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**Report of the technical assessment of the forest management
reference level submission of France submitted in 2011**

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I. Introduction and summary

A. Overview

1. This report covers the technical assessment (TA) of the submission of France on its forest management reference level (FMRL), submitted on 18 April 2011 in accordance with decision 2/CMP.6. The TA took place (as a centralized activity) from 29 May to 3 June 2011 in Bonn, Germany, and was coordinated by the UNFCCC secretariat. The TA was conducted by the following team of nominated land use, land-use change and forestry experts from the UNFCCC roster of experts: Mr. Kumeh Assaf (Liberia), Mr. Karsten Dunger (Germany), Ms. Thelma Krug (Brazil), Ms. Rosa Rivas Palma (New Zealand), Mr. Atsushi Sato (Japan) and Ms. Marina Shvangiradze (Georgia). Ms. Krug and Mr. Sato were the lead reviewers. The TA was coordinated by Ms. María José Sanz-Sánchez (UNFCCC secretariat).

2. In accordance with the “Guidelines for review of submissions of information on forest management reference levels” (decision 2/CMP.6, appendix II, part II), a draft version of this report was communicated to the Government of France, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

B. Proposed reference level

3. France has proposed an FMRL of –66.843 million tonnes of carbon dioxide equivalent (Mt CO₂ eq) per year. This consists of net emissions of –62.741 Mt CO₂ eq per year without consideration of harvested wood products (HWP), plus net accumulations of –4.093 Mt CO₂ in the HWP pool. During the course of the review, France communicated a corrigendum changing the net accumulations in the HWP pool to –4.301 Mt CO₂ per year and the FMRL including HWP to –67.042 Mt CO₂ eq per year. Responding to the draft TA report, France submitted new data once more (see the annex to this document, including the tables with new results as provided by the Party), changing the FMRL to –67.410 Mt CO₂ eq per year and to –63.109 Mt CO₂ eq per year assuming instantaneous oxidation of HWP.

II. General description of the reference level

A. Overview

4. France is one of the 15 member States of the European Union (EU) for which the Joint Research Centre (JRC) of the European Commission developed projections in collaboration with two EU modelling groups.

5. Information about the FMRL for mainland France has been provided in the Party’s original submission; however, information about the FMRL for other parts of the country (namely overseas territories and departments) was provided later, in response to the questions raised by the expert review team (ERT).

6. The FMRL for the mainland is based on projections using a combination of the models G4M (Global Forestry Model)¹ from the International Institute for Applied Systems Analysis and EFISCEN (European Forest Information Scenario Model)² from the European Forest Institute that rely on historical data from national forest inventories (NFIs) and studies, which provide information and input data for the models. An additional model, EU wood products modelling (Rüter, 2011), is used for determining the size of the HWP pool, which is based on methods described in the Intergovernmental Panel on Climate Change (IPCC) *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF) and on historical data as well as assumptions regarding the future.

7. During the course of the review, France informed the ERT that it assumed an FMRL equal to zero for French Guiana, consistent with the assumption of equilibrium between annual increments and harvests. However, the ERT noted that, in the 2011 greenhouse gas (GHG) inventory under the Kyoto Protocol, forest management was reported as a sink in 2008 in that part of the French territory. In response, France explained that the methodological approach used in French Guiana was based on annual growth and harvest (flux), using the default growth factor for tropical forests from the IPCC good practice guidance for LULUCF. However, given that the harvesting rate is very low in French Guiana, the annual change in carbon stock in forest management areas resulted in a very large sink. To remain conservative, France changed the method to the zero equivalent approach (growth and harvest in equilibrium), indicating the need to conduct additional forest inventories or studies to improve the knowledge on biomass growth before using the flux-based methodology. The ERT notes the need to ensure consistency between the way the FMRL is constructed and the treatment of forest management in French Guiana in the future.

8. The original submission does not provide information on the FMRL for the other overseas territories and departments of France. The ERT notes that a sink is reported for these territories in 2008 in the latest reporting under the Kyoto Protocol for forest management. In response to the question posed by the ERT on this issue, France explained that it assumes that annual volume growth and harvests are in equilibrium, taking into account the low exploitation of the forest and the type of forests under forest management in the overseas departments. Regarding the estimation of wood harvests for the overseas departments (French Guiana and others), data on harvests are partially available but the harvest is assumed to be stable over time. As a conclusion, France justified that the sink associated with the overseas departments and territories is negligible and has not been taken into account in the calculation of the FMRL.

