

**THE ARTICLE 3.3 AND 3.4 ACTIVITIES OF THE KYOTO PROTOCOL:
REQUIREMENTS AND CHOICES**

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INTRODUCTION

Land use, land-use change and forestry (LULUCF) were included in the Kyoto Protocol to the United Nations Convention on Climate Change (UNFCCC) as options offered to countries for fulfilling their commitments to reduce net emissions to the atmosphere (UNFCCC, 1998). Article 3.3 and 3.4 of the Kyoto Protocol refers to emissions by sources and removals by sinks resulting from activities in the LULUCF sector: Article 3.3 refers to afforestation, reforestation and deforestation activities since 1990 (mandatory activities) and Article 3.4 refers to additional voluntary activities in land management to be decided later. In 2001, a decision reached at the seventh session of the Conference of Parties to UNFCCC in Marrakesh (UNFCCC 2002) specified the voluntary activities that Parties may elect to comply with the Kyoto Protocol commitments during the First Commitment Period (2008-2012). These activities are forest management, cropland management, grazing land management, and revegetation. By the end of 2006 every country has to decide which activities of art. 3.4 will be elected at the national level.

In order to account for net changes in greenhouse gas emissions by sources and removals by sinks resulting from those activities the country must report them annually in a transparent and verifiable manner according to guidelines adopted by the Conference of the Parties. The submitted reports will be reviewed by expert teams in accordance with these guidelines.

In response to invitation by the UNFCCC, the IPCC developed the *Good Practice Guidance for Land use, Land-use change and Forestry* (IPCC GPG for LULUCF) that provides methods for estimating, measuring, monitoring and reporting on carbon stock changes and greenhouse gas emissions from LULUCF activities, consistently with the IPCC Guidelines. The GPG for LULUCF (IPCC 2003) provides methods for representing land areas (Chapter 2), for the estimation of emission and removals of greenhouse gases in the LULUCF sector (Chapter 3), supplementary methods to meet the Kyoto Protocol requirements to account for LULUCF activities (Chapter 4) and suggestions on uncertainty assessment, sampling, identification of key categories, quality assurance and control, time series consistency and verification (Chapter 5).

Thus, the GPG for LULUCF provides a complete overview of the reporting information required to the Parties under the Convention and the integrations required for the Kyoto Protocol reporting. As stated in the GPG for LULUCF, countries do not have to submit two separate inventories but should provide supplementary information for the Kyoto Protocol purposes. According to national circumstances a country can decide to compile the UNFCCC inventory and expand it to Kyoto Protocol inventory or develop a unified system that produces information for both inventories (Schlamadinger *et al.* 2003).

Parties are also required to take decisions about activities they want to elect for and about definitions and criteria to be applied at the national level. On the basis of available data, available resources and national circumstances, cost-benefit considerations should be addressed in order to elect the most cost effective options to comply with the national commitments.

IMPLICATIONS OF THE DEFINITIONS ELECTED AT THE NATIONAL LEVEL UNDER THE KYOTO PROTOCOL

The Kyoto Protocol (KP) established which LULUCF activities can be accounted under the Art.3.3, it introduced the concept of additional LULUCF activities to be voluntary elected by a Party and listed the fundamental requirements for those activities: they must be human-induced and they must have taken place after 31st December 1989. A clear definition of Art. 3.3 and 3.4 activities was adopted at the seventh session of the Conference of the Parties in Marrakesh. The adopted decisions, the so-called Marrakesh Accords (MA), give also a definition of 'forest', a key element to distinguish one LULUCF activity from the other (Decision 11/CP.7 in FCCC/CP/2001/13/add.1):

"Forest" is a minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 per cent with trees with the potential to reach a minimum height of 2-5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 per cent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest;

"Afforestation" (A) is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources;

"Reforestation" (R) is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that

has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989;

“Deforestation” (D) is the direct human-induced conversion of forested land to nonforested land;

“Revegetation” (RV) is a direct human-induced activity to increase carbon stocks on sites through the establishment of vegetation that covers a minimum area of 0.05 hectares and does not meet the definitions of afforestation and reforestation contained here;

“Forest management” (FM) is a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner;

“Cropland management” (CM) is the system of practices on land on which agricultural crops are grown and on land that is set aside or temporarily not being used for crop production;

