Forest management in the face of Climate Change
The European state forests’ perspective

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Changing climate

Arctic
- Temperature rise much larger than global average
- Decrease in Arctic sea ice coverage
- Decrease in Greenland ice sheet
- Decrease in permafrost areas
- Increasing risk of biodiversity loss
- Intensified shipping and exploitation of oil and gas resources

Coastal zones and regional seas
- Sea-level rise
- Increase in sea surface temperatures
- Increase in ocean acidity
- Northward expansion of fish and plankton species
- Changes in phytoplankton communities
- Increasing risk for fish stocks

North-western Europe
- Increase in winter precipitation
- Increase in river flow
- Northward movement of species
- Decrease in energy demand for heating
- Increasing risk of river and coastal flooding

Mediterranean region
- Temperature rise larger than European average
- Decrease in annual precipitation
- Decrease in annual river flow
- Increasing risk of biodiversity loss
- Increasing risk of desertification
- Increasing water demand for agriculture
- Decrease in crop yields
- Increasing risk of forest fire
- Increase in mortality from heat waves
- Expansion of habitats for southern disease vectors
- Decrease in hydropower potential
- Decrease in summer tourism and potential increase in other seasons

Northern Europe
- Temperature rise much larger than global average
- Decrease in snow, lake and river ice cover
- Increase in river flows
- Northward movement of species
- Increase in crop yields
- Decrease in energy demand for heating
- Increase in hydropower potential
- Increasing damage risk from winter storms
- Increase in summer tourism

Mountain areas
- Temperature rise larger than European average
- Decrease in glacier extent and volume
- Decrease in mountain permafrost areas
- Upward shift of plant and animal species
- High risk of species extinction in Alpine regions
- Increasing risk of soil erosion
- Decrease in ski tourism

Central and eastern Europe
- Increase in warm temperature extremes
- Decrease in summer precipitation
- Increase in water temperature
- Increasing risk of forest fire
- Decrease in economic value of forests
EUSTAFOR is the European State Forest Association

» Platform of European State Forest Management Organizations
  
  – Pan-European expertise from main Forest Management Organizations in MS

» Advocating forestry in Brussels
Balancing forestry values with Sustainable Forest Management

Economic Value

- Largest single wood supplier in MSs
- Boosting economic prosperity and jobs
- Leading in moving Europe towards a bio-based green economy
- Reliable partners for industry, research and innovation

Environmental Value

- Forerunners in ecologically sound silvicultural methods
- Home for biodiversity
- Regulate climate, nutrient and water cycles, soil protection
- Protect against diseases, flooding, erosion and fire hazards

Social Value

- Ecosystem services and other non-material benefits
- Clean air and water supplies, recreation, scenic and cultural heritage
- Protect infrastructure
Adaptation within Sustainable Forest Management

» Adaptive forest management is priority in state forests

» Wide diversity, but overriding focus is on (active) SFM

– Silvicultural measures such as
  • planting of mixed stands,
  • selective thinnings,
  • decrease of rotation age,
  • multi-layer stands
  • ...

– Enhancing genetic resource management

– Increasing risks prevention

» Main challenge: uncertainties
EU forests are a growing resource
- 185 million hectares
- Felling / Increment = 65%

First signs of sink saturation*
- Need to manage forests

*Nabuurs et al. Nature Climate Change, 2013

Data source: eurostat
Climate Change

» “Effective and progressive response to the urgent threat of climate change”

» Global temperature rise this century “well below” 2 °C above pre-industrial levels (+ efforts for 1.5 °C).

» “Achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century”

Paris Agreement (2016)
Forest-based Bioeconomy for mitigating Climate Change

» Forests: GHG sink
» HWPs: carbon storage
» Wood: material and energy substitution
Adaptive forest management in state forests

» EUSTAFOR members are strongly engaged in adaptive forest management
  - National strategies
  - Own guidelines including mitigation & adaptation considerations

LesyČR - Bruntál Forest

large-scale clear cuts change into opened forest stands

dying spruce (change in needles colour and defoliation)

vital larch (fresh green colour)
Extreme weather events

Number of days yearly with temperature >30°C in 2005 and in 2080 (in one of the future scenarios)
Forest fires incidence

Impacts (example)

» One death, two people badly injured, 1 000 people evacuated, 70 buildings destroyed

» Total fire area 13 800 hectares - huge biodiversity loss - more than 50% of the standing trees died

» Massive efforts to limit the fire through fire safe corridors, water bombing from fire fighting aircraft, etc.

» Fire fighting for more than two weeks at a cost of 0,5 million euros/day

» Active fire fighting two weeks involving 2300 people

» 120 forest owners severely affected, total cost over 100 million euros

Forest fire of 2014 Västmanland, Sweden

Source: Sveaskog
Economic viability

» Adaptive forest management measures

» Natural disasters
  - Losses + restoration costs (storms, forest fires, pests)
  - Important market distortions (storms)

LesyČR - Water stream management
Policy aspects

» International set-up
   - Sustainable Development Goals (SDGs)
   - Paris Agreement
   - Convention on Biological Diversity
   - ...

» Forest-related EU policies
   - Which measures to promote? (CAP)
   - How to better account for climate action? (LULUCF)
   - ...

» National legislation

» Internal guidelines
Training & Knowledge exchange

» EUSTAFOR
  – Workshops
  – Working Groups

ONF – Workshop on forest fires

EUSTAFOR – WG Bioeconomy workshop
Awareness & Communication

» Understanding & explaining the complexity of forestry

» Understanding societal perceptions & needs

Polish Forest Winter School 2018

French media campaign
Conclusions

» Adaptive forest management is priority in state forests

» Uncertainties

  – Effectiveness/risk (time & space)
  – Trade-offs and economic viability
  – Policy framework (coherence)

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