

ARGENTINA

Reducing emissions from deforestation in developing countries.

1. Mandate

The 11th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC – November/December 2005) decided to consider “issues relating to reducing emissions from deforestation in developing countries, focusing on relevant scientific, technical and methodological issues, and the exchange of relevant information and experiences, including policy approaches and positive incentives”, beginning at the twenty-fourth session of the Subsidiary Body on Scientific and Technical Assessment (SBSTA)¹. The 24th session of the SBSTA (May 2006) agreed to continue the consideration of the issue at SBSTA 25 (November 2006). A workshop regarding this issue was held in Rome, from 30 August to 1 September 2006.

At its twenty-fifth session, the SBSTA invited Parties not included in Annex I of the Convention to submit to the secretariat, by 23 February 2007, “any updated information and data additional to that provided in their latest national communications on emissions and trends in deforestation, data needs, and policies and programmes in place or being considered to address deforestation and its root causes”².

Argentina welcomes this opportunity to provide information about this matter.

2. Emissions

a) Analytical Sub-modules

For analytical purposes, the Argentinian Land Use, Land Use Change and Forestry (LULUCF) sector could be divided into four sub-modules: 1-changes in forest and other woody biomass, 2-forest and grassland conversion, 3-abandonment of managed lands and 4-CO₂ emissions and removals from soils. This is a sector with removals and emissions of Greenhouse Gases (GHG). The main gas emitted by the LULUCF sector is CO₂.

1-Changes in Forest and Other Woody Biomass. For year 2000, a net atmospheric C removal of 15750 Gg CO₂ was obtained. Subtropical forests, mainly the Chaco dry forests, had the largest area (2118 kha) under logging, firewood and charcoal management. Subtropical humid forests contributed 61% of absorption, 50% of emission and 68% of net removal of CO₂ from this sub-module. The temperate humid forests did it with 26% of absorption, 23% of emission and 28% of net removal of CO₂. Tree plantations contributed 89% of the carbon absorbed, and 6% of C emissions of managed forests; they were the unique net C sink in this sub-module. Tree plantations (pines, eucalypts and Salicaceae), mainly from humid areas, have high growth rates and were being harvested at lower rates than those of growth. Consequently, despite the relatively small planted surface, they were the main CO₂ sinks from this activity.

2-Forest and Grassland Conversion. For the same year, total release of CO₂ was 9249 Gg CO₂. Subtropical humid forests and Subtropical dry forest contributed respectively 52% and 48% to that total. The main fraction of emissions from subtropical humid forests came from the province of Misiones (26%) and the Yungas ecosystem (21%). In reference to the Subtropical dry forests,

¹ FCCC/CP/2005/5, paragraph 81.

² FCCC/SBSTA/2006/L.25, paragraph 7.

the main portion of the emissions came from the western region of the province of Chaco with 47% of the country total. This highlights the more active areas of conversion in the analyzed geographical interval: NW Argentina piedmont and Chaco lands.

3- Abandonment of Managed Lands. Total removal by successional recovery of forest lands was 48747.5 Gg CO₂ in 2000. Subtropical humid forests captured 56% of that C, mainly by the Selva Misionera, in the province of Misiones, and the forest of the eastern part of the province of Chaco. The remnant 44% removed C was due to the recovery of Subtropical dry forest of western Chaco lands.

4-CO₂ emissions and removals from soils. The change in the carbon within the soil is a preliminary estimation based in lands devoted to agriculture as in year 2000. Total amount was 11308 Gg CO₂ of emission. From 1980 to 2000, the cultivated surface increased about 3.5 x 10⁶ ha. This increase was concentrated in high activity soils that were supporting about 80% of the cultivated area. Eighty-five percent of the increase in cultivated areas was found in the southern Chaco-Pampean region. The abandoned lands represent a soil C sink that counteract part of the soil emissions of agricultural lands. The huge surface of abandoned lands in the period (*ca.* 10 x 10⁶ ha) was nearly 50% of lands under cultivation, what may be an overestimation and should be revised in future work.

b) CH₄, N₂O, NO_x and CO emissions

The emissions of CH₄, N₂O, NO_x and CO gases for year 2000 gave the following values: 27.8; 0.19; 6.91 and 243.24 Gg, respectively. The gases increased between 1994 and 1997, and decreased at year 2000 to similar 1994 values. Those gases come from biomass burning when forest lands are converted to other uses.