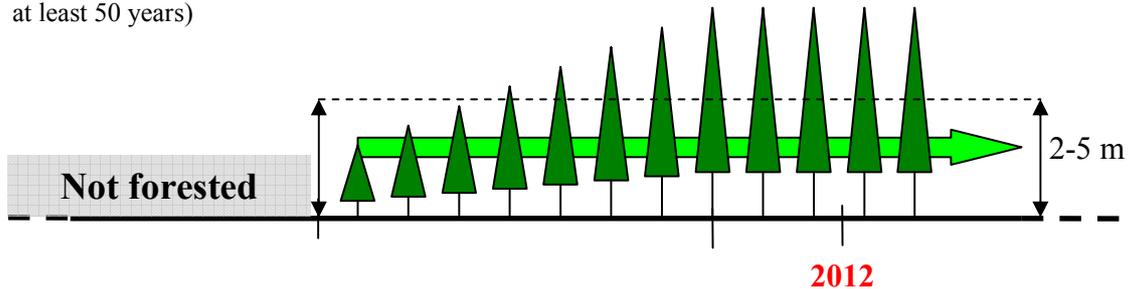
“Grazing land management” (GM) is the system of practices on land used for livestock production aimed at manipulating the amount and type of vegetation and livestock produced.

As stated by the MA, by the end of 2006 each Party has to choose a national definition of forest and decide which of the additional activities will be elected at the national level. For elected activities a Party has to document how the definitions will be applied to national circumstances and to list the criteria that determine under which activity a land would be assigned in order to minimize or avoid overlapping of land categories (Schlamadinger *et al.* 2003).

The area qualifying for each activity may change on the basis of the elected forest definition. For instance, the election of the highest range values may reduce the area eligible for afforestation and reforestation (AR). At the same time the forest dimensional thresholds will identify the separation between RV and AR in countries that will elect for RV. The establishment of a vegetation cover that will not meet the country definition of forest may be reported under RV (Fig.1).

Other criteria can influence the area qualifying for a specific activity. Crucial points might be the concept of *human-induced* and the *precedence conditions and/or hierarchy* among elected activities of Art. 3.4.

REFORESTATION (AFFORESTATION, if the converted land has not been forested for a period of at least 50 years)



REVEGETATION

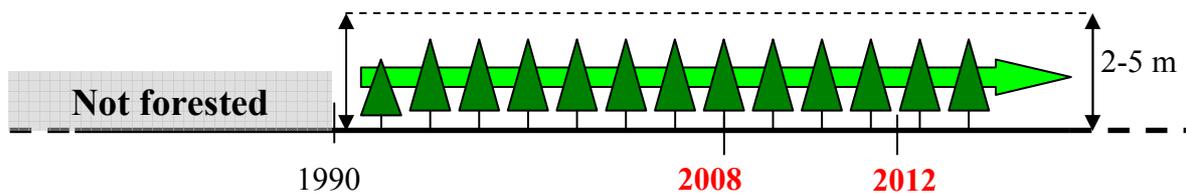


Figure 1 Difference between Revegetation (RV) and Afforestation/Reforestation (AR) on the basis of the ‘height’ threshold. The same considerations can be applied to the other dimensional thresholds in the forest definition.

As stated in the above definitions, AR activities can also be a direct human-induced conversion of non-forested land to forested land obtained through *the human-induced promotion of natural seed sources*. In a broad definition of *human-induced* the return of natural vegetation in abandoned areas could be reported as a LULUCF activity just introducing the abandoned areas in the land-use planning. In this case the development of a vegetation cover in abandoned areas by natural seed sources could be reported as a programmed land-use change resulting from changed socio-economical conditions. The practical consequence for many European countries would be a significant increase of land areas qualifying for afforestation or reforestation due to the forest expansion in marginal areas (Weber 2005, Mazzoleni *et al.* 2004, Bebi and Baur 2002).

By the end of 2006, each Party has to establish precedence conditions and/or a hierarchy among selected activities of Art. 3.4 in order to avoid overlaps and double counting. According to this hierarchy an activity might be classified in different ways. For example, the hedgerows not classifying for forest because of configuration criteria might be reported under CM or RV.

The criteria and definitions adopted at the national level affect the area qualifying for the LULUCF activities and the significance of each activity at the national level (Fig.2). As a consequence the contribution of LULUCF activities in fulfilling Kyoto Protocol commitments can change. This aspect should be taken into account for the election of the additional activities of Article 3.4. It would not be effective for a country to elect an additional activity when its significance under national definitions would be very limited. The costs to implement the monitoring system and the assessment of carbon stock changes might be too high in comparison to the benefits connected to the carbon credits that the country may account for with the election.