B. How each element of footnote 1 to paragraph 4 of decision 2/CMP.6 was taken into account in the construction of the reference level

1. Historical data from greenhouse gas inventory submissions

9. Historical data from reporting on forest land remaining forest land under the Convention are used for post-calibration of the model results for living biomass and

¹ The G4M model relies on spatial data. These data may or may not have been provided by countries. Other forest and forest management parameters (e.g. age-class structure, increment and historical harvest) were taken from NFIs or other country statistics.

² EFISCEN uses as data input the forest area data from national forest inventories, scaled to match the forest area reported in the national inventory report (the forest land remaining forest land area, from which the deforested area is deducted, or the forest management area if elected under the Kyoto Protocol), and provides projections on basic forest inventory data (stem wood volume, increment and age-class structure) as well as carbon in forest biomass and soil.

extrapolation of non-biomass pools by using the average of the period 2000 to 2008 from the 2010 national GHG inventory.

10. Data sources for the forest area, increments and removals used for the construction of the FMRL are different from those used in the GHG inventory. France explained that these data sources are not different; in order to make the projected net emissions from forest management from the models more consistent with the historical data, a post-adjustment/calibration was applied (see para. 9 above).

2. Age-class structure

11. Age-class structure for the years 2005, 2010, 2015 and 2020 is provided in the submission and resulted from one of the models used in the construction of the FMRL (EFISCEN). During the course of the TA, France provided information on an age-class structure based on the latest NFI for the period 2005–2009. These two data sets differ significantly. For example, whereas the NFI for the period covered indicates that the age class for approximately 25 per cent of the total forest area is below 40 years, EFISCEN gives estimates of approximately 36 per cent and 34 per cent for 2005 and 2010, respectively. Additionally, EFISCEN estimates a smaller area under the age class above 100 years for all years (8 per cent, 7 per cent, 6 per cent and 5 per cent for 2005, 2010, 2015 and 2020, respectively) than that estimated by the NFI (over 10 per cent smaller compared with the 2011 NFI, taking the years 2005, 2006, 2007, 2008 and 2009 as reference). The ERT noted the discrepancy between the data reported in the NIR and that estimated by the EFISCEN model. France explained to the ERT that it was caused by the inadequate level of disaggregation for use in the model, resulting in the share of the first age class (1–20 years) being slightly overestimated relative to the ‘real’ share of this age class in the forest management area. France noted that the overestimation of the age class 1–20 years results in an overestimation of the annual volume increments, leading to a conservative FMRL estimate. The ERT agrees with this assessment.

3. The need to exclude removals from accounting in accordance with decision 16/CMP.1, paragraph 1

12. This is achieved by the provisions for factoring out (see para. 38 below).

4. Other elements

Forest management activities already undertaken

13. Mainland France has a long tradition of forest management and protection of forests, leading to an increasing forest area. Rules on forest management practices are laid out at the national as well as the regional level by a number of legal regulations and guidelines. During the last decade, several policies have been introduced aiming at increasing the use of renewable energy and substitution of fossil fuels by biomass. During the course of the TA, France stated that these policies and forest management activities are influencing timber harvest and mobilization. Timber demand is driven by gross domestic product (GDP) and population, and shows an increase in the next decade. The wood energy demand data come from a detailed analysis of country-specific policies implemented by April 2009 (‘business as usual’ scenario) combined with the modelling of the expected market/trade effects (global models were used for this, namely GLOBIOM (Global Biomass Optimization Model) and PRIMES).³ Wood demand leads to a reduction in the increase of the sink associated with forest management.

³<http://www.e3mlab.ntua.gr/e3mlab/PRIMES%20Manual/THE_NEW_PRIMES_BIOMASS_MODAL.pdf>.

Projected forest management activities under a 'business as usual' scenario

14. France provided ranges for the rotation lengths required by one of the models and included a number of references to support the assumptions underlying the models.

