

International Conference on Climate Change and Forestry (ICCCF'2019) Final Declaration

The International Conference on Climate Change and Forestry (ICCCF'2019), organised by The Foresters' Association of Turkey, was held on 13-14 November 2019 in Antalya. Forty-nine papers were presented at the Conference which included the participation of International Union of Forest Research Organizations (IUFRO) President Dr. John Parrotta and European Forest Institute (EFI) Deputy Director Dr. Robert Mavsar. The Final Declaration of the Conference was drawn up in the light of papers presented, evaluations and discussions.

There are mutual and complex relationships between climate change and forests. While on one hand, forests are effective in reducing the amount of CO₂ in the atmosphere, climate change can also negatively affect forests. Forests are still the most important mechanism through which humanity can reduce CO₂ in the atmosphere. However, forest areas are continuously diminishing throughout the world. As a result of this process, which is referred to as deforestation, each year 3,3 million ha of forests vanish globally. Carbon sinks become narrow as a result of deforestation and land use changes and the carbon in those sinks return to the atmosphere. Of the global carbon emissions of 11,2 billion tons in 2017, 1,3 billion tons, resulted from deforestation and land use changes. While two thirds of the cumulative greenhouse gas emissions since the Industrial Revolution arose from the use of fossil fuels, one third was due to deforestation and land use change. Deforestation of tropical forests is of great importance, as it is used to create very large agricultural fields; and tropical forests sequester the highest amounts of carbon in terrestrial ecosystems. For that reason, preventing deforestation and land use changes is a factor that cannot be ignored in research on reducing greenhouse gas emissions. However, forest ecosystems everywhere are among the most important carbon sinks globally, due to the living plants and soils, and even the dead organic matter, which are elements of these ecosystems. It is crucially important that forest areas are extended with afforestation efforts: decisions on afforestation were made in the Paris Agreement of 2016. In addition to forestation works, it is necessary that damaged and degraded forest areas are restored and carbon stocks in forests are increased to fighting against climate change.

Heat waves, storms, irregular rainfall and drought, floods and overflows, landslides and rising sea levels which occur due to increasing global temperatures affect forest ecosystems and all organisms in those ecosystems. It is expected that those negative effects will force organisms to migrate towards the north (in the northern hemisphere) or to higher altitudes in mountainous areas. However, it is possible that some species will not migrate since climate is changing rapidly. In addition, barriers such as manmade roads inhibit species migration. Thus, species that cannot migrate must either adapt to changing conditions or face extinction if they cannot adapt. Furthermore, increasing temperatures and long summer droughts increase the risk of forest fires. Similarly, increases are expected in insect pests and fungal pathogens. With increasing establishment of invasive species into forest ecosystems, naturally occurring species will be removed from the environment. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has estimated that a further one million species on earth will face extinction risk due to the combined impacts of factors such as habitat fragmentation, climate change, invasive species, overuse and pollution.

The following decisions were made at the conference for increasing the role of forests in fighting climate change and preservation of forest ecosystems:

- Countries which have not yet signed the Paris Agreement should sign immediately and implement urgent measures to reduce their greenhouse gas emissions.

- Permits are given in many countries for various uses such as mining, energy, tourism facilities, in forested areas. Essentiality and superior public interest should be the priority for allocation of forest areas for other uses.
- Environmental Impact Assessments should be compulsory before any non-standard activities are conducted in forests or other natural ecosystems, prioritising whether the activity causes deforestation and its impact on greenhouse gas emissions.
- Legislative regulations which increase pressures on forests and other natural ecosystems should be avoided in all countries.
- Instead of manufacturing excessive wood raw material which decrease carbon stocks in natural forests, industrial facilities processing wood raw materials should start working towards establishing plantations to meet the raw material needs of industry and such efforts should be supported by governments.
- One of the most significant negative impacts of climate change is increasing the frequency of forest fires. Firefighting techniques should focus on preventing rather than extinguishing fires.
- It is important that forest areas are extended with afforestation programmes. However, it should be noted that afforestation on former agricultural land and pasture areas which are significant for food production do not pose a risk to food security.
- Natural old growth forests should be protected and preserved areas should be extended to include mountain summits.
- Fragmented forest ecosystems should be interconnected with ecological (wildlife) corridors.
- Silviculture practices should be designed to increase resilience of forests in the face of climate change related disasters.
- Drought resistant varieties of forest tree species should be identified. Relict forests included in steppes constitute an opportunity in that respect and should be preserved.
- Genetic, species and ecosystem diversity in forest ecosystems should be preserved.
- All necessary measures, including quarantine, should be applied to prevent invasive species crossing geographic and political borders by means of seed or sapling imports or equally effective ways.
- Natural species should be used for afforestation and creation of mixed forests should be supported.
- New urban forests should be created within and near cities in cooperation with municipalities.
- Villages and villagers depending on forests where rural poverty is high are fragile in terms of climate change and desertification. To prevent these impacts, research should focus on increasing rural welfare and employment.
- New approaches such as ecosystem-based adaptation, smart agriculture and forestry should be introduced and generalized for prevention of land destruction in agricultural, pasture and forest areas, increasing the amount of sequestered carbon and adaptation to climate change.
- It is essential to identify the potential areas into which forest species can be usefully extended with modelling studies; these areas for extension can be determined with climate change projections and significant habitats preserved for continuation of species.
- It is essential that ecological, economic and social indicators of Sustainable Forest Management criteria, regarding reduction and prevention of climate change are also developed. Certification of forests where production occurs and their management should be compulsory.

- Correct information flows the public should be ensured in relation to forests and climate change and educational studies conducted on relationships between climate change and natural ecosystems, including forests. It is necessary to include climate change as a subject in the curriculum for primary and elementary schools, presenting adaptation and mitigation topics. As climate change concerns every field of forestry, it should be linked with all courses in forest faculties and included broadly and specifically in the curriculum.