

 <p style="text-align: center;">CDM: Proposed New Methodology Meth Panel recommendation to the Executive Board (version 04) <i>(To be used by the Meth Panel to make a recommendation to the Board regarding a proposed new methodology)</i></p>	
Date of Meth Panel meeting:	4 - 8 April 2005
Related F-CDM-NM document ID number (electronically available to EB members)	F-CDM-NM0082: "Khon Kaen fuel ethanol project"
Related F-CDM-NMex document ID number(s) (electronically available to EB members)	F-CDM-NMex0082: Sari / Gruetter
Related F-CDM-NMpu document ID number(s) (electronically available to EB members)	F-CDM-NMpu0082: Graichen
<p><i>Note to those completing this form, as applicable: Please provide recommendations on the proposed new baseline and monitoring methodologies based on an assessment of CDM-NMB and CDM-NMM and of their application in sections A to E of the draft CDM-PDD, desk reviews and public input. Please ensure that the form is entirely filled and that arguments and expert judgements are substantiated.</i></p>	
A. Final recommendations by the Meth Panel	
I. Recommendation on the proposed new baseline methodology: (checkmark the choice made)	
Title of proposed new baseline methodology:>> Baseline methodology for the production of sugar cane based anhydrous bio-ethanol for transportation.	
<p>a. To approve this proposed methodology with minor changes</p> <p><input type="checkbox"/></p> <p>i. Conditions under which this proposed methodology is applicable to other potential CDM project activities (e.g. project type, region, data availability):</p> <p>>></p> <p>ii. Minor changes:</p> <p>>></p>	
<p>b. To reconsider this proposed methodology, subject to required changes</p> <p><input checked="" type="checkbox"/></p> <p>i. Conditions under which the proposed methodology is applicable to other potential projects (e.g. project type, region, data availability):</p> <p>>></p> <p>1) Pre-project production capacity within the national market for anhydrous bio-ethanol is less than 75% of the maximum potential demand level (the lower of 20% gasoline demand or any national imposed ceiling on bio-ethanol/gasoline mix).</p> <p>2) There is no enforceable mandate in the host country to produce and use bio-ethanol to replace gasoline in the transport sector.</p> <p>ii. Required changes:</p> <p>>></p> <p>1) The methodology is applicable to project types only when blended bio-ethanol/gasoline mix will be consumed in the host country and not exported to an Annex B country (the</p>	

CDM-NMM should be changed so that AHy represents the volume of anhydrous bio-ethanol produced and used in the host country). Only if this is done can credit be taken into account for the indirect emissions from gasoline production and delivery.

- 2) Include further elements in the additionality tool to reflect this particular project type and contexts. A consideration of vehicle conversion costs, fuel costs and fuel availability is already required by this methodology to assess the choice of baseline fuel. A sensitivity analysis of fuel costs should also be included in the additionality assessment, and such information should be presented in an associated draft CDM-PDD.
- 3) Justification for the use of one (Brazilian) estimate of a lifecycle emission factor for sugarcane as appropriate and conservative in other countries and regions. The use of this one Life Cycle Assessment LCA emission factor as a conservative emission factor should be justified, and the uncertainty of using such estimates should be assessed. In doing so, it would be helpful to list the individual estimates of energy use and GHG emissions by LCA stage, noting how well they apply (or might need to be adapted) for the project context as compared with the Brazilian context under which the estimate was developed. Otherwise, the applicability region should be limited to Brazil. Further, other emissions should be taken into account in this life-cycle analysis (such as life-cycle emissions) or guidance on how to include or how to justify excluding land-clearing emissions associated with sugarcane production.
- 4) For the baseline fuel, life cycle analysis should only be used to count emissions that occur inside the host country.
- 5) A condition of approval should include a certification by the DNA that it is willing and able to ensure that no other credit for GHG emission reductions is issued to other projects using the same fuel (anhydrous bio-ethanol). The DOE should verify this condition, and it should be included in the monitoring plan.
- 6) Provide a documented value for the relative efficiency of bioethanol vs. gasoline (Q) or provide a methodology or clear criteria for developing the value.