C. Pools and gases

1. Pools and gases included in the reference level

15. Above- and below-ground biomass, soil organic carbon from mineral soils, dead organic matter (litter and dead wood) and HWP as well as GHG emissions from biomass burning are included in the construction of the FMRL. Changes in carbon stock in dead organic matter and soil organic carbon from mineral soils are estimated using a tier 1 approach that assumes equilibrium, and hence changes are equal to zero. Emissions and removals from soil organic carbon from organic soils are excluded from the proposed FMRL. France explained during the review that no emissions associated with this pool occur. The ERT notes that possible improvements in the French GHG inventory may provide new information on drainage of organic soils that could change the above-mentioned assumption.

16. Emissions from wildfires have been projected assuming a constant net change for the period 2009–2020 equivalent to the historical average change reported for the period 2000–2008. This is a conservative assumption for accounting for a pool when emissions are increasing or not changing, while it is not conservative when emissions are decreasing as is the case in France.

17. Nitrous oxide emissions from fertilization and drainage and carbon dioxide (CO₂) emissions from lime application are not included in the FMRL. France explained during the review that emissions from liming and from fertilization are reported under the cropland category (common reporting format table 5.B) and agriculture (common reporting format table 4.D). In addition, the Party explained that emissions from drainage can be considered negligible, and that the omission of these sources from the FMRL results in a conservative reference level.

2. Consistency with inclusion of pools in the estimates

18. The construction of the FMRL is consistent with the information provided in table 2 of the submission regarding the pools included. As noted in the "Report of the individual review of the annual submission of France submitted in 2010",⁴ France does not provide the reasons for excluding some carbon pools from the reporting, in addition to using inadequate notation keys in the annual submission. These issues have been transferred to the construction of the FMRL. The ERT notes that future improvements in the GHG inventory may require a technical correction of the post-calibration of model results and consideration of the pools which have been excluded from the construction of the FMRL.

19. Net changes to the dead wood pool are kept constant in the FMRL at the mean level of the GHG inventory for the period 2000–2008, although these data show a decreasing source. France explained that a storm event (Klaus) happened in 2009 and that there had been a new peak in emissions from the dead organic matter pool. Therefore, the average emissions from this pool would represent the amount of emissions that would be expected from such events. The ERT notes that the impact of the storm event in 2009 is already reflected in the carbon stock change of the dead organic matter pool under forest land remaining forest land in 2009, which was reported in the 2011 GHG inventory as a carbon stock change gain of 2,883.52 Gg CO₂. The ERT also notes that the information on the

⁴ FCCC/ARR/2010/FRA.

storm event should be integrated into the data set that determines the average of projections, and recommends that a technical correction be made to take account of emissions from the 2009 storm event.

D. Approaches, methods and models used

1. Description

20. France is one of the member States of the EU for which JRC developed projections in collaboration with two EU modelling groups. The models, G4M and EFISCEN, project annual estimates of emissions and removals for forest management up to 2020 for the above- and below-ground biomass carbon pools. To estimate the FMRL, the emissions and removals estimated by the models for the time series 2000 to 2020 were calibrated/adjusted using historical data from the country for the period 2000–2008.⁵ In this post-calibration, a constant offset is added to the model results for 2000–2020 to match the average historical data provided by each country for the period 2000–2008 to ensure consistency with national historical data in terms of the absolute level of emissions and removals and coverage of pools and gases.

21. A post-adjustment (offset) to the model results was applied to the average forest management net emissions from both models for the period 2000–2008 (table 8 in the FMRL submission) to make the results more consistent with the data from the historical time series for the same period. The offset (–38.367 Mt CO₂ eq) corresponded to a difference of more than 60 per cent between the historical net emissions and the average of the model results for the living biomass pools. The ERT notes that this percentage represents a greater change in the harvesting rate than the 20 per cent indicated in the sensitivity analysis contained in the submission. The ERT notes that this offset has not been considered with regard to assumed increment (table 9) or the assumed harvesting rates (table 12), which still relate to the original model results, contained in the submission as time series combined with historical data and used, *inter alia*, in order to construct the inflow into the HWP pool. In analogy to the default method described in the IPCC good practice guidance for LULUCF, equation 3.2.2, where increase minus decrease is equal to the change in carbon stock in living biomass, a calibration of the change in carbon stock only breaks the integrity of the equation and leads to an imbalance. France informed the ERT that it acknowledges the discrepancy and that work is ongoing to clarify it.

