workshop divided in two main parts. The first part was dedicated to presentations of country participants and the second part was

dedicated to visits and discussions on specific field cases. Below the main conclusions of this workshop are highlighted:

- Aim to adapt the process for Hazard Zone Mapping (HZZ) to avoid gaps and conflict of interests, to ensure a bottom up approach and to integrate the forest protection function correctly,
- Implement a systematic identification and assessment of protection forests where it is needed, adapt the forest management in consequence regardless of the landowner type and upgrade the protection device if needed,
- Improve the study of the socio-economic and environmental impact of protection forests especially in term of avoided costs protection of human lives, to complete the picture and have stronger arguments to lobby for a better consideration of the protection function of each forest.

The second workshop, “*Hazard Zone Mapping and Event documentation - Benefits of standards in professional event documentation and analysis focusing on floods, debris-flows and landslides*”, was held in Brcko, Bosnia and Herzegovina. This workshop was organized by FAO and conducted by the WGII. Participants from Bosnia Herzegovina, Serbia, Montenegro, Kosovo, Albania, Ukraine, Moldova and Turkey engaged actively in the workshop and fruitfully enhanced the exchange on best practice models and national state of the art methods to discuss and foster cross border exchange. The workshop was conducted with support of the Platform on Natural Hazards of the Alpine Convention (PLANALP), and the University of Applied Life Sciences, Vienna. The program included three days of different activities:

- **Day 1** was dedicated to listening an input on state of the art examples from Austria and France on hazard zone mapping and event documentation, as well as an introductory session for the field trip on the next day.
- **Day 2** started with the field trip and the afternoon was dedicated to presentations of each country on a set of questions that was given beforehand to all participants.
- **Day 3** was focused on the active exchange on important topics that emerged during the discussions on the first day and for that reason a world café was organized before concluding the event.

The results of the overall workshop provided insight knowledge on event documentation and hazard zone mapping for the participants. Moreover, a good overview on the situation of the field of hazard risk management with a focus on landslides and floods for the different countries was gained. The practical work and the exchange on best practices allowed an increased capacity of the participants and further fostered identifying needs for additional improvement in this field.

35. Based on the presentations and ideas of the Working Groups the discussion on how to communicate outcomes and results more effectively to a wider public and stakeholders was triggered. The following ideas were brought forward for future consideration:

- Flyers on best practices – maybe in combination with the next session
  - Examples on problems that Europe encountered in the past and how these were resolved could be shared for other regions
  - Online courses
- Mountain Partnership as a possible mechanism for sharing information

- Forestry Commission Sessions (maybe in addition to the European also the Near East and Africa one).

It was agreed that the new newsletter will serve as a first step because the information on the homepage is easily accessible and that further actions should be attempted later.

36. In spring 2015 the new Governance and Strategy was approved and as follow up the Secretariat shortly presented the first actions taken for implementing the new Governance and Strategy:

- Implementation of the two Working groups: The two Working groups “Forest & Water” and “Hazard and Disaster Risk Management in Mountains” were established and drafted work plans. First activities were carried out and the reports can be downloaded on the website.
- Homepage and newsletter as pillars of communication: homepage was revised completely and also a new structure for the newsletter was created. It was highlighted that the newsletter is a source of information from the members to the members of the Working Party, underlining the necessity of active contribution from the members / Focal Points.
- Increased cooperation with other institutions was started by having a joint event with the Alpine Convention and also a closer relationship with IFSA (International Forestry Students' Association) and EGEA (European Geography Association - for Students and Young Geographers) through the student grants for the 30<sup>th</sup> session.
- Increased exchange with EFC: one attempt is the planned side event at the European Forest Week 2015 in Switzerland of WGI. Working Group II attempts at drafting a concluding message from the two workshops for practitioners to be presented to the EFC after the completion in 2016.

37. The 31<sup>th</sup> Session will be held in 2017. The exact dates and venue will be confirmed over the coming months. Possible topic of the next session could be best practices (see paragraph 34).

