

REGIONAL OVERVIEW

Key ecological, socio-economic and policy considerations

The Eastern Europe and Central Asia countries represented in this volume are very diverse. The area reaches from the coast of the Adriatic Sea to the snow-capped peaks of the Tien Shan Mountains, and displays a high bio-geographical, socio-economical and cultural diversity. Predicted climate change impacts are similarly varied, ranging from land use changes in the Balkans, to desertification in the lowlands of Central Asia and melting of glaciers in the alpine zone of the Caucasus.

A common feature of the region, however, is that the drought (xeric) limit of closed forests is present in nearly all of the countries and its appearance is foreseen as a result of projected climate change in the others. These areas tend towards semiarid conditions, and are ecologically very sensitive. At the xeric limit, the closed forest belt transitions to woodland or forest steppe vegetation. In Southeast Europe, the ecotone is a densely populated and agriculturally important zone that has been under human influence for millennia. This belt reaches from East-Central Europe across the plains of Southeast Europe (Romania, the Ukraine and South Russia) and of Northeast Kazakhstan far into Southern Siberia and North China (Manchuria). A narrower and fragmentary transition zone follows the southern and eastern mountainous rim of the Central Asian plain. Predicted increased frequency of droughts and sinking of groundwater levels may threaten the stability of forest ecosystems of this zone. These changes foreshadow problems, not only for the forests themselves, but also for the multitude of ecological services provided by forests to society.

Another critical feature of the countries in this region, with the exception of Turkey, is that they are in a phase of economic and social transition after deep political disturbances. The region is experiencing rapid social and economic restructuring, which has significant impacts on essentially all aspects of society as well as on land use and land cover. These changes have left their marks on forests and on the sustainability of forestry in general. They also influence these countries' current level of economic resilience and capacity to respond efficiently and effectively to the challenges of climate change.

Despite the unique set of conditions and needs in this region, these countries appear to be underrepresented in joint research programmes, in international deliberations on climate change and in regional initiatives. Mainstream research on climate change has relatively limited coverage of Eastern Europe and Central Asia. The European Commission's Green Paper on "Adaptation to climate change in Europe - options for EU action" (Anon. 2007) focuses to a large extent on the issues facing Western Europe, with relatively limited attention on those of Southeast Europe, such as the possible effects of increased droughts on the quality of human life and on ecosystem services. This is likely an indication of lower level of awareness of the specific problems faced by this part of the region.

Engagement in climate change policy processes at international level

The level of awareness of climatic threats in general and the readiness to take measures on the political level is high across the region. There is strong motivation in all countries to take appropriate measures. Most countries have ratified the United Nations Framework Convention on Climate Change (UNFCCC) and have taken steps to create the legal and administrative frameworks necessary to support climate change adaptation and mitigation action.

Two of the countries represented in this publication, Turkey and Ukraine, are "Annex 1" Parties to UNFCCC (i.e. industrialized countries or countries in economic transition), while the others are non-Annex 1 Parties. These two categories of Parties have a different set of commitments

under UNFCCC and the Kyoto Protocol, including as regards emissions reduction commitments, use of “flexible mechanisms” (e.g. the Clean Development Mechanism and Joint Implementation) under the Kyoto Protocol, and reporting requirements to UNFCCC and the Protocol. The non-Annex 1 countries have access to existing climate change funds as well as those pledged in the Copenhagen Accord and future funds designated for assistance to developing countries for climate change adaptation and mitigation actions.

Country responses to climate change

The country reports contained in this publication provide detailed accounts of the current status of national initiatives, legal and policy frameworks for developing climate change adaptation and mitigation measures in the forest sector. They include lists of related national publications, studies, and projects on climate change and on its potential impacts. The reports describe the work carried out by national research institutions on climate change and identify areas for potential FAO technical assistance and for collaboration with partner organizations.

The nature of threats to forest ecosystems and their ecological implications in this region differ considerably from those encountered elsewhere in Europe and Asia and in other parts of the world. This distinction has been largely overlooked in international negotiations, in scientific studies on forests and climate change, and by international assistance programmes. The reports highlight specific circumstances and needs of these countries.

It is notable that despite awareness of the potential impacts of climate change in general terms, the country reports in this publication contain little information about observed effects of climatic changes on forests. Although details on the extent of climate change experienced in the last century are mentioned, impacts of increasing aridity in the second half of the twentieth century on the vitality or stability of forest ecosystems are not discussed. Similarly, detailed references about changes in the status of forest health (i.e. incidence of insect pests and diseases) in connection with climatic extremes are limited. The absence of such references indicates either that forests have not yet been negatively affected, forest monitoring is not sufficient to detect the changes, or the priority accorded to analyzing impacts of climate change is low. Impacts of climate change (albeit compounded by other, non-climatic stresses) on forests are evident in other regions, so it is unlikely that this region is exempt. Whatever the case, intensified efforts to focus attention on assessing the extent and nature of climate-induced changes on forests in the region are warranted. Several countries do not have a detailed weather/climate database and the climatological background necessary to downscale large-scale predictions to finer, local scale. The development and use of regional climatic and impact models are preconditions for effective identification of climatic impacts and for planning adaptation measures in the forest sector.

A sound forest monitoring system is another prerequisite for an effective climate change response. In general, forest information bases are relatively well developed in the countries of this region, although recent economic difficulties have led to reduced support for inventories. The level of available data on the exact distribution, area, type, structure etc. of forests varies considerably by country. Most countries feel that further development of monitoring methods is required.