22. The ERT notes the large discrepancies between the projected forest management net emissions and the reported forest management net emissions (using forest land remaining forest land data as a proxy) and the difficulty of assessing the consistency between the proposed FMRL and the ‘business as usual’ scenario. The ERT recommends that France ensure consistency in the use of annual increments and harvest used as input data to GLOBIOM and the HWP model, or use a different way to forecast harvesting rates with data that are consistently used for the models and the HWP estimation in order to ensure full consistency between the forest and timber components of the FMRL.

23. Future harvest demand under the ‘business as usual’ scenario was derived from macroeconomic drivers (e.g. GDP and population) and policies enacted in France before mid-2009. This information is used as data input to the GLOBIOM model, which projects timber demand.

⁵ Forest management data for 2008 are taken from the latest GHG inventory submission. For 2000–2007, France used the values reported under the Convention for forest land remaining forest land as a proxy for the forest management estimates.

24. The underlying methodological approach of the combination of models used can provide useful future trends. However, the quality of the projections for timber demand depends on how well the macroeconomic variables used (population and GDP) can predict timber demand for France.

2. Transparency and consistency

25. France's submission and the replies received during the review week to the questions posed by the ERT have been transparent enough to allow the TA to be adequately performed. The approaches taken in the construction of the FMRL and the estimation of future emissions and removals from forest management are consistent.

E. Description of the construction of the reference levels

1. Area under forest management

26. The approach used in the construction of the FMRL was based on the models G4M and EFISCEN, which project the forest management area for the period 2013–2020. For G4M, the data input is the forest management area derived from satellite imagery based on France's forest maps (based on CORINE and TBFRA).⁶ For EFISCEN, the data input is derived from the latest GHG inventory submission. France stated that the forest management area was estimated by subtracting deforestation areas from the forest land remaining forest land area reported under the Convention (1990–2007) and the forest management area reported under the Kyoto Protocol (2008).

27. Based on the projection results, the forest management area is expected to decrease by approximately 1.4 per cent between 2010 and 2020, as a result of deforestation in mainland France. The ERT notes there are inconsistencies between the data used as input to G4M and EFISCEN and the data reported in the 2011 GHG inventory. The ERT recommends that France seek consistency between the data used in the construction of the FMRL and those used to estimate the net emissions from forest management in the GHG inventory.

28. The ERT also notes that, owing to a lack of data and information in the submission, it was not possible to assess the areas under forest management in the overseas territories.

2. Relationship of the forest land remaining forest land category with the forest management activity reported previously under the Convention and the Kyoto Protocol

29. The modelled forest management areas used in the construction of the FMRL do not match the historical data reported by the Party under the Convention. France states that there is no difference between the forest management areas used by JRC and the areas reported under forest land remaining forest land, since these constitute the basis for the estimation of the values used to calculate the FMRL. Responding to the draft TA report, France submitted new data on the areas of land considered in the construction of the FMRL in relation to historical reported data for 2008 (see the annex to this document). The ERT notes that differences between the data provided by the Party for the FMRL submission and the data reported in the GHG inventory have not been transparently explained and states that it was not able to verify the consistency of the forest management areas used for the construction of the FMRL.

⁶ Gallaun H, Zanchi G, Nabuurs GJ, Hengeveld G, Schardt M and Verkerk PJ. 2010. EU-wide maps of growing stock and above-ground biomass in forests based on remote sensing and field measurements. *Forest Ecology and Management*. 260(3): pp.252–261.

30. The projected forest areas shown in table 4 of the submission are close to the area reported for forest land (forest land remaining forest land plus land converted to forest land) for mainland France reported in the 2011 GHG inventory. The ERT notes that France currently reports relatively large removals from afforestation/reforestation (A/R) land and that the proportion of the removals from A/R land amounts to about 9 per cent of those from forest management land in table 7 of the submission in 2008 and 2009. The ERT considers that the current projected forest management area in the FMRL includes potential future A/R areas. France explained during the review that the work of separation of the potential A/R area in the youngest age class had not been completed at the time of the FMRL submission. As a result, France takes this conservative approach for the time being. As the additional information on the separation of forest management and A/R areas was not clearly provided by the Party, the ERT was not able to verify the consistency of the data submitted by the Party.

3. Forest characteristics

31. The forests in mainland France consist to a large extent of temperate broadleaves, smaller areas of temperate mixed and coniferous forests and a small area of poplar forest ecosystems, all of which are considered as managed. Tropical broadleaved forests in the overseas departments and territories are also considered as managed forest; however, these are not included in the FMRL. Besides these, France reports a small area of unmanaged forests.