38. During the course of the business session various elements for future sessions were discussed and the following items were agreed upon:

- Based on the stakeholder dialogue at the 30th session of the Working Party the need for reaching out to local stakeholders was underlined. The discussion evolved around broad involvement of stakeholders including also NGOs. It was noted that to have a fruitful dialogue with stakeholders it is necessary to be on time with preparations so to include the right participants at the session and also to ensure that a minimum number of stakeholders are able to take part. Further it is important how to process this dialogue and how to communicate the results.
- The Working Party agreed that student grants that were introduced at the 30th session should be part of future sessions. This should also be included in the Governance and Strategy as one measure for ensuring continuity of the Working Party. Therefore the

Secretariat will provide a paragraph to be added to the Governance and Strategy for approval of the Steering Committee.

- An introduction to the host country in the beginning could be beneficial to the discussion to 1) give everybody a good overview and 2) for presentations in the scientific sessions as at least half of them are dedicated to host country.

39. Based on the big structural changes in the last two years related to the implementation of the Steering Committee and the Working Groups, the Secretariat suggested keeping the current composition of the Working Party Steering Committee plus adding this year's host of the session, which was agreed upon by the Working Party. Further it was agreed that the Working Party will continue with the two Working Groups and no new Working Groups will be added for the next biennium. The Steering Committee for the next biennium is composed as follows:

- hosts of the last three sessions: Italy, Turkey and France
- host of the future session (currently vacant)
- lead country of WGI (Finland)
- lead country of WGII (Austria and France)

40. The Secretariat reported on the efforts that were taken this year to engage more members of the EFC as active Focal Points in the Working Party. Letters were sent to all heads of Forestry to either confirm or designate a Focal Point to the Working Party. The results were presented and the discussion evolved around the countries that have not responded and which ones should be followed up more closely. The targeted countries selected by the Working Party are:

- Slovenia
- Uzbekistan
- Romania
- Kyrgyzstan
- Bulgaria
- Greece
- Portugal
- Iceland

These countries will be approached by the Secretariat and different members of the Working Party in the next months. It was further underlined that being a member in the Working Party is institutional and therefore it is important for all Focal Points to keep in close contact with their government. And that each Focal Point needs to be aware of the responsibility in handing over duties when e.g. changing occupation to guarantee continuity of the country representation.

41. The next agenda item was on the way forward of the Working Party and also on the inclusion of new active Focal Points in the Working Groups. Thomas Hofer also introduced the Forest and Water Action plan and its background. Below the summaries of ideas and future activities are summarized:

- Working Party

- Engaging in meetings of forestry commissions with side events, not only EFC but also Near East and African Forestry Commissions to disseminate results and share experiences;
- Best practices: best practices that are needed outside of Europe; best practices could be streamlined (e.g. in a one-pager format) and be presented to EFC; idea on preparing best practices examples from each country instead of national report for the next session
- Idea of an online conference – maybe joint with next session (scientific part)
- Working Group I
  - Side event of the Working Group on Forest and Water together with Silva Mediterranea at the European Forest Week 2015: the Working Party agreed on suggesting the topic: “Water as an ecosystem service provided by Forests” to the secretariat of Silva Mediterranea. This side event could strengthen the Working Group by Mediterranean members, as silvamed does not have a Working Group on water.
  - The Secretariat will elaborate options on how to contribute to the Forest and Water Action plan for the Working Party and especially to the Working Group on Forest & Water.
- Working Group II
  - The second workshop for practitioners is in the planning phase and it was agreed that based on the scientific session and discussions within the WGII the topic will evolve around “Woody debris”.
  - Secondly the WGII reassured the commitment for capacity building in the Southeast European area and agreed to act as delivery mechanism to a potential Technical Cooperation Programme by FAO. This includes that the WGII is an existing network which should serve as platform of information exchange, also beyond the project timeframe.

