Inventory Emissions from Direct Human-Induced Degradation of Forests and Devegetation of Other Vegetation - Mexico

The Intergovernmental Panel on Climate Change (IPCC) at its XIX Session on 17-20 April 2002 responded to the decision on land use, land-use change and forestry (LULUCF) adopted by the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) at its seventh session (Decision 11/CP.7; Land use, land-use change and forestry) in the Marrakesh Accords (paragraph 3(c))3 which invites the IPCC: To develop definitions for direct human-induced 'degradation' of forests and 'devegetation' of other vegetation types and methodological options to inventory and report on emissions resulting from these activities, to be submitted for consideration and possible adoption to the Conference of the Parties at its ninth session. The IPCC Panel indicated that the work was to produce a methodology report prepared in close cooperation with the preparation of the report on Good Practice Guidance for Land Use, Land-Use Change and Forestry (GPGLULUCF). The purpose of this report, as indicated by the IPCC Panel in the Terms of Reference for the work (Appendix J of the Report of the Nineteenth Session of the Intergovernmental Panel on Climate Change), is to "…respond to concerns that selection of eligible activities under Article 3.4 of the Kyoto Protocol could give rise to an unbalanced accounting if certain types of degradation or devegetation activities are not included. The report would develop definitions for direct human-induced degradation of forests and devegetation of other vegetation types, develop methods to inventory emissions from these activities and analyse the implications of different options to include the accounting of these activities under the provisions of Article 3.4 of the Kyoto Protocol, including the relation to forest management and revegetation."

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES (GRA)

(Alianza Global de Investigación sobre gases de efecto invernadero en la agricultura)

Mexico began its official participation in the Global Alliance of Research on Greenhouse Gases in Agriculture (http://globalresearchalliance.org/) when the Secretary of Agriculture of our country went to the City of Rome in June 2011, Italy, an agreement of understanding or collaboration agreement (http://globalresearchalliance.org/n/global-alliance-membership-grows/). At that time they signed the agreement of the representatives of 33 countries and the GRA. There are now 47 countries belonging to the Alliance.

The INIFAP, by the GRA, to attend the first formal meeting of work in the City of Versailles, France, from February 26 to March 6, 2011. Also, it should be noted that INIFAP has participated since 2007 in the LEARN Working Group (Emissions Reduction and Livestock Reduction - https://livestockemissions.net/about/), which was created and led by the Government of New Zealand since 2000 to address emissions studies of greenhouse gases in the livestock sector. This New Zealand working group laid the groundwork for integrating the GRA.

Permanent plot establishment to assess climate change impacts upon Izta-Popo National Park

In order to have a baseline of information to monitor the potential impacts of climate change on forest ecosystems nine 1 ha permanent sample plots (PPM) were established and characterized at the Izta-Popo National Park, Mexico, which were placed in three areas: Paso de Cortés, Llano Grande and Tláloc in the three altitudinal levels of 3 500, 3 700 and 3 900 m in Pinus hartwegii forests. For the trees > 7.5 cm DBH, mensuration parameters of basal area, volume and biomass were estimated. Using the statistical model of the nested design, significant differences between areas to 0.05 for the volume is detected, while for the basal area and biomass potential differences may occur at 0.1. However, through the ANOVA that considered a linear combination of all variables, significant differences between areas with an alpha of 0.05 were confirmed. The mensuration condition of the trees present in the established PPM at the Izta-Popo National Park suggests a Pinus hartwegii forest structure with few natural regeneration and presence of pests and diseases, which in the medium term may increase due to the maturity and lack of management of the specimens. The plot area shows no signs of land use changes, making it a good place for monitoring and its relation to climate variations.