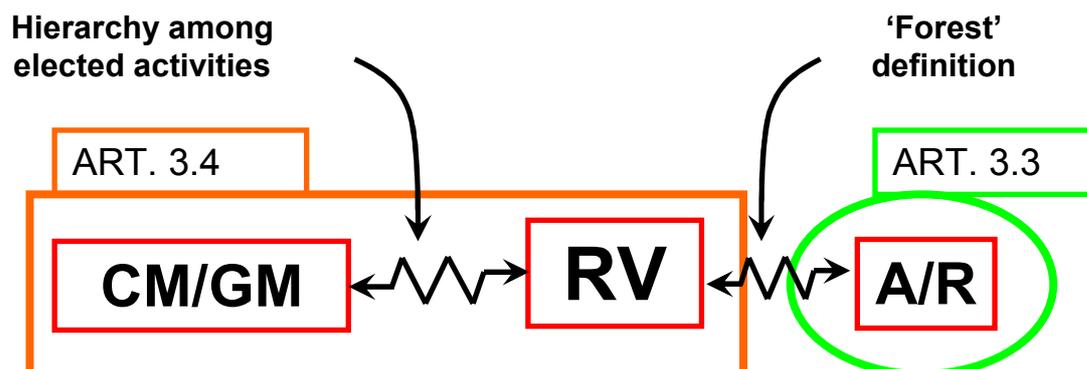


Figure 2 Criteria elected at the national level influence the area qualifying for the different LULUCF activities and their significance for the mitigation policies.

ACCOUNTING RULES FOR THE LULUCF ACTIVITIES UNDER THE KYOTO PROTOCOL

The adoption of clear definitions and criteria at the national level is essential to the correct accounting and monitoring of LULUCF activities, since different rules apply to different activities. The emissions and removals from LULUCF activities are accounted according to two main rules:

- *Gross-net accounting*: only considers carbon stock changes resulting from the difference between emissions and removals in the commitment period and does not draw comparison with the base year. A debit occurs when emissions due to the activity are higher than removals within the commitment period; on the other hand credits are generated if the LULUCF activity leads to net removals within the commitment period. Gross-net accounting will therefore give carbon credits even where removals from an activity are diminishing over time, and will give carbon debits even where emissions are being reduced over time.
- *Net-net accounting* compares emissions and removals connected to a certain activity during the commitment period with emissions and removals during the base year. A credit is created when a net carbon sink can be measured comparing the two different periods.

During the first commitment period afforestation, reforestation, deforestation and forest management must follow gross-net accounting, while net-net accounting rules must be applied to revegetation, cropland management and grazing land management. The gross net-accounting was applied to FM for the first commitment period because net-net accounting was seen as disadvantageous for countries where the carbon sinks were projected to decline over time because of saturation. The saturation issue concerns forests that are close to reach their maximum storage potential and consequently also the maximum carbon sequestration potential. This situation would likely be present in many Annex I countries. At the same time a credit cap was established for FM to avoid that the application of gross-accounting could produce credits generated by indirect and natural effects such as climatic changes, changes in the atmospheric CO₂ concentration, and changes in nitrogen deposition, as well as changes in human management prior to 1990. At the COP6 in Bonn in 2001, a cap equal to 15% of projected removals, or 3% of base year emissions, was established. For Italy the cap amounts to 0.18 MtC per year, corresponding to 0.67 MtCO₂.

Natural and indirect effects are not taken into account for article 3.3 activities but deforestation must be accounted at the national level as adverse activity to afforestation and reforestation. Net-net accounting rules entail the application of monitoring systems also to the base year.

THE UNFCCC AND THE KYOTO PROTOCOL REPORTING REQUIREMENTS

The Annex I Parties to the UNFCCC must submit annual inventories of national greenhouse gas (GHG) emissions and removals that are subject to an annual review. The inventories must be reported under standardized formats developed by the Conference of the Parties and must cover emissions and removals from six sectors, including land-use change sector. The information must be reported in two formats:

- Common reporting format (CFR), a series of data tables containing numerical data
- National Inventory report (NIR), a report describing methods and submitted data

As regards the land-use change sector, the UNFCCC reporting is based on the methodologies presented in the IPCC Guidelines and the IPCC GPG for LULUCF. The LULUCF data are presented as broken down in the six land-use categories identified in the GPG for LULUCF. For every land-use category carbon stock changes must be reported (Tab.1).