32. Most of the forests in the mainland fall within the age class 20–80 years because most species have not reached the mean of the provided rotation lengths used by EFISCEN.

4. Historical and assumed harvesting rates

33. France provided in its submission historical and projected harvesting rates for the years 2000, 2005, 2010, 2015 and 2020. It notes that the figures provided constitute five-year averages, and that data up to 2007 originate from national statistics. Data for 2020 were estimated by the models PRIMES and GLOBIOM, and the estimates for the period 2008 to 2020 result from linear interpolation of the estimates for 2008 and 2020. The historical data show a decreasing trend (by 10 per cent in 2005, relative to 2000), while the projected harvesting rate for 2020 is 10 per cent higher than the estimate for 2005. France indicated in its submission that future harvesting rates are derived by models based on assumptions of increased demand for wood as well as for material and energy use; it also indicated that the assumptions about wood mobilization were made conservatively and address environmental integrity. Further explanations for the changing trend in harvesting rates are not provided. France additionally states in its submission that all harvest predicted up to 2020 is allocated to forest management, while in the 2011 GHG inventory between 7 per cent (2009) and 10 per cent (2008) of the losses in above-ground biomass are reported as being caused by deforestation. France explained during the review that living biomass from deforestation is generally directly burned or used as energy, and wood products are produced only from forest management. The ERT notes the difference between the harvesting rates shown in the historical time series and the corresponding projected data from models. France explained during the review that the harvest trend in the period 2000 to 2005 is influenced by the storm events of 1999: harvesting was intensified in this year, with a consequent reduction of the harvesting rate in subsequent years. Then, five years after the 1999 storms, the rate of harvesting increased again, matching the models' assumptions.

5. Harvested wood products

34. The estimated annual contribution of the HWP pool to the FMRL proposed is –4.301 Mt CO₂ per year. It is estimated using the C-HWP model, with annual production data,

specific half-lives for product types and instantaneous oxidation assumed for wood in solid waste disposal sites. Historical data dating back to 1964 and an extrapolation of these data back to 1900 by using the average from 1964 to 1968 are taken into account. The current estimates include exports. France plans to adopt first order decay functions with default half-lives of two years for paper, 25 years for wood panels and 35 years for sawn wood. The ERT recommends a technical correction to the FMRL when final agreement on HWP estimation is arrived at and if this requires different half-lives.

35. Owing to an error in the estimation of net emissions from HWP prior to the submission of the FMRL, the estimates for HWP have been recalculated, leading to a different result (originally estimated as -4.093 Mt CO₂ and then recalculated to -4.301 Mt CO₂).

6. Disturbances in the context of force majeure

36. Emissions from natural disturbances are not separately quantified in the model projections, but emissions from wildfires are incorporated into the FMRL by the post-adjustment procedure. Emissions from storms are incorporated through post-adjustment to historical levels of emissions from biomass. This means that the average historical emissions due to these disturbances are contained in the FMRL.

37. If a decision on the treatment of natural disturbances is agreed by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, a technical correction of the FMRL may be necessary.

7. Factoring out

38. The use of a projected reference level which includes age-class structure is considered to factor out dynamic age-class effects. With the present state of scientific knowledge, the effects of elevated CO₂ concentrations and indirect nitrogen deposition occur in the reference level and in the estimated period (i.e. the commitment period), and therefore this approach adequately addresses factoring out.

F. Policies included

1. Description of policies

39. Policies in France include guidelines for silviculture at the national as well as the regional level (see paras. 13 and 14 above). Additionally, there are policies at the EU and national levels concerning the increased use of biomass for energy production. These policies are referred to in the submission.

2. How policies are taken into account in the construction of the reference level

40. According to the description of the models used and information provided during the course of the TA by France and the modellers, only policies in place up to mid-2009 are taken into account in the construction of the FMRL.

41. Further information on policies is given in paragraphs 13 and 14 above.

III. Conclusions and recommendations

42. France assumes equilibrium of the carbon stocks in the second commitment period for the overseas territories (in particular French Guiana). The ERT notes that this

assumption is not fully consistent with previous reporting from the Party for all years in the historical time series.

43. The ERT notes that a technical correction may be needed when improved methodologies and more accurate data become available for the overseas territories.