Dwindling water resources and growing economic activity cause serious constraints in water supply especially in Central Asian countries. Little information is available, however, on the effect of changes in groundwater level in forest ecosystems. None of the reports address the fact that although forests are important for the regulation of the hydrologic system and for delivery of clean water, at the same time they are heavy consumers of water. Especially in areas at the aridity (xeric) limit of forest zones, the question of allocation of available water among uses may (and most probably will) arise with declining rainfall and increasing temperatures. Forest strategies of countries at the xeric limit have to deal with this issue. Some of the reports mention the risk to forests of

increasing frequency of wildfires as a result of aridification; this too is an area that should be investigated and addressed in connection with climate change in all countries of the region.

All countries reported in detail on laws and regulations regarding forestry, on the development of national forest strategies, policy documents etc. Only some, however, make reference to climate change adaptation measures. The response strategy most commonly mentioned is to continue efforts to achieve sustainable management of forests (e.g. increase of forest area, nature-close silviculture, introduction of certification etc.). The identification of specific silvicultural measures to increase the resilience of forest ecosystems in the face of climate change is a possible theme for future collaboration or workshops. Thus, there is a need to adjust national forestry policies and legislation and develop strategies in line with international obligations, taking in account the potentially important role of forests in climate change adaptation as well as mitigation.

Although the countries have laws designed to support the sustainable management and use of forest resources, the reports refer to illegal harvesting, law enforcement problems and unsustainable forest and agricultural land use. These contribute to forest degradation in a number of countries. The underlying drivers of deforestation and forest degradation have to be resolved and legal framework strengthened if sustainability and, in turn, resilience is to be achieved in the region.

Some of the reports highlight the importance of forestry to rural socio-economic conditions in the countries, but analysis is limited with regard to the future status of forestry in rural societies under changed conditions. Further work is needed to understand the ecological, economic and social role of forests and forestry in the region in a changed environment and the related cross-sectoral dynamics.

Adaptation in many countries will also necessitate the adjustment of policies on nature conservation. The reports indicate a high commitment to protection of biodiversity in the region. Although the designation and maintenance of protected areas is a positive development, the reports do not indicate plans or current management measures that take into account the expected impacts of climate change and their consequences for protected ecosystems. The predicted impacts and necessary adaptation measures are expected to be similar in neighbouring countries; therefore the potential for cross-border collaboration is significant. Despite this, the reports indicate that very few bilateral and regional cooperation programmes on forests and climate change have been initiated in the region. Such interactions and cooperation may help to overcome shortages in financing, research facilities and human and institutional capacities in individual countries. Regional networks could be developed to facilitate the sharing of information and experiences on forests and climate change among countries in the region.

The way ahead

Any progress in adaptation to climate change requires well conceived strategies and plans, a sound legal framework and an effective system to monitor developments. National climate change strategies and national forest strategy documents are of particular importance, but in many countries in the region these documents do not contain specific references to adaptation actions in the forest sector. Initiatives to formulate management guidelines and concrete silvicultural measures ("best practice") for adapting to climate change are needed. Criteria and indicators of progress in adaptation will need to be specified.

Permanent and reliable monitoring of climatic impacts has to be improved, taking in account the specific threats to forest ecosystems at the xeric limits, to survey changes in site potential, forest fire frequency, insect and disease outbreaks and other disturbances in forest ecosystems (e.g. growth decline, diversity loss, soil carbon degradation etc.). Forest damage statistics and forest health monitoring data have to be incorporated in the national forest information system. The realistic assessment of future climatic risks needs locally available weather and climate data as

well as downscaled, regional climatic and impact models. This is essential for effectively formulating tasks of adaptation and mitigation.

It is crucial that countries have the capacities in the forestry sector to identify threats and implement appropriate measures. Some countries of the region have expertise in climate change vulnerability and impact assessments as well as with development of forest carbon projects. Still, in nearly all countries the organizations responsible for forest data collection (inventory), monitoring and supervision need strengthening. Similarly, many countries need assistance in new climate change-related tasks, such as carbon accounting, the preparation and practical implementation of adaptation projects and the distribution of benefits. There is a need to upgrade professional education and postgraduate training to meet the specific challenges of climate change. Research and development of technologies are needed to reduce the risks and increase resilience of forests in the region. Significant knowledge gaps exist in all countries, including on the effect of climate change and variability on ecological stability, productivity and vulnerability of forest ecosystems, the climate tolerance and adaptability of main tree species and the carbon dynamics in forest ecosystems. Methods of terrestrial and remote-sensing inventory and monitoring in order to identify effects, to specify measures and to forecast future impacts, need also development. The potential of supporting research through existing forest research networks has to be explored.

Adaptation to predicted changes means new, perhaps unconventional, approaches and new tasks, which cannot be accomplished without further raising the awareness of professionals (through training, pilot projects, publications). To win public and political support, active involvement of the media and of educational institutions is necessary.

A shortlist of priorities

The reports mention a number of needs related to forests and climate change adaptation as well as mitigation. These were discussed and synthesized during the workshop in Sopron into three main areas: policy, forest management, research and training. The main points of common interest were summarized as follows:

Policy:

- Updating of forest and environmental laws, development of administration and governance;
- Development of strategies and policies in forestry for climate change adaptation;
- Development of international collaboration and of exchange of experiences;

Forest management:

- Development of “good practice” for climate change adaptation in forestry;
- Development forest inventory methods for climate change adaptation;
- Improvement of field and satellite monitoring of impacts;
- Support in forest reconstruction, afforestation, shelterbelt planting etc.

Research, development and education:

- Research in forest vulnerability to climate change impacts;
- Development of carbon inventory, accounting and economics;
- Capacity building in research, e.g. in modeling techniques;
- Capacity building of professional staff in climate change adaptation (graduate and postgraduate);
- Improvement of methods to advance public awareness.