Additional data are required for the Kyoto Protocol reporting that are supplementary to the information reported under the Convention. The supplementary requirements and methodologies for measuring, estimating and reporting of activities under Article 3.3 and 3.4 are described in the GPG for LULUCF in sequential steps (Chapter 4). Some additional information must be reported prior to the commitment period whereas others must be reported annually during the commitment period (4.2.4.3, IPCC GPG for LULUCF).

By the end of 2006 the Party must provide additional information on the definition of forest that will be adopted at the national level (minimum dimensional threshold values), the justification that such values are consistent with those historically reported to international bodies or, if different, an explanation about the reasons for the chosen values. The Party must also list the Art. 3.4 activities that will be elected at the national level, information on national monitoring system that will be associated with elected activities and information on how the definitions will be applied to national circumstances listing criteria to identify areas qualifying for an activity or the other.

During the first commitment period supplementary spatial information on units of land subjected to Art. 3.3 and 3.4 activities are to be reported, as well as information on methods and approaches to estimate emissions and removals. The Party must also provide information that demonstrates that Art.3.3 and 3.4 activities are human-induced and have taken place since 1990. The estimates for GHG emissions and removals for art.3.3 and 3.4 shall be clearly distinguished from anthropogenic emissions from energy sector, industrial processes, agriculture, waste and solvent and other product use compiling specific tables for reporting. Absence of overlaps between 3.3 and 3.4 activities must be demonstrated and uncertainty of emissions and removals estimates must be documented (IPCC 2003).

THE IPCC GOOD PRACTICE GUIDANCE

The IPCC Good Practice Guidance for Land use, Land-use change and Forestry provides consistent methods for the accounting and reporting of GHG emissions and removals from LULUCF activities.

A first guidance is provided on consistent methods to identify and representing land areas (Chapter 2) since land area information is needed to estimate carbon stock and carbon stock changes. The national data sources can be highly variable (census data, forest inventories, remote sensing data, etc.), thus three different 'Approaches' for representing land area are provided according to different available data. The Approach 1 produces land use data at given points in time, whereas Approach 2 includes information about change from and to a category; the Approach 3 gives spatially explicit data. The Approaches must be: *adequate* to represent carbon stock and carbon stock changes, *consistent* over time, *complete* (including all land areas within a country) and *transparent* on the data sources, definitions, methodologies and assumptions. Six broad categories are identified to cover the national territory that can be further subdivided to meet specific requirements: forestland, cropland, grassland, wetlands, settlements and other lands. Every category must be divided in managed and unmanaged land since only emissions and removals from managed areas are to be reported. The land-use databases can be developed from existing databases prepared for other purposes, through sampling methods or complete land inventories.

Table 3 Relationship between activities under Art. 3.3 and 3.4 of the Kyoto Protocol and the basic land-use categories to be reported under the Convention. Mandatory activities of Art. 3.3 are highlighted in bold (Source: Table 4.2.1, IPCC GPG for LULUCF).

	Final	Managed Forest land	Unmanaged Forest land	Cropland	Managed Grassland	Unmanaged Grassland	Wetland	Settlements	Other land
Initial									
Managed Forest land		FM or GM or CM		D*	D*		D*	D*	D*
Unmanaged Forest land		FM		D*	D*		D*	D*	D*
Cropland		A/R*		CM, RV	GM or RV		RV	RV	
Managed Grassland		A/R*		CM	GM or RV		RV	RV	
Unmanaged Grassland		A/R*		CM	GM			RV	
Wetland		A/R*		CM	GM		RV	RV	
Settlements		A/R*		CM	GM or RV		RV	RV	
Other land		A/R*		CM, RV	GM or RV		RV	RV	

* Transitions involving Article 3.3 activities have to be the result of direct human-induced activities.

Supplementary data are required to the Parties for the reporting under the Kyoto Protocol to ensure compliance with their emission-limitation and reduction commitments. The forest areas identified under the Kyoto Protocol must meet the dimensional thresholds of the Marrakesh Accords: minimum area (0.05-1 ha), minimum height (2-5 m) and minimum crown cover (10-30%). The MA offers countries flexibility in defining the term forest as well as other terms, to account for national circumstances and data availability. According to different definitions of forest adopted for the reporting under the Convention and the Kyoto Protocol the forest areas might not correspond completely.