(Project participants shall make required changes to the proposed new methodology and send it back to the Meth Panel. The proposed new methodology will be reconsidered by the Meth Panel if changes required are made by the project participants. The Executive Board will only consider this proposed new methodology after the revised proposed methodology has been reconsidered by the Meth Panel.)

c. Not to approve the proposed methodology

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i. Reasons for non-approval:

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(A new proposal should be submitted in accordance with the procedures for submission and consideration of proposed new methodologies of the Executive Board.)

II. Recommendation on the proposed new monitoring methodology: (checkmark the choice made)

Title of proposed new monitoring methodology: >> [Monitoring methodology for the production of sugar cane based anhydrous bio-ethanol for transportation use.](#)

a. To approve this proposed methodology with minor changes

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i. Conditions under which methodology is applicable to other potential projects (e.g. project type, region, data availability):

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ii. Minor changes:

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b. To reconsider this proposed methodology, subjected to required changes



i. Conditions under which the proposed methodology is applicable to other potential projects (e.g. project type, region, data availability.):

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- 1) Pre-project production capacity within the national market for anhydrous bio-ethanol is less than 75% of the maximum potential demand level (the lower of 20% gasoline demand or any national imposed ceiling on bio-ethanol/gasoline mix).
- 2) There is no enforceable mandate in the host country to produce and use bio-ethanol to replace gasoline in the transport sector.

ii. Required changes:

- 1) Changes in items monitored as a result of changing the baseline methodology, including:
- 2) Annual data on gasoline consumed in the host country, domestic production, imports.
- 3) What proportion (if any) of ethanol is used in gasoline blends. (This will affect the emission factors).
- 4) purchase contracts of the bioethanol with a gasoline retailer should be monitored;
- 5) change the definition of AHy so that it represents the volume of anhydrous bio-ethanol produced and used in the host country;
- 6) Emissions from land-clearing related to increases in sugar-cane production areas.

(Project participants shall make required changes in the proposed new methodology and send it back to the Meth Panel. The proposed new methodology will be reconsidered by the Meth Panel if changes required are correctly made by the project participants. The Executive Board will only consider this proposed new methodology after required changes proposed have been made and the revised proposed methodology has been reconsidered by the Meth Panel.)

c. Not to approve the proposed methodology



i. Reasons for non-approval:

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(A new proposal should be submitted in accordance with the procedures for submission and consideration of proposed new methodologies of the Executive Board.)

B. Details of the evaluation of the proposed new methodology by the Meth Panel:

I. Proposed new baseline methodology (specify title here): >> Baseline methodology for the production of sugar cane based anhydrous bio-ethanol for transportation.

(1) Short description of the methodology, including an assessment of which approach from paragraph 48 of the CDM modalities and procedures was used:

a) Describe the methodology:

>> The proposed methodology is developed for bio-ethanol production for transportation purposes. The methodology consists of 5 steps:

- 1) Determine that the applicability conditions apply. These focus on the current production capacity of anhydrous bio-ethanol being lower than a percentage of "maximum demand" (which is defined).
- 2) Outline feasible baseline scenarios at the site that will produce the bio-ethanol (i.e. no investment,

investment in other transport fuel capacity or investment in bio-ethanol production capacity but not as a CDM project).

- 3) Use the “Tool for the demonstration and assessment of additionality” to evaluate whether investment in anhydrous bio-ethanol production capacity at the project site is a plausible baseline scenario.
- 4) Assess the baseline fuel that will be displaced by the anhydrous bio-ethanol produced by the project activity.
- 5) Determine baseline and project emissions on a life-cycle basis. Baseline emissions are defined as emissions that would result from the production and combustion of the substituted non-renewable fuel.