44. With regard to the magnitude of the offset used to calibrate the model results with the historical data, because this is not reflected in the assumed harvesting rates and the inflow to the HWP pool it is not possible to assess the comparability of projected data with those historically reported. Therefore, the ERT considers that the proposed FMRL is not consistent in itself and that the scenario used is not the 'business as usual' scenario. The ERT recommends that France clarify the reasons for the considerable difference between the projected and the reported forest management data, and that the Party ensure a consistent use of harvesting rates.

Annex

Documents and information used during the technical assessment

A. Reference documents

Submission of information on forest management reference levels by France, 18 April 2011. Available at http://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/awgkp_france_2011.pdf.

Communication of 3 June 2011 regarding the revision of the harvested wood products value for France. Available at http://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/awgkp_france_corr.pdf.

National greenhouse gas inventory of France submitted in 2010. Available at <http://unfccc.int/5270.php>.

National greenhouse gas inventory of France submitted in 2011. Available at <http://unfccc.int/5888.php>.

Rüter S. 2011. *Projections of Net-Emissions from Harvested Wood Products in European Countries for the period 2013-2020*. Institute of Wood Technology and Wood Biology Work Report 2011/01. Hamburg: Johann Heinrich von Thünen-Institut. p.63. Available at <http://www.holzundklima.de/aktivitaeten/lulucf/dokumente.html>.

B. Additional information provided by the Party¹

France has used the data from Forest Land remaining Forest Land areas under the Convention as a proxy for the construction of FMRL.

Here are the reference data for 2008 :

	AREA of FM in 2008						AREA of FM in 2020 used by models
	from 2011 GHG inventories		used by models		difference % models vs. GHG inventories		
	area (kha)	source	G4M	EFISCEN	G4M	EFISCEN	
France	13494	(1)	13494	13494	0.0	0.0	13234
(1): area of FM from KP LULUCF reporting, excluding overseas territories. For years between 2000 and 2007, the annual area of deforestation under KP reporting was considered.							
(2): from 2008 onward FM area was estimated considering the deforestation estimated by G4M (as explained in the Annex of EU submission).							
(3): from 2008 onward FM area was estimated assuming the continuation of the deforestation trends (average 1990-2008) reported under the KP							

¹ Reproduced as received from the Party.

Model results (from JRC):

			av. 2000-2008	2000	2005	2010	2015	2020	av. 2013-2020
Step 1: models' results (only biomass)	EFISCEN (1)		-29765	-17415	-36042	-35532	-31475	-26073	-29753
	G4M		-41637	-38084	-44104	-40655	-32378	-24636	-30095
	Average of models		-35701	-27749	-40073	-38093	-31926	-25354	-29924
Step 2: ex-post processing (2)	Offset								
	of biomass pools and GHG sources		-38367						
	(2)		5182						
	total offset		-33185						
	Calibrated average of models (3)		-68886	-60934	-73257	-71278	-65111	-58539	-63109
Sensitivity analysis (4)	+10% harvest					-67674	-56913	-50452	-55021
	-10% harvest					-76574	-69710	-62409	-67549
<p>(1) Efiscen does not estimate data for all countries for 2000 and 2005. When data were missing, backward extrapolation was applied as follow: sink in 2005 = sink in 2010 x ratio of harvest 2010/2005; this approach assumes that in the short term harvest is the main factor determining the sink.</p>									
<p>(2) The "offset" is distinguished between:</p> <ul style="list-style-type: none"> - Biomass: calculated as difference between [average of country's emissions and removals from biomass for the period 2000-2008] and [average of models' estimated emissions and removals from biomass for the period 2000-2008] - Non-biomass pools and GHG sources: calculated as the sum of non-biomass pools and GHG sources as reported by the country for the period 2000-2008. 									
<p>(3) The calibrated average of models, which is used for the setting of reference level, is obtained by adding the offset to the models' average.</p>									
<p>(4) Preliminary simulation of the impact of +/-10% harvest as compared as BAU harvest on the emissions and removals from FM. Data are calibrated averages of models' results.</p>									

Revised forest management reference level value :

Proposed Reference Level (GgCO ₂ eq per year)	
applying first order decay function for HWP (1)	assuming instantaneous oxidation of HWP (2)
-67 410	-63 109

(1) The contribution of HWP to the reference level of France amounts to **-4,301 Mt CO₂** (submission by France of the revised HWP value on 3 June 2011)

(2) provided for transparency reason