Geographical information is required for the areas subject to Kyoto Protocol activities that have taken place since 1990; these areas should be reported as subcategories of the six broad land classes identified by the land representation Approaches. Two 'reporting methods' can be applied to meet Kyoto Protocol requirements (Fig.3): delineating areas that include multiple land units subjected to Art.3.3 and 3.4 activities (Reporting method 1), or a spatially explicit and complete identification of all those land units (Reporting method 2). Therefore countries that use Approach 1 or 2 must integrate land use data with additional spatial data for areas subjected to KP activities. The identification of land areas subjected to Kyoto Protocol activities implies to compile land-use and land-cover information also in 1990 for the relevant activities. All land units that are subjected to afforestation, reforestation, deforestation and forest management since 1990 must be identified and the area must be estimated in each inventory year of the commitment period. For cropland management, grazing

land management and revegetation the area in any inventory year in the commitment period has to be determined as well as the area under the same activities in the base year (i.e. 1990) in order to implement net-net accounting.

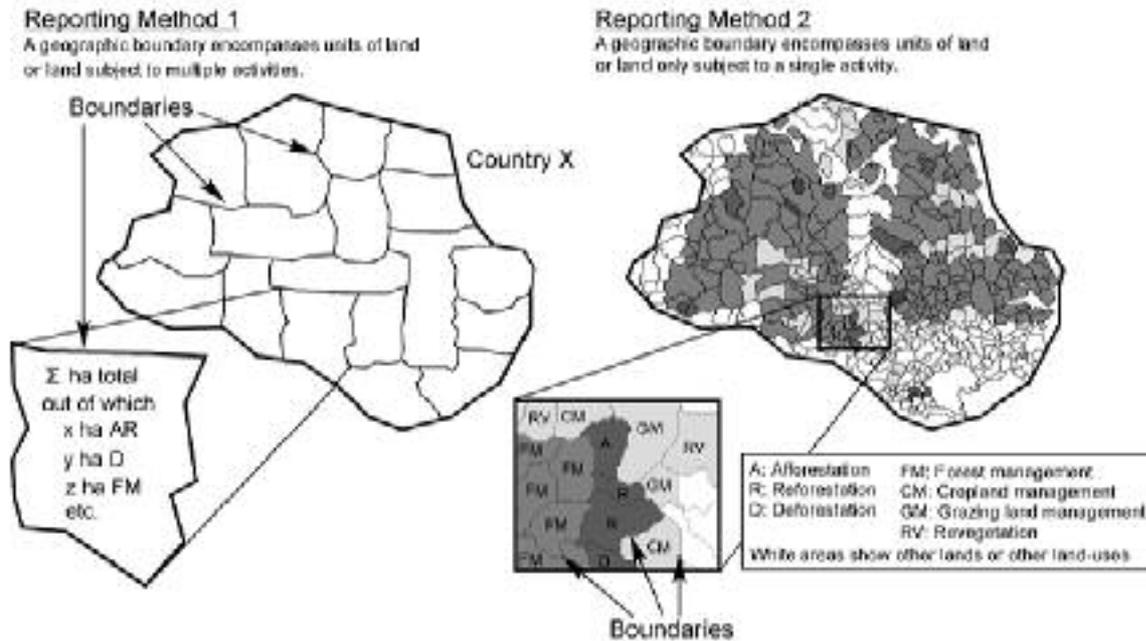


Figure 3 Reporting methods for land subject to Articles 3.3 and 3.4 activities (Source: Fig. 4.2.3, IPCC GPG for LULUCF).

Chapter 3 provides methods for estimating emissions and removals of GHGs linked to LULUCF activities. The methods are provided for every land-use category described in the Chapter 2 and additionally for land remaining in any of this category or converting to another category. The emissions and removals are calculated as carbon changes in 5 pools: aboveground and belowground biomass, dead wood, litter and soil organic matter. Two general methods are described for calculating carbon stock changes, the ‘Flux Method’ based on rates of carbon losses and gains by area of land use and the ‘Stock Change Method’ based on the difference between the measurements of carbon stocks in two points in time (Fig.4). Guidance is provided for all relevant carbon pools and changes of land use from one type to the other.