No leakage is assumed to occur since the methodology uses a life-cycle approach (using figures calculated in one European study as a default) to calculate bio-ethanol emissions.

b) State the approach selected:

>> The documentation indicates that approach as per paragraph 48 (b) of the CDM modalities and procedures is used: “Emissions from a technology that represents an economically attractive course of action”. However, the methodology appears to compare the project situation with one based on approach as per paragraph 48 (a) of the CDM modalities and procedures. (“Existing actual or historical emissions”, applicable”).

c) Indicate (in summary form) why the approach selected is the most appropriate. Please provide your expert judgement on the appropriateness of the selected approach to the project category:

>> Whether paragraph 48 (b) of the CDM modalities and procedures would be an appropriate approach to determine the fuel production component of the baseline depends in part on what baseline options are open to the project proponent/investor. If the project proponent/investor is a government or fuel-production company, it may have more options open to it than a ethanol or sugar production facility. For such facilities approach as per paragraph 48 (a) of the CDM modalities and procedures (which is the one essentially used by the methodology) is more appropriate.

(2) Basis for determining the baseline scenario:

a) State whether the documentation explains how the baseline scenario is to be chosen and identified:

>> Yes (both for the fuel production component and the fuel use component of the methodology).

b) State the basic underlying rationale for algorithms/formulae used (e.g. marginal vs. average basis) (see also section 4 below):

>> Baseline emissions are calculated through life-cycle analysis of gasoline production and combustion. The default value given in the methodology for the well-to-wheel gasoline emissions factor is 2689.11 g CO₂eq/litre of gasoline. (However, project participants can use local data if available). The methodology is applicable to project types only when blended bio-ethanol/gasoline mix will be consumed in the host country and not exported to an Annex B country (the CDM-NMM should be changed so that AH_y represents the volume of anhydrous bio-ethanol produced and used in the host country). Alternatively, only the direct emissions of gasoline use should be included. The proposed baseline methodology also stipulates that studies on the relative fuel efficiency of anhydrous bio-ethanol and gasoline will be carried out by “authorities and/or oil companies” to outline to what extent anhydrous bio-ethanol displaces gasoline. Emissions related to transport of bio-ethanol to the place of blending bio-ethanol with gasoline are also included.

c) State whether the documentation explains how, through the use of the methodology, it can be demonstrated that a project activity is additional and therefore not the baseline scenario. If so, what are the tools provided by the project participants?

>> Yes. The methodology indicates that the EB-approved additionality tool is to be used to assess additionality. However, further information is needed (see below).

d) State whether the basis for determining the baseline scenario and for assessing additionality is appropriate and adequate:

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- 1) Additionality: yes. However, the additionality tool will need to be adapted to provide for further information specific to particular projects in the associated CDM-PDD. In particular, a sensitivity analysis to fuel prices will be needed.
- 2) Baseline-scenario: yes
- 3) Emission reductions: no.
 - The proposed methodology provides a default lifecycle emissions factor for sugar-cane based anhydrous bio-ethanol production, based on a Brazilian study, and to “monitor” the literature for updates to this study in order to assess whether the lifecycle emissions factor should be changed at the renewal of a project activity’s crediting period. However, the largest component of this lifecycle emissions factor relates to the fossil fuels and electricity used in the production of bio-ethanol feedstock and in the industrial production of bioethanol. These may vary significantly from site to site, as may soil N₂O emissions. It may be that the proposed lifecycle emission factor is conservative, but there is no indication that this is the case, and no provisions/procedures are provided to assess whether or not this is the case.
 - The methodology includes an innovative proposal of involving the DNA in order to ensure that double counting of emission reductions is avoided. The methodology indicates that “the DNA ... is to be clearly informed of the wide project boundary. This will ensure that the DNA does not approve another fuel switch project that conflicts with the project activity and boundary....”. This should be modified so that a condition of approval should include a certification by the DNA that it is willing and able to ensure that no other credit for GHG emission reductions is issued to other projects using the same fuel (anhydrous bio-ethanol). The DOE should verify this condition, and it should be included in the monitoring plan.
 - The proposed methodology also provides a life-cycle emissions factor for gasoline, but does not distinguish between imported and domestic gasoline. If the bio-ethanol/gasoline blend displaces imported gasoline, the default lifecycle emission factor may overstate emission reductions (as some of these emissions occur overseas). One way of taking this into account could be to pro-rata the emissions factor to take into account the proportion of gasoline used nationally that is imported.