## **ANY OTHER MATTERS**

42. The following announcements were made:
- ▶ Stockholm Water Week, Sweden 2016
  - ▶ Interpraevent Luzern, Switzerland 2016
  - ▶ COP21
    - side event of ONF 9th December 2015 - 14.45 to 19.15, Sustainable Forest Management and Climate Change: ONF approach (for more information please contact [anthony.dubois@onfinternational.com](mailto:anthony.dubois@onfinternational.com))
    - Please pay attention to the petition to ensure that the impact of climate change on Mountain Peoples and Ecosystems is fully addressed in the UNFCCC COP21 new climate deal:<http://chn.ge/1Lm8Fpk>
  - ▶ The formal report will be prepared in English for comments and then translated to Spanish, French and maybe Russian.

## **CLOSING OF THE SESSION**

43. In his closing remarks, Thomas HOFER expressed high appreciation for the richness of the discussions and the quality of the presentations. The discussion on the implementation and all planned activities promise a fruitful future for the Working Party and by reaching out to new Focal Points these activities will be enriched and hopefully replicated. Thomas HOFER thanked Italy as host of the 30<sup>th</sup> Session, especially Roberto TOGNETTI, Alberto MATTEDI and Gian Antonio BATTIISTELLI, the representative of the venue (Giuseppe SCARASCIA); he thanked the participants and the team at the Secretariat in Rome. The Working Party looks forward to the next session in 2017.

44. Thomas HOFER thanked Olivier MARCO (France) for the support received as chair of the Steering Committee and handed over all duties as chair to Piermaria CORONA and Roberto TOGNETTI (Italy). Olivier MARCO thanked his team and the Working Party for the cooperation and offered support to the new chair Italy whenever needed. Roberto TOGNETTI expressed his gratitude and, also on behalf of his colleague Piermaria CORONA, is looking forward to chair the Steering Committee in the next two years and support all planned activities of the Working Party to the extent possible.

45. Thomas HOFER closed the 30<sup>th</sup> session in Pieve Tesino, Italy and expressed once more his gratitude to all participants.

46. The study tour on 23 September 2015 gave an introduction to the region around Pieve Tesino. Several topics, among others: transhumance, alpine pastures but also natural hazards and related protection measures were discussed.

## ANNEX A

**FINAL AGENDA**

**European Forestry Commission  
Working Party on the Management of Mountain Watersheds**



**30<sup>th</sup> session**

***Mountain Watersheds and Ecosystem Services:  
Balancing multiple demands of forest management in head-watersheds  
and  
Stakeholder Training Dialogue with Experts from the Alpine Convention***

**22-24 September 2015, Pieve Tesino, Italy**

Ecosystem services comprise supporting, provisioning, regulating and cultural services and forests contribute to all these categories. The services provided by forests in head watersheds range, among others, from erosion control, clean water to biodiversity and recreation. These multiple roles and the high sensitivity of head watersheds to environmental and socioeconomic changes encompass the need of balancing the different demands on forests by sustainable forest management. A shared understanding of how watershed management activities contribute to mitigate adverse impacts of these changes, as well as a sustainable use of the ecosystem services provided by forests is required.

In this session the Working Party on the Management of Mountain Watersheds wants to highlight the importance of these services, and show best practice examples on how to balance this provision and use.



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FREE UNIVERSITY OF BOZEN - BOLZANO



alpenkonvention - convention alpine  
convenzione delle alpi - alpska konvencija

## PROGRAMME

**21 September**

Arrival of the participants

**22 September** (technical session)

8.30 – 9.00 Registration of the participants

**9.00 – 9.30 Opening of the 30<sup>th</sup> Session of the European Forestry Commission Working Party on the Management of Mountain Watersheds**