The requested information can be obtained from inventory data but also through modelling and default data. In this context, efforts are made to develop studies at different scale levels on forest biomass and carbon stocks, growing rates, soil carbon stocks, biomass expansion factors, biomass equations, etc. According to the available national resources 3 ‘Tier levels’ can be applied. Tiers correspond to a progression from the use of simple equations with default data to country-specific data in more complex national systems.

The national report must be on an annual basis but inventory systems do not have to be developed annually for all the five pools. Interpolation and extrapolation methods are provided in Chapter 5 of the GPG for LULUCF. Data must also be provided on non-CO₂ greenhouse gas emissions and methods are identified in the GPG for every land use change category.

<p>EQUATION 3.1.1</p> <p>ANNUAL CARBON STOCK CHANGE IN A GIVEN POOL AS A FUNCTION OF GAINS AND LOSSES</p> $\Delta C = \sum_{ijk} [A_{ijk} \bullet (C_I - C_L)_{ijk}]$

Where:

ΔC = carbon stock change in the pool, tonnes C yr⁻¹

A = area of land, ha

ijk = corresponds to climate type i , forest type j , management practice k , etc...

C_I = rate of gain of carbon, tonnes C ha⁻¹ yr⁻¹

C_L = rate of loss of carbon, tonnes C ha⁻¹ yr⁻¹

<p>EQUATION 3.1.2</p> <p>ANNUAL CARBON STOCK CHANGE IN A GIVEN POOL</p> $\Delta C = \sum_{ijk} (C_{t_2} - C_{t_1}) / (t_2 - t_1)_{ijk}$

Where:

C_{t_2} = carbon stock in the pool at time t_2 , tonnes C

C_{t_1} = carbon stock in the pool at time t_1 , tonnes C

Figure 4 General equations provided by IPCC GPG for LULUCF for the assessment of carbon stock changes in the land use, land-use change and forestry sector (source: IPCC 2003).

For the Kyoto Protocol reporting, carbon stock changes and non-CO₂ greenhouse gas emissions on the areas subjected to Art.3.3 and 3.4 activities must also be estimated by the application of the methods described in the Chapter 3 (Tab.3). The assessment must cover the five carbon pools with discretionary omissions of those that are not a source of carbon. Transparent information must be provided on the estimation methods as well as on any change in reporting data and methods. The omission of one or more carbon pools must be justified and it has to be demonstrated that the pool is not a source. Additional information should also be provided on indirect factors that can influence carbon stock changes in the LULUCF sector like elevated carbon dioxide concentrations above pre-industrial levels, indirect nitrogen deposition and the dynamic effects of age structure resulting from activities prior to 1 January 1990.

CONCLUSIONS

With the ratification of the Kyoto Protocol and the participation in the European Emission Trading Scheme, Italy has committed itself to develop national mitigation actions to reduce greenhouse gas emissions. Under the Kyoto Protocol Italy has to reduce its GHG emissions of 6.5% in comparison to emission level in 1990, during the 2008-2012 period. The emission level in 1990 was estimated to be 521 MtCO₂ eq. (APAT, 2001), thus the emissions must be reduced to a maximum annual amount of 487.1 MtCO₂ eq. in 2008-2012. Due to a further increase in the emission level since 1990, the Italian commitments result to be higher than the initial 33.9 MtCO₂ eq. The most recent estimates report a reduction target of -26% due to a 19.5% increase of emissions from 1990.

The national strategy to fulfill the commitments was presented in 2002 in the National Plan for reducing GHG emissions prepared by CIPE, the Italian Government Body for Economic Programming (Del. CIPE n.123, 19.12.2002). The document is being revised but some updated data are already available in the National Allocation Plan produced for the European Emission Trading Scheme. The CIPE document presents future emission scenarios under different policy scenarios and a relevant role is recognized to activities in the agriculture and forestry sector to comply with the reduction targets. The sequestration potential of LULUCF activities was estimated to be 10.2 MtCO₂ eq. and it would contribute for 11% of the national commitments. The preliminary revised data increases the mitigation potential of LULUCF activities to 11.2 MtCO₂ eq. due to an additional sequestration potential of agricultural soils (MIPAF, 2005). On the other hand the contribution to the overall commitment is reduced to 8.5% because of an increased emission trend linked to an increasing demand of electrical energy.

Specific rules must be followed to account for activities in the forestry and agriculture sector. As main rules, a Party can account for activities that are human-induced and have occurred since 1990. General accounting and

reporting methods for carbon stock changes in those sectors are provided in the IPCC Good Practice Guidance for Land Use, Land-use Change and Forestry. The application of the Guidance assures consistency with the requirements of the international agreements.