(3) Assessment of the description of the proposed methodology and its applicability

a) State whether the methodology has been described in an adequate manner:

>> Yes.

b) State whether the proposed methodology is appropriate for the referred proposed project activity and the referred project context (described in Sections A - E of the draft CDM-PDD and submitted along with CDM-NMB):

>> Yes.

c) State whether the application of the methodology could result in a baseline scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity.

>> Yes, the methodology could result in an appropriate baseline scenario.

Please explain:

>> However, the methodology will not necessarily ensure that the difficult issues associated with such project activities relating to ownership of/avoiding double-counting of emissions credits is satisfactorily dealt with. This should be revised as outlined in the recommendation section above. Further, the provision of default values for life-cycle emissions associated with production of sugar-cane based anhydrous bio-ethanol in Brazil will not necessarily result in an accurate or conservative estimate for emission reductions associated with the corresponding project activity if this is in another country/region (as is the case for the associated project activity).

(4) Assessment of algorithms/formulae and type of data needed:

a) State whether the description of the methodology includes algorithms and generic formulae that can be applied to other potential project activities (if not, the proposed new methodology will be considered as a project-specific methodology):

>> Yes (although the equations should be rewritten to include the energy content of fuels rather than just the volume produced (equation 2) or carbon emissions factor per volume, equation 1 and 2).

b) Explain the spatial scope of data used to determine the baseline and whether the scope is appropriate:

>> The data used to determine the baseline are based on a life-cycle analysis, which is appropriate. However, for project emissions the emissions need to be based on calculations for the project site and not on literature (unless this can be demonstrated to be a conservative value).

c) Explain the vintage of data used (in relation to the duration of the project crediting period) and whether the vintage of data is appropriate, indicating the period covered by the data:

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- Gasoline lifecycle emissions factor, 2002 (appropriate for the proposed project, but would need to be revised periodically, e.g. at crediting period).
- Sugar-cane based bioethanol lifecycle emissions coefficient: 2004 study. The vintage is appropriate, but the relevance of this study to a project in another country/region should be justified.
- CO₂ emission factor for transportation vehicle fuel: from revised IPCC guidelines. Appropriate.
- Fuel efficiency of haulage vehicles: not specified.
- Other components: “0 years before as updated annually” (not clear).

(5) Definition of the project boundary related to the baseline methodology:

a) State how the project boundary is defined in terms of:

i) Gases and sources

>> Life-cycle emissions (CO₂, CH₄, N₂O) associated with production and combustion of gasoline, and with production and combustion of bio-ethanol fuel and its transportation to the blend/distribution location. Emissions associated with land clearing for sugar cane production have not been included.

ii) Physical delineation

>> Life-cycle emissions.

b) Indicate whether this project boundary is appropriate:

>> The sugar cane growing sites should also be included.

(6) Key assumptions/parameters (including emission factors and activity levels) and data sources:

a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:

>>

Implicit assumptions:

- Life-cycle emissions of bio-ethanol and gasoline are constant over time and do not vary with location (this is a problematic assumption for bio-ethanol).
- Life-cycle emissions from literature for both bio-ethanol and gasoline are appropriate and conservative (this should be justified).
- The blended bio-ethanol/gasoline mix will be consumed in the host country and not exported to an Annex B country (the CDM-NMM should be changed so that AHy represents the volume of anhydrous bio-ethanol produced and used in the host country).
- Any emissions associated with land-clearing for sugar-cane production are unimportant (this should be justified, or such emissions included in leakage calculations).

Explicit assumptions:

- Bio-ethanol will not necessarily replace gasoline on a one-to-one (volume) basis (transparent, OK).
- The fact that the methodology requires the host country DNA to be informed of the wide project boundary will “ensure that the DNA does not approve another fuel switch project that conflicts with the project activity ... and... result in double counting of emissions reductions”. (problematic – see c) below).

b) State whether the key assumptions are arrived at in a transparent manner:

>> The implicit assumptions are not transparent.

c) Give your expert judgement on whether the assumptions/parameters are adequate:

>> See a) above for 1-5. Assumption 6 presumes a relatively high level of capacity and follow-up at the host country DNA level. This should be revised as outlined in the recommendation section above.

d) Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):

