



**CDM: Proposed new methodology expert form
(version 04)**
(To be used by methodology experts providing desk review for a proposed new methodology)

Name of expert responsible for completing and submitting this form

Deepak MAWANDIA

Related F-CDM-NM document ID number

NM109 -Sunflower Methyl-Ester Biodiesel Projects in Thailand.

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.

A. Evaluation of the proposed new methodologies by desk reviewers:

I. Evaluation of the proposed new baseline methodology:

Title of new baseline methodology:>>Generalized baseline methodology for transportation Bio-Fuel production with LCA.

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

>> **Project Type** : This methodology is applicable to projects that involve a voluntary partial / complete substitution of liquid fossil fuel with bio diesel in the transport sector.

Region : The methodology should be relevant & applicable to regions across the world, provided the country does not have local legislations requiring a mandatory shift to bio-diesel / fuel.

Others :

(i) The entire production volume is consumed in the country of origin / another non annex 1 country with similar regulatory and operating environment. There is no incidence of 'leakage' to a non similar country.

(ii) The project should not result in reducing the forest cover nor should it prevent afforestation / reforestation efforts.

- ii. Strengths and weaknesses of the methodology:

>> **Strengths :**

The approach of splitting the whole bio fuel value chain into three key components and then analysing each component is very appropriate and relevant to the project category. It is quite evident that significant efforts have been put in to establish and ensure environmental integrity. The document touches upon a host of issues in great depth and its use of the Life-Cycle- Assessment for computing leakages is very interesting.

Weakness:

(a) There is scope for improving the quality of the drafting. In its current form it tends to get difficult to follow. To clarify things, it may also be desirable to provide explanations for the short forms / acronyms used.

(b) At places it seems that the document is incomplete and states things like "to be elaborated..", "attachment at a later stage". It is generally expected that the submitted document should be complete with regards to the project under consideration, else it is indeed very difficult to review it in totality.

(c) Financial analysis : though the PDD does mention that the financial details are enclosed, I was however, unable to locate it. In the absence of relevant details on the underlying assumptions used, it is difficult, if not impossible to comment on the validity of the financial analysis and results.

Details of critical assumptions eg. projected selling price of the bio diesel, details regarding the impact of CDM registration on the projects viability, cost of the project, capital structure and the cost of funds etc. should be included in the document.

In addition as "cost" is considered to be the largest barrier, details should be provided outlining the selling price at which the Bio-diesel produced becomes economically viable. This would help to establish the point of inflexion, i.e. the price point of petro-diesel above which the bio-diesel becomes economically attractive (all things remaining constant) and thus perhaps the baseline scenario.

(d) Whereas the project does seem to have a very strong case for establishing additionality (being the first of its kind in Thailand etc.), the explanation given in D.1 & D.3 is very confusing and difficult to follow. It may be desirable to simplify this.

(e) Engine efficiency: The details stated in Page 45 of the PDD deals with a modern series 60 engine, I'm not sure that the same is applicable to all the vehicles in the target market.

The methodology does provide for the use of an "Adjustment factor related to the difference of fuel efficiency for km drive per GJ", I am unable to visualise how the relevant data is to be generated accurately. This should be explained in greater details in the PDD as it could play a key role in determining the actual GHG emissions reduction on account of the use of bio-diesel produced.

(f) GHG emissions on account of the waste water / effluent treatment at the project site needs to be looked into and if significant, accounted for.

iii. Any changes needed to improve the methodology:

- a. Minor changes:>> in A.4.2, the project can also be categorised as "Switching fossil fuel", with sectoral scope - Transport (i.e. number 7).

Possible GHG emissions on account of the clearing and disposal of biomass from the plantation area needs to be addressed and accounted for (if significant).

- b. Major changes:>> In my opinion, the whole document needs to be revised and edited to make it more readable. In its current form, it is a difficult document to understand.

Monitoring the end use of the bio-diesel and ensuring that it is not exported to a host country that is not similar (an Annex 1 country) is critical to ensure environmental integrity and also prevent double counting of the emissions reduction.