Certain flexibility is accorded to Parties in the election of the activities that will be reported under the Kyoto Protocol as well as in the election of national criteria and definitions. Most of the decisions must be taken by the end of 2006 and worth decisions would take into account benefits and costs connected to different options. The benefits are connected to the carbon credits that the Party can account for under the different political choices. Different elected criteria are connected to changes in the significance of each activity and consequently they affect the carbon credits that may be accounted for the emission reduction purposes. It must be also taken into account that general restrictions are applied to LULUCF activities and Parties can not account for all the potential carbon credits that could be gained in the agriculture and forestry sector. On the other hand background inventory data, land area information and assessment methods are needed to track carbon stock changes. This means that resources must be invested to provide the required information when lacking. Cost-benefit analysis should be developed in order to elect the most cost effective options in the agriculture and forestry sector to comply with the national commitments.

Table 4 Example of reporting table under the Kyoto Protocol (Source: IPCC 2003). Table for Reporting, for the Inventory Year, Carbon Stock Changes and Non-CO2 Emissions by sources and removals by sinks for each of the following activities / lands:(I) A and R¹ not harvested during the first commitment period; (II) A and R^{1,2} harvested during the first commitment period; (III) A and R¹ that are also subject to elected Article 3.4 activities³; (IV) D; (V) D that is also to subject to elected Article 3.4 activities³; and (VI) FM if elected. (I) plus (II) equals all A and R lands. (IV) equals all D lands. (I) plus (II) plus (IV) equals all A, R, and D lands (Article 3.3). (VI) must not include any A, R, or D (Article 3.3) lands. (III) and (V) are provided only for information purposes⁴.

Activity:		Inventory year:									
Geographical Location ⁵		Area of Activity	Increases (+) and Decreases (-) in Carbon Stock ⁶					Total Carbon Stock Changes ⁷	Emissions (-) or Removals (-) from Carbon Stock Changes ⁸	CH ₄ Emissions	N ₂ O Emissions
			Above ground biomass	Below ground biomass	Litter	Dead wood	Soil				
Serial No.	ID ⁹	(ha)	(Gg C/yr)	(Gg C/yr)	(Gg C/yr)	(Gg C/yr)	(Gg C/yr)	(Gg C/yr)	(Gg CO ₂ e/yr)	(Gg/yr)	(Gg/yr)
1											
2											
3											
...											
N											
Total for the activity											

Note that those countries that use Tier 1 or Tier 2 methods that allow separate reporting of increases (such as growth) and decreases (such as harvesting) of a pool should also do so by appropriately expanding the table. In these cases, the net stock changes should also be reported, and these are subsequently used for the calculation of the total stock changes.

¹ As afforestation (A) and reforestation (R) activities are treated in the same way, they can be reported together. The separation of afforestation and reforestation lands that are harvested from those that are not harvested during the first commitment period is necessary because of the requirement set in paragraph 4 in the Annex to draft decision -CMP.1 (Land use, land-use change and forestry), cf. FCCC/CP/2001/13/Add.1, p.58.

² If A and R lands have been harvested in the inventory year, then special carbon accounting rules apply that allow countries to limit debts from harvesting. This requires the tracking of "credits" earned on these lands in previous inventory years or commitment periods.

³ Units of land subject to activities under Article 3.3 which would otherwise be included in land subject to elected activities under Article 3.4 must be reported (cf. paragraph 4 item (b) (ii) in the Annex to draft decision -CMP.1 (Article 7), contained in FCCC/CP/2001/13/Add.1, p.21.

⁴ See paragraph 6, in particular 6 (c), the Annex to draft decision -CMP.1 (Article 7), contained in FCCC/CP/2001/13/Add.1, p.22.

⁵ Geographical location refers to the areas that encompass units of land subject to Article 3.3 and lands subject to Article 3.4 activities.

⁶ If a pool is not reported, the text "NR" (for "not reported") must be entered, and it must be demonstrated that the pool is not a source.

⁷ "Total carbon stock changes" is the sum of carbon stock changes of all five pools.

⁸ Emissions/Removals are calculated by multiplying total carbon stock changes by 44/12 to convert to CO₂ followed by reversing the sign to follow conventions of emissions/removals reporting.

⁹ ID: unique identifier of the geographic location

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