**Welcome addresses:**

- Giuseppe Scarascia Mugnozza, Director of Department of Innovation of Biological Systems, Food and Forestry (University of Tuscia), on behalf of the organisers
- Alessandro Ruggieri, Rector of University of Tuscia, on behalf of the hosting institution
- Chiara Avanzo, President of the Council of the Region Trentino-Südtirol, on behalf of the regional government
- Romano Masè, Director of Department for Territory, Agriculture, Environment and Forestry (Autonomous Province of Trento), on behalf of the local authorities
- Roberto Viola, Director of Research and Innovation Centre (FEM-CRI, San Michele all'Adige), on behalf of the Edmund Mach Foundation
- Gernot Fiebiger, Fiebiger Consulting (Austria), on behalf of IUFRO
- Olivier Marco, Head of the Technical Department – RTM actions (Office National des Forêts, France), on behalf of the Working Party

**9.30 – 10.00 Introducing the European Forestry Commission Working Party on the Management of Mountain Watersheds**, Thomas Hofer (FAO)

10.00 – 10.30 Coffee break and poster viewing

Posters presented:

*"Preliminary study of the hydrological effects induced by human intervention in the forest and river environment in the mountainous sector of Jiu Watershed, Romania"*, Gabriela Adina Morosanu, University of Bucharest (Romania)

*"Ecological discharge in mountain catchments affected by the acid atmospheric deposition"*, Eva Pazourkova, Czech Technical University in Prague (Czech Republic)

**10.30 – 12.30 Scientific seminar: Balancing multiple demands of forest management in head-watersheds (part 1)** Roberto Tognetti (moderator), Coordinator of Project Centre on Mountain Forests (MOUNTFOR)

- *"Flood management in small alpine basins: the current approach of the Autonomous Province of Trento"* Marika Ferrari and Roberto Coali, Department for Territory, Agriculture, Environment and Forestry, Mountain Watersheds, Autonomous Province of Trento (Italy)
- *"DSS, ESS and participation method in planning: experiences and lessons learned"* Marco Ciolli and Maria Giulia Cantiani, Department of Civil, Mechanical and Environmental Engineering, University of Trento (Italy)
- *"Fluvial wood in mountain basins"*, Francesco Comiti, Faculty of Science and Technology, Free University of Bozen-Bolzano (Italy)

- *"Management of forest stands to enhance soil ecosystem services: innovation and projects carried out by the CREA-ABP"* Edoardo Costantini, Agrobiology and Pedology Research Centre - CRA (Italy)

12.30 – 13.30 Lunch

13.30 – 15.30 **Scientific seminar: Balancing multiple demands of forest management in head-watersheds (part 2)** Josef Krecek (moderator), Czech Technical University in Prague (Czech Republic), Department of Hydraulics and Hydrology (FSV)

- *"Ecohydrological-based forest management in semiarid forests"* Antonio del Campo García, Department of Hydraulic Engineering and Environment, Polytechnic University of Valencia (Spain)
- *"Hydrologic Processes in Forest Headwater Catchments"* Roy Sidle, Sustainability Research Centre, University of the Sunshine Coast (Australia)
- *"Mountain watershed: water and even more"* Aronne Armanini, University Centre for Advanced Studies on Hydrogeological Risk in Mountain Areas, University of Trento (Italy)
- *"Too much and too little water: How to share water in Mountain Watersheds"* Hans Schreier, Institute for Resources, Environment and Sustainability, University of British Columbia (Canada)

15.30 – 16.00 Coffee break and poster viewing

16.00 – 19.00 **Panel discussion and Expert and Stakeholder Training Dialogue on "Balancing multiple demands of forest management in head-watersheds"**

16:00 – 17:00 **Panel discussion**

Bernhard Wolfslehner (moderator), European Forest Institute, Central-East European Regional Office (EFICEEC)

- Thomas Hofer, Food and Agriculture Organization of the United Nations (FAO)
- Antonio Ballarin Denti on behalf of Paolo Angelini, Italian Ministry of Environment, Sea and Land Protection (Alpine Convention)
- Ekrem Yazici, FAO
- Hans Schreier, Institute for Resources, Environment and Sustainability, University of British Columbia (Canada)

17:00 – 18:30 **Expert and Stakeholder Training Dialogue**

Hans Schreier, University of British Columbia (moderator)

**Thematic topic 1: Forest, Water, Natural Hazard**

The stakeholder table will explore the practical interaction, risks and benefits that may derive to water and water management as a result of different forest management approaches. Stakeholders will be informed about the opportunities brought about by advanced forestry techniques to water quality, availability and management.