I am of the opinion that going forward in say 2-5 years time, it is possible that the FOB prices of the bio-diesel for exports to certain Annex 1 countries could be more attractive than local sales (this looks all the more possible when one looks at the prevailing price of emissions reduction units (of EU origin) and the penalties for non compliance under the EU ETS). Under this scenario, it is possible that enterprising individuals buy the bio-diesel in the local market and export it to an Annex 1 country. The methodology should outline the process by which it proposes to ensure that this does not happen. This in my opinion is a significant area of concern.

II. Evaluation of the proposed new monitoring methodology:

Title of new monitoring methodology: >> Generalised monitoring methodology for transportation bio-fuel production with LCA.

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

>> **Project Type** : This methodology is applicable to projects that involve a voluntary partial / complete substitution of liquid fossil fuel with bio fuel /diesel in the transport sector.

Region : The methodology should be relevant & applicable to regions across the world, provided the country does not have local legislations requiring a mandatory shift to bio-diesel / fuel.

Others :

- (i) The entire production volume is consumed in the country of origin / another non annex 1

country with similar regulatory and operating environment. There is no incidence of 'leakage' to a non similar country.

(ii) The project should not result in reducing the forest cover nor should it prevent afforestation / reforestation efforts

ii. Strengths and weaknesses of the methodology:

>> **Strength:** The methodology is simple and easy to implement.

Weakness:

(i) Description of the system for monitoring the actual quantity of bio fuel produced is missing. This, in my opinion is a key data.

(ii) Lack of suitable provisions to monitor the actual quantity of bio diesel consumed (and the resultant replacement of petro-diesel for a given level of service delivery). As the CER computation is based on the bio diesel actually consumed (and the corresponding net reduction in consumption of petro diesel for a similar level of service delivery), this is a key factor to ensure the environmental integrity of the methodology.

(iii) Absence of suitable provisions to monitor increase (if any) in the consumption of petro diesel, on account of blending bio-diesel. It should be pointed out that the PDD refers to modern engines and the fact that there is negligible difference in the fuel efficiency. Whether this is also true for the engine mix in the target market needs to be addressed.

(iv) Lack of suitable provisions to monitor and account for possible 'leakages' of the bio diesel on account of sale by the distributor to a 3rd party for exports to an Annex 1 country.

(v) Leakages on account of destruction of 'expired' bio diesel stock (in its unblended form) by the distributor / retailer needs to be monitored effectively. The incentive for doing this is evident.

iii. Any changes needed to improve the methodology:

a. Minor changes:>> Include the process for monitoring the quantity of actual bio diesel produced.

b. Major changes:>>

(i) Monitoring of actual end use of the bio diesel needs to be looked into.

(ii) If the project seeks to claim credit for GHG emission reduction on account of increased use of bio fertilizer manufactured by it (used to replace use of synthetic fertilizer), it needs to include a procedure for monitoring the actual use of the said bio fertilizers.

B. Details of the evaluation of the proposed new methodology by the desk reviewer:

I. Proposed new baseline methodology (*specify title here*): >> **Generalized baseline methodology for transportation Bio-Fuel production with LCA.**

(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 methodology considers anthropogenic greenhouse gas emissions by the use of petro-diesel proposed to be substituted with BDF-ME as the baseline emission. The methodology is applicable to projects that manufacture bio-diesel and sells it, resulting in a fuel switch from petro-diesel to bio-diesel and thus reducing GHG emissions.

The methodology uses the consolidated additionality tools to establish that the proposed project activity is not the baseline scenario and is thus additional.

The methodology tries to determine the baseline emissions by computing the Life Cycle CO₂e of the fossil fuel that the bio-diesel will/is expected to substitute. This is then adjusted to account for differences in fuel efficiency on account of the use of bio diesel.

The GHG emissions reduced as computed above is then adjusted for leakages on account of the said project activity.

b) State the approach selected:

>> 48 (b) " Emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment"

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:

>> I am not sure I completely understand what the document tries to explain in C.2.

In my opinion, as the Bio-fuel seeks to replace (partially) fossil fuel and thus the GHG emissions reductions are in effect a direct result of this substitution. In view of the same, 48(a) perhaps could be a better choice.

