UNITED NATIONS
ECONOMIC COMMISSION
FOR EUROPE

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

FOR A STRONGER AND GREENER ECONOMY
UNECE

UNECE/FAO Forestry and Timber

Impact of Climate Change on Forest Work

Conclusions and recommendations

Workshop held on 11 November 2013, Palais des Nations, Geneva

On 11 November 2013, the ECE/FAO/ILO Joint Expert Network to Implement Sustainable Forest Management organized a workshop to address climate change related impacts on forest work. At this meeting, participants identify those impacts, reviewed existing solutions and possible innovations to address them and formulated recommendations for different groups of stakeholders. Participants were also invited to submit their suggestions and comments, which have been included in the final version of the document.

1. General conclusions

The following conclusions are based on the contribution of speakers and other experts on 11 November 2013:

- Climate Change has and will continue to have a strong impact on forests, on the forest sector and on the implementation of Sustainable Forest Management in the UNECE Region. This impact needs to be addressed so that forests and the forest sector can respond to the multiple demands of society for goods and services.
- Adaptation to climate change has to be taken into account in nearly all forestry related activities: afforestation/ reforestation, management, harvesting and other silvicultural operations, transport, forest genetics, forest training and education, and forest research. The economic impact of climate change on the forest sector will be important and thus adaptation measures have to be financed by actors within and outside the sector.
- Forest entrepreneurs are at the centre of those changes. They not only provide raw material to the forest industry and renewable energy producers but they also contribute to the protection, regeneration and adaptation of forests to a changing environment. At a time when many stakeholders call for increased wood mobilization, forest entrepreneurs are crucial to the forest sector and its transition towards a green economy. Because of their central role in implementing sustainable forest management and of their vulnerability to climate change impact, special attention should be given to assist them in dealing with this impact on their activities.
- Forest owners and managers must adapt, amend and adjust forest management practices to better face and address impacts of climate change, by embracing the concept of adaptive management.
- Special attention should be given to the increased threat posed by pests and diseases, especially the introduction of alien pathogens. Genetic diversity, changes in forest management and integrated control methods will play a major role in this regard.

UNITED NATIONS
ECONOMIC COMMISSION
FOR EUROPE

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

FOR A STRONGER AND GREENER ECONOMY
UNECE

2. Recommendations

On the basis of the conclusions described in section 1, participants also developed the following recommendations.

Extreme meteorological events or climatic periods already influence and might affect the following even more strongly:

- Forest workers' health and security (accidents, diseases, allergies…);
- The seasonality of the work load and employment (e.g. unemployment risks due to reduced period of work);
- Weather related complications of conducting forest operations (temperature, wind, precipitations, snow, floods, soil bearing capacity, road transport conditions…)
- The type of forest work (windfall, sanitary operations…) and operational limitations as a result of soil conditions or fire risks (e.g., workers may have to work further from home in forests which can be harvested during thaws or fire seasons);
- The lack of attractiveness to work in the forest sector.

Working times, individual equipment (clothing, protection etc.), harvesting methods, training curricula and support for forest workers must be adapted accordingly. Skilled forest machines operators, but also manual tree fellers, are in demand, as well as specialists in developing sectors, such as wood energy. Forest entrepreneurs, who often are themselves forest workers, should also be trained to adapt to changing work circumstances, including risk management.

Forest owners and managers can also contribute to the adaptation of the supply chain by taking into account the health and safety of workers, the protection of soils and forests. This can be done by clearly defining requirements in harvest contracts, better planning harvest operations (including identifying alternative for sites that cannot be harvested due to climatic conditions or fire risks).