Mexican Climate Change Report GROUP III EMISSIONS AND MITIGATION OF GREENHOUSE GASES

Warming in the climate system is unequivocal, and since the 1950s many of the changes observed have not taken precedence over the past decades to millennia. The atmosphere and ocean have warmed, snow and ice volumes have declined, sea levels have risen and concentrations of greenhouse gases (GHGs) have increased (IPCC, 2013, p.4). This scenario is caused by natural and anthropogenic substances and processes that alter the energy balance of the Earth (IPCC, 2013, p.13).
It is necessary to point out that much of the anthropogenic climate change resulting from CO2 emissions is irreversible on a time scale of several centuries and millennia (IPCC, 2013, p.28). Therefore, to establish a lower warming target, or a greater chance of remaining below a specific warming target, the cumulative CO2 emissions will need to be lower (IPCC, 2013, p.28).
To achieve such a reduction in emissions it is important to talk about mitigation. According to the UN Intergovernmental Panel on Climate Change (IPCC), mitigation of climate change can be understood as human intervention aimed at reducing sources or enhancing sinks of greenhouse gases (IPCC) , 2014, p.135).
The Summary for Policymakers of Working Group III of the IPCC's Fifth Assessment Report refers inter alia to trends in GHG stocks and flows and their causes; as well as, the paths and measures of mitigation in the context of the sustainable development

Analysis of vulnerability to climate change in mountain forests in Latin America

Mountain forests, especially in the tropics, are considered particularly vulnerable to the effects of climate change. The loss and degradation of these forests as a result of climate change would have serious consequences for their biodiversity and for the ecosystem services they currently provide to millions of people. However, there is little concrete knowledge of what the ecological changes in these forests could be and what management measures would be appropriate to facilitate adaptation to climate change. Due to this, the regional program Impacts of climate change on forest ecosystems in Iberoamerican mountain ranges and tools for the adaptation of management (Climiforad) designed a tool for the analysis of the vulnerability to climate change of forests in mountain ranges and applied it in five (Honduras, Colombia and Costa Rica), subtropical (Mexico) and temperate (Chile) and under different management models (model forests and protected areas). Vulnerability analysis is a first step in adaptive management because it lays the groundwork for concrete adaptive forest management approaches.
The proposal builds on the vulnerability analysis framework of the fourth IPCC evaluation report, widely applied in recent years. Exposure assessment was done using simulations of future potential climates using a statistical downscaling approach. The proposal, in particular, developed an innovative approach to estimating the ecological sensitivity of forests, building on the assemblage of dominant tree species and their potential response to climate change. The forest sensitivity analysis evaluated, for each dominant tree species, a series of functional attributes or traits linked to its potential response to climate change. In addition, the extension of the altitudinal distribution of the species in the territory was considered. The degree of sensitivity was determined by the combination between the functional type of the species and its altitudinal distribution. Adaptive capacity was assessed using tools
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standards for the measurement of territorial management effectiveness, the identification of socio-economic characteristics and the response capacity of human populations to climate change.

In all the territories there will be potentially an increase in maximum and minimum temperatures throughout the 21st century. The simulations show that the most important changes in climate are likely to occur for temperature-related variables rather than precipitation variables. The high exposure of tropical territories to temperature change, combined with the high sensitivity of dominant species, suggests that they will have a high potential impact. Tree species can be placed on a sensitivity gradient: at one end of the spectrum there is a group of broadly-distributed species of acquisition and distribution that are not sensitive to climate change, while at the other extreme there are conservative and highly restricted species classified as highly sensitive. It was found that the sensitivity of the forests is greater in the tropic territories and, within these, is more pronounced in the lower and higher parts of the mountain ranges. Adaptive capacity, combined with potential impact, determines the degree of vulnerability of a territory. Adaptive capacity in the territories was considered medium to low because neither managers nor settlers had sufficient knowledge about climate change, adaptation and mitigation; neither are resources planned or invested to mitigate impacts. Such issues are absent from management plans. As a starting point, a list of dominant species highly sensitive to climate change is proposed for each territory, as focal species for the implementation of adaptation measures. We hope that the proposed tool will support ecosystem conservation efforts in the face of climate change, mainly by applying the approach to estimating the ecological sensitivity of the assemblage of dominant tree species.