(2) Basis for determining the baseline scenario:

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

>> Yes

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

>> The underlying rationale for the algorithms / formulae used is that, in the absence of the proposed project activity, the business as usual scenario would be the continued use of liquid fossil fuel in the target activities.

The methodology proposes compute the net GHG emissions reduction (in terms of CO₂e) by comparing the GHG emissions on account of (i) the Base line scenario i.e. the continued use of fossil fuel and (ii) The GHG emissions on account of the substitution of the fossil fuel by bio diesel / fuel.

It proposes to use the CO₂e emitted on a complete life cycle basis (by doing a life cycle analysis of the fossil fuel (proposed to be) replaced and the bio diesel / fuel produced.

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?

>>The methodology proposes to use the "Additionality Tools" with suitable modifications to demonstrate that the said project activity is additional. I am of the opinion that the existing tools for the demonstration and assessment of additionality are sufficient.

In my opinion, the explanation should be simplified and it may be desirable to present the case focussed on the project on hand and not complicate matters by trying to develop a 'consolidated methodology' for bio fuels. (I'm sure this is something that will follow as has been done for other project categories)

Nevertheless, I am of the opinion that the said project activity, being one of the first in its host country should be eligible to qualify as being 'additional'.

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

>> Yes, subject to issues raised elsewhere in this report.

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

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

>> Whereas the underlying concepts are very appropriate and relevant, I am of the opinion that the parts of significant parts of the methodology should be re-drafted and presented in a simplified and focussed manner. In its current form, it is confusing and difficult to read.

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):

>> The proposed methodology, in principle is adequate, but it needs to be edited and presented in an uncomplicated manner. In addition, it needs to address issues raised elsewhere in this review report.

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, I am of the opinion that the application of the methodology could result in a baseline scenario that is not in material variance with the anthropogenic emissions by sources of green house gases that would occur in the absence of the proposed project activity.

Please explain:

>> I have some concerns regarding the availability of data required to do a life cycle analysis (to compute the CO₂e emitted) by the fossil fuel that is to be substituted by the bio fuel. The alternative, the use of IPCC default data is perhaps a simpler option.

It may be desirable to present the methodology with a project focus and state the kind of data and information available for the said project, instead of making general statements on what the project participants shall provide etc.

I am not sure how the data required to accurately estimate the change in engine efficiency on account of the bio-fuel will be collected. This could have an impact on the estimated CO₂e emissions reduction.

(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

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

>> The methodology tries to use local, host country data to the extent possible, together with IPCC defaults for certain issues eg. N₂O emissions on account of synthetic fertilizer use.

In my opinion, the scope is generally appropriate.

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:

>> Most of the data proposed to be used would be monitored and thus of current vintage. The emission factor for the grid is based on the latest data provided by the Power Company.

In my opinion, the vintage of the data is generally appropriate.

(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

>> (i) N₂O - use of synthetic fertilizers at the plantation site

(ii) CO₂ - use of fossil fuel at the plantation site, for transportation, use of grid generated electricity, steam plant site/facility.

(iii) CH₄ - Fossil fuel use at the plantation site and for transportation related activities.

ii) Physical delineation

>> The project boundary includes : (i) The Plantation site; (ii) Transportation to the project site; (iii) The project site; (iv) The steam supply site; (v) Transportation to the fuel supply facility; (vi) fuel supply facility; (vii) all vehicles that use the bio diesel / fuel produced by the project.

b) Indicate whether this project boundary is appropriate:

>> The project boundary is generally appropriate; it would be desirable to also consider GHG emissions on account of the use of methanol.

(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:

>> (i) The plantation does not displace any proposed forestry programme, nor does it result in deforestation.

(ii) The proposed project activity (setting up of the bio-fuel plant) is not the most (economically) attractive option available to the project promoters.

(iii) The Bio-fuel produced by the plant shall be consumed as to displace fossil fuel based liquid fuels - I have reservations regarding this as there could be normal loss of the product on account of pilferage, spillage, damage etc. This aspect needs to be looked into. Possibility of exports to an Annex 1 country too needs to be addressed suitably.

(iv) The use of bio fuels / diesel is completely voluntary.

(v