>> Life cycle emission factors are obtained from one literature study. IPCC default emission factors are used for CO₂ emission factors for transport fuels. Manufacturers’ data are used for the fuel efficiency of haulage vehicles. Project-specific data is used for transport haulage distance, volume of biofuel produced and sold for transportation. (To note: CDM-NMM indicates that the relative fuel efficiency of anhydrous bioethanol and gasoline will be derived from local studies. Reference to this information should also be included in CDM-NMB).

e) Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:

>> Assuming that one Brazilian study on the lifecycle emissions of sugar-cane based bio-ethanol can be used as a default, conservative emissions factor for project activities occurring in other countries and regions is not appropriate and should be justified.

f) State possible data gaps:

>> Project-site related life-cycle ethanol study.

(7) Assessment of uncertainties:*a) State whether the methodology includes an assessment of uncertainties regarding:**i) The basis for determining the baseline scenario:*

>> The documentation of the proposed methodology includes uncertainties regarding the extent to which the production of bio-ethanol will lead to reduced emissions and the level of emissions associated with the production of ethanol.

ii) Algorithms/formulae:

>> No .

iii) Key assumptions:

>> No - uncertainties in key assumptions (lifecycle emissions of bio-ethanol) are not included. An assessment of whether one point for LCA emissions for a European-based study (to calculate the baseline emissions) and a Brazil-based study (to calculate project emissions) would result in significant uncertainties when applied to a project in another country has not been properly assessed. The use of this one LCA emission factor as a conservative emission factor should be justified, and the uncertainty of using such estimates should be assessed. In doing so, it would be helpful to list the individual estimates of energy use and GHG emissions by LCA stage, noting how well they apply (or might need to be adapted) for the project context as compared with the Brazilian context under which the estimate was developed. Otherwise, the applicability region should be limited to Brazil. Further, other emissions should be taken into account in this life-cycle analysis (such as life-cycle emissions) or guidance on how to include or how to justify excluding land-clearing emissions associated with sugarcane production.

iv) Data:

>> The use of IPCC default emission factors and a European-based study for gasoline lifecycle emissions is assumed to add to the conservativeness of the proposed methodology.

b) State whether the uncertainties presented are reasonable:

>>The magnitude of uncertainties is not presented in the proposed baseline methodology.

(8) Leakage:*a) State how the baseline methodology addresses any potential leakage due to the project activity:*

>> The methodology indicates that no leakage is expected.

b) Indicate whether the treatment for leakage is appropriate and adequate:

>> Requiring that the bio-ethanol is blended with gasoline will reduce potential leakage from using bio-ethanol for non-transportation purposes.

Potential leakage due to land-use changes has not been included. This leakage could occur if increased sugarcane production leads directly or indirectly (e.g. via a reduced quantity of land available for traditional crops) to deforestation.

(9) Transparency and “conservativeness”:*a) Indicate whether the baseline methodology was developed in a transparent way:*

>> Partially, although it is not clear why the two studies used to provide the default lifecycle emission factors were used.

b) State whether the baseline methodology is conservative:

>> The methodology is conservative in some respects. In particular, it uses European-based lifecycle emission factors for gasoline, and IPCC default factors for transport fuels. It also includes emissions from transporting the bio-ethanol to its location of distribution.

However, it is not clear from the methodology if the default lifecycle emission factors presented (crucial to