Taking into account the first three sub-modules it can be concluded that tree plantations and abandoned successional forest lands were the main sinks of atmospheric CO₂ for year 2000. The removal of atmospheric CO₂ by abandoned lands were nearly 3-times higher than that of planted forests. Both processes together were 7-times higher than the CO₂ emitted by conversion of forests. Losses of CO₂ from the soil (11,308Gg CO₂) were 1/5 of atmospheric CO₂ net removal (-55,248Gg CO₂) due to forests. The release of soil CO₂ to the atmosphere was somewhat higher to emissions by conversion of forests to agriculture and cattle raising lands. According to the total balance for the country, changes in land use and forestry in Argentina for year 2000 resulted in an estimated atmospheric net removal of 43,941 Gg CO₂.

The removal due to changes in forest and other woody biomass was lower in 1990 (-12,462 Gg CO₂); later it increased to oscillate slightly between -15,750 Gg CO₂ (years 1994 and 2000) and -15,209 Gg CO₂ (year 1997). The emissions by conversion of land use increased from 1990 to 1997, period in during which it went from 8,642 Gg CO₂ to 15,357 Gg CO₂. Subsequently in 2000 emissions by conversion were 9,250 Gg CO₂, similar to 1994 value; both years had similar deforested areas: 269 (year 1994) and 267 (year 2000) kha. The greatest emission by conversion in 1997 was related to the deforestation of 335 kha. The removal due to the abandonment of land showed an increasing trend during all the 1990-2000 interval . The abandoned areas in that temporal sequence were 3,473 (only western Chaco), 5,600, 6,100 and 10,700 kha, for the four consecutive inventories. The important contribution of successional processes in the removal of CO₂ is noticeable when comparing the removal of CO₂ by abandonment of lands in the considered periods (-11,514, -29,079, -30,414, -48,747 Gg CO₂) with the trend in net total removal by LULUCF (-15,334, -34,807, -30,265, -55,249 Gg CO₂).

3. Trends in deforestation

Twelve percent of the continental surface of Argentina corresponds to native forests. According to data available from different sources, the surface covered by forests at the beginning of the XX century was of approximately 100,000,000 ha. By 1956, this surface was reduced to the half, and the preliminary results of the First National Inventory on Native Forests obtained in 2000 by the Forests Direction of the Secretariat for Environment and Sustainable Development (SADyS) show that forested lands have decreased to 33,190,442 ha by 1998.

The depletion of native forests in Argentina since the end of the XIX century has had economic, social, political-institutional and technological causes. The need to incorporate new land for agricultural production, the increasing pressure on natural resources due to industrialization, forest fires and inaccurate promotion policies towards productive development have been some of the contributing factors. In addition to this, it has to be taken into account that vast areas of native forests are under jurisdiction of monetary poor provinces. This situation contributes to the loss of forests, from which products for the market and for subsistence, such as firewood, are extracted. Also, it creates conditions for land use change through agricultural projects.

Maintaining the productive capacity of forestry ecosystems is a constitutive part of the Argentinian broader strategy aimed at fighting against the process of deforestation.

For the first time in Argentina, the Forests Direction of the SADyS has started to calculate the deforestation rate through satellite images, having finished the research in six provinces. The results for the considered period (1998-2002) are now available:

Province	Deforestation Index
Chaco	117,974
Salta	194,389
Santiago del Estero	306,055
Formosa	20,212
Córdoba	122,798
Misiones	67,233
Total	828,661

4. Data needs

The quality of the information for the country subtropics available at year 2000 is superior to that of previous periods. This fact gave researchers the opportunity for a better estimation of abandoned areas and deforestation rates in the region of the country that is contributing more, in the LULUCF sector, to GHG inventories. However, it introduces some difficulty in the inter-period comparison and in the analysis of the differences observed in the sub-modules relative to conversion and abandonment of forest lands. Unavailability of soil C change information for previous GHG inventories precludes a commensurable comparison.

Data about native and plantation forests' products, soil maps and cultivated area maps proceeds from national government agencies that guarantee a uniform treatment of information for the complete national territory and accessibility, such as the National Institute of Agricultural Technology (INTA, in Spanish), the National Secretariat for Agriculture, Husbandry, Fisheries and Food (SAGPyA, in Spanish) and the Forestry Bureau of the Secretariat for Environment and Sustainable Development (SAyDS, in Spanish). Notwithstanding, there are difficulties with the statistics of native forest products, attributable to diverse causes, that generally imply underestimation of figures. Other needed variables for GHG inventories are not registered by governmental agencies or local scientific or technical publications, and were estimated

indirectly. Quality of data and uncertainties levels associates with the difficulties indicated in documents bringing that information, and also, to the magnitude of data manipulation when they are not available, do not adapt to the scale or area considered, and have been calculated indirectly or estimated under some assumptions.