UNITED NATIONS
ECONOMIC COMMISSION
FOR EUROPE

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

FOR A STRONGER AND GREENER ECONOMY
UNECE

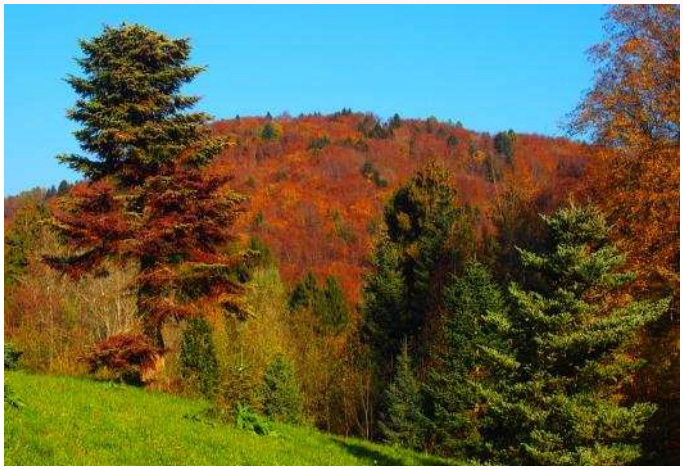
In many places changes in raw material flows and wood quality might affect the way forest-based industries manage their wood stocks. The operating season in the forest may become less predictable necessitating larger inventories of raw materials carried at forest manufacturing industries. Innovative supply solutions will probably be needed to avoid the deterioration of harvested wood. New products and manufacturing processes could help the utilization of raw materials that have heretofore been largely avoided (e.g. storm damaged wood or dead wood infested by insects).

Greater coordination between the different actors of the wood supply chain and improved risk management are required to plan for contingency and ensure a constant and smooth running of forest work. Any increased costs for harvesting due to the impact of climate change will have to be considered and planned for in contractors' financial offers and plans.

The technological and technical challenges include: suitable forest machines, which need to be cost effective; logistical aspects; treatments against pests and diseases in an environmentally friendly way… Investments in new road infrastructures and in the maintenance of existing road may be required to cater for the effects of changing climate (e.g., more "all season" roads with rock subgrade, ditching, etc.).

When dealing with forest work, decision makers should develop policy frameworks and regulations that take into account the specific needs of the forest entrepreneurs and other actors in the forest sector while supporting the implementation of measures to cope with the impacts of climate change.

Pictures taken during the field trip organized by the Swiss Government at the Aubonne Arboretum, Switzerland.



UNITED NATIONS
ECONOMIC COMMISSION
FOR EUROPE

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

FOR A STRONGER AND GREENER ECONOMY
UNECE

3. Priorities for joint action

The meeting concluded that joint action is needed by the actors of the forest sector with regard to:

Communication and awareness-raising
(with the following target groups: forest workers, forest entrepreneurs, forest owners, forest managers, government services and agencies relevant forest work, decision-makers, environmental NGOs and the general public).

Capacity-building, education and training at all levels to update competences (with the following target groups: forest workers, forest entrepreneurs, forest owners, forest managers, government services and agencies relevant forest work, decision-makers).

Research networking to share, further develop and disseminate available information:

- Disseminate available scientific information on climate change scenarios and their possible consequences on forests and forest work.
- Identify versatile economically relevant and environmentally friendly tree species and provenance that could cope with expected climate changes (with the emphasis on phenological and genetic resistance to pests and diseases).
- Model typical water content in forest soils and classify soils according to their load bearing and hydrological capacities. Model durability of forest roads under changing climate and the cumulative effect of repeated loading.
- Develop contingency planning to counteract the adverse effects of climate change in forest management and forest work, including the increased threats posed by forest pests and diseases.
- Further develop and disseminate best practices guides and online "Decision Support System" on suitable provenances, on bearing capacity of soils, on harvesting options etc.
- Research the impact of climate change on the health of forest workers (increased risk of injuries, diseases, especially vector-borne diseases).
- Create knowledge on the Economics of climate change impacts on forest work.
- Propose business strategies for forest entrepreneurs to adapt to climate change.

Some of the aspects listed above could be covered by a COST action (European Cooperation in Science and Technology).

For more information visit our website: http://www.unece.org/forests.html
or contact Mr. Arnaud Brizay (arnaud.brizay@fao.org).