the methodology) are conservative.
<p>(10) Potential strengths and weaknesses of the proposed baseline methodology (please explain):</p> <p>>> Life-cycle analysis is robust, and a strength of the proposed methodology. Weaknesses are outlined above.</p>
<p>(11) Other considerations, such as a description of how national and/or sectoral policies and circumstances have been taken into account (please explain):</p> <p>>> The proposed methodology allows for national circumstances to be taken into account, including for the lifecycle emissions factor. However, as outlined above, it is not clear whether it is appropriate to provide one single default value for a lifecycle emissions factor for bio-ethanol.</p>
<p>(12) Applicability of the proposed methodology across project types and regions (please indicate):</p> <p>>> Unclear (as mentioned above) that the default emission factors proposed are applicable across countries and regions.</p>
<p>(13) Any other comments:</p> <p>a) State whether any other source of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM web site) has been used by you in evaluating this methodology. If so, please provide specific references:</p> <p>>> None.</p> <p>b) Indicate any further comments:</p> <p>>> The following sentence is unclear (p4): "Project proponents must demonstrate that the project activity will not result in a fuel switch from an identified alternative fuel to gasoline, and therefore that the baseline fuel is gasoline." Should the word "not" be excluded? Or should "project activity" read "baseline"?</p>
<p>II. Proposed new monitoring methodology (specify title here): >> Monitoring methodology for the production of sugar cane based anhydrous bio-ethanol for transportation use.</p>
<p><i>In respect of the proposed new monitoring methodology, evaluate each section of CDM-NMM to the draft CDM-PDD. Please provide your comments section by section:</i></p>
<p>(1) Brief description of new methodology:</p> <p><i>Describe new methodology:</i></p> <p>>> The monitoring methodology is restricted to monitoring the volume of anhydrous bio-ethanol that is produced at the project activity site and used as transportation fuel, and emissions associated with the transport of the bio-ethanol from the distillery to the place of blending/distribution.</p>
<p>(2) Key assumptions/parameters:</p> <p>a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:</p> <p>>> The key assumption is the use of externally-sourced lifecycle emissions data for gasoline and sugar-cane based bioethanol. It is also assumed that all bioethanol is used in transport. This should be checked by monitoring purchase contracts of the bioethanol with a gasoline retailer. Issues arising from such assumptions are discussed in section I above.</p> <p>b) State whether the key assumptions are arrived at in a transparent manner:</p> <p>>> See discussion in section I above.</p> <p>c) Give your expert judgement on whether the assumptions/parameters are adequate:</p> <p>>> The parameter AHy should reflect the volume of anhydrous bio-ethanol produced and used in transportation in the host country.</p>

(3) Data sources and data quality:

a) *Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):*

>> Distance of bio-ethanol distribution (measured), fuel efficiency (manufacturers' data), carbon emission factor (IPCC), volume of bio-ethanol used in transportation (from factory and purchaser records), relative fuel efficiency of anhydrous bio-ethanol and gasoline (derived from local studies).

b) *Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:*

> Further items need to be monitored (see below).

c) *State possible data gaps:*

- Proportion of gasoline used in host country that is imported (this should be able to be obtained at an annual level from a national statistics office).
- What proportion (if any) of ethanol is used in gasoline blends. (This will affect the emission factors).
- Emissions from land-clearing related to increases in sugar-cane production areas.

(4) Assessment of the description of the proposed methodology and its applicability:

a) *State whether the proposed methodology has been described in an adequate manner:*

>> Yes.

b) *State whether the proposed methodology is appropriate for the referred proposed project activity and the referred project context (described in Sections A - E of the draft CDM-PDD and submitted along with CDM-NMM):*

>> Revisions are needed to both the CDM-NMB and associated CDM-NMM (as outlined above) before this methodology can be applied to the referred proposed project activity.

c) *State whether this proposed monitoring methodology is compatible with the proposed baseline methodology described in CDM-NMB of the draft CDM-PDD:*

>> Yes (but both need revision).

(5) Leakage (please elaborate, if appropriate):

>> Not included, but should be (see discussion in baseline section).

(6) Quality assurance and control procedures (please explain):

>> Only measurement and monitoring quality assurances are needed, and they are adequately addressed by the proposed monitoring methodology.

(7) Potential strengths and weaknesses of the proposed monitoring methodology (please explain):

>>

Strength:

- Simple

Weaknesses:

- as outlined above.

(8) Applicability of the proposed methodology across project types and regions *(please indicate):*

>> [Applicable across all countries which use ethanol blends in transportation fuels above mandatory levels.](#)

(9) Any other comments:

a) State whether any other source of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM web site) has been used by you in evaluating this methodology. If so, please provide specific references:

>> [None.](#)

b) Indicate any further comments:

>> [No further comments.](#)

Signature of Meth Panel Chair

Date: 15/04/2005

 (Jean-Jacques Becker)

Signature of Meth Panel Vice-Chair

Date: 15/04/2005

(José Miguez)

Information to be completed by the secretariat

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