As indicated, the quality of available information about several important issues for GHG inventories has improved and increased strikingly in the period. However, in contrast with national information and accessibility the provincial agencies situation is much more heterogeneous with reference to accessibility, quality and quantity of information they register. In general there was:

- 1- *Absence of necessary data for GHG inventories sector LULUCF*; such as forest statistics lack data on areas of deforestation, harvest and abandonment. There are not enough data about structure and biomass of ecosystems; there are only a few local emission factors. The cartographic units of the digital Soil Atlas (provided by INTA) involve only data on the dominant soil in the units, and the written information do not include critical data about soil depth, bulk density and distribution of soil organic carbon. Also, the Agricultural Atlas (published by SAGPyA) would be more useful if it included tree plantations' areas cover.
- 2- *Inconsistent data*. To some extent, the national and provincial statistics are inconsistent between them.
- 3- *Heterogeneous quality*. The quality of the provincial statistics ranges from very good to unsatisfactory. Moreover, accessibility to data in the provinces varies from very easy to null.
- 4- *Underestimation*. In general, statistics do not offer precise figures of products reported. It can be considered that the reported figures taking into account the available data do not reflect the real situation.

5. Policies and Programmes

a. Being considered:

Draft bill on "Minimum Stocks for the Protection of Native Forests".

Goals: to guarantee the sustainable use of native forests, keep the present planted surface of native forests, implement measures to increase that surface, and promote the application of conservation, restoration and sustainable use measures.

b. In place:

Action Plan

The aim of the Action Plan is to promote the conservation and the sustainable use of native forests. At the Secretariat of Environment and Sustainable Development several programmes being are carried out:

1. Programme on Non-Wood Forest Products (PFNM)

Goals: To compile, systematize and publish the existing information on non-wood forest products from native forests as an essential tool for the sustainable management.

2. Forestry Statistics Programme

Goals: To produce accurate, suitable and timely statistics for the forestry sector. *3. Model National Forests Programme (PNBM)*

Goals: To promote the sustainable development in the frame of the integrated management of forest national resources; to develop innovative methods, proceedings, techniques and concepts for the management of forestry ecosystems; and to promote strategic participatory planning.

4. Sustainable Forestry Management Programme

Goal: To promote the sustainable management of forestry ecosystems.

5. Hydrographic Basins Management Programme

Goal: To assist the Director of Forests on activities related to hydrographic basins management.

6. Programme on Forestry Regulation

Goals: To compile, analyze and propose regulation linked to the sustainable management of native forest resources.

7. Forestry Assessment System Management Unit (UMSEF)

Goal: To monitor the native forests area and to update the information of the database created for the detection, quantification and follow up of natural or anthropic origin processes that change the structure and/or the extension of natural forestry ecosystems.

8. National Programme on Criteria and Indicators of the Montreal Process

Goals: To promote a shared and accepted conception on the meaning of “sustainable forestry management” and to provide a common frame to describe, estimate and assess the progress of Argentina towards the national sustainability on the forestry field.

9. Social Programme on Forests (PROSOBO)

Goal: To increase the national forested area while providing technical and financial assistance for the development of projects oriented to plantation of native species and to the restoration of depleted areas.

11. Native Forests Project (BIRF 4085-AR)

Goals: To study the native forest system from an environmental, economic and social perspective, starting from a qualitative and a quantitative analysis; to search for criteria and indicators on social, environmental and economic sustainability; to create and execute systems of depleted forestry masses management; to study and assess the social, environmental and economic impact of the implemented management systems; to promote the incorporation of value to traditional and non-traditional products from the Chaco region and to place them in both national and international markets; to carry out a research about the standard of living of the inhabitants of the region; to implement extensive technologies to transfer the results of this project to the local community; and to procure the institutional strengthening and to contribute to the policies and law-making about native forest masses.

12. National Programme on Applied Research

Goal: To identify the priorities around research issues required in each of the forestry regions of the country.

13. Education

Goal: to identify the flaws and priorities of the educational system at its middle/high level in order to modify the curriculum contents aimed at including the native forests issue.