Moderator: Antonio Ballarin Denti, Department of Mathematics and Physics, Catholic University of Brescia (Italy)

Presenter1: Maria Patek, President of the "Natural Hazard" Platform of the Alpine Convention (Austria)

Presenter2: Thomas Hofer, FAO

**Thematic topic 2: Protective forests**

The stakeholder table will explore the protective forest function and analyse the implications of protective forests over different uses in particular: conservation, management, slope safety, protection of settlements and buildings, landscape, etc.

Moderator: Giuseppe Scarascia Mugnozza, University of Tuscia (Italy)

Persenter1: Emanuele Lingua, Department of Land, Environment, Agriculture and Forestry, University of Padova (Italy)

Presenter2: Benjamin Lange, Federal Office for the Environment (Switzerland)

**Thematic topic 3: Forests and green economy**

Based on the Rovaniemi Action Plan for the Forest Sector in a Green Economy the table will discuss the supply of marketed and un-marketed forest goods and services, the creation of revenue and livelihoods, the additional opportunities for growth and employment in the forest sector fostered by a GE, climate change, economic and climate-relevant forest ESs, common benefits of the forestry and other sectors

Moderator: Davide Pettenella, Department of Land, Environment, Agriculture and Forestry, University of Padova (Italy)

Presenter 1: Hubert Siegel, Federal Ministry of Agriculture and Forestry, Environment and Water Management (Austria)

Presenter2: Luca Cetara, European Academy of Bolzano - EURAC (Italy)

18:30 Plenary session and Conclusion

20.30 Social dinner

**23 September** (field excursion)

8:30 – 17:30 The Maso Watershed – Autonomous Province of Trento

**24 September** (business session)

08:30 – 09:30

- Working Group 1 “Forests and Water”
- Working Group 2 “Hazards and Disaster Risk Management in Mountains”

09:30 – 10.30 **National reports**

- Italy
- France
- Poland
- Czech Republic
- Austria
- Switzerland
- Finland

10:30 – 11:30 Coffee break and poster viewing

**11:30 – 13:00 Observer reports**

*"Current State of Research and Mitigation Strategy on Large Scale Landslide Disasters in Mountain Watersheds"*, Prof. Hideaki Marui (Niigata University, Japan)

*An International treaty for the protection and sustainable development of the Alps*, Giulia Gaggia on behalf of Simona Vrevc (Alpine Convention), and Francesco Dellagiacomma (Working Group Mountain Forests of the Alpine Convention)

*"Sustainable management of mountains forest and land resources under climate change conditions"*, Observer report of the FAO Subregional Office for Central Asia, Cholpon Alibakieva

13:00 – 14:00 Lunch and group photo

14:00 – 14:30 Keynote by Mia Suominen, Business Area Director, Vapo Ventures (Finland)  
*"Water conservation business arising from company's responsibility"*

14:30 – 15:00 Coffee break and poster viewing

15:00 – 18:00 Report of the secretariat and discussion on road map for the next biennium

- Communication (Homepage, Newsletter)
- Participation of member countries and partners
- Way forward of the Working Groups (potential topics, collaborations, projects, etc.)
- Date and place of 31<sup>st</sup> session

18:00 Closing of the 30<sup>th</sup> session

18.00 – 19.30 Visit of the Arboreto del Tesino – Giardinod'Europa (facultative)

## **25 September**

Departure of the participants

## ANNEX B

## EFC – Working Party on the Management of Mountain Watersheds



30th session  
22-24 September 2015, Pieve Tesino, Italy  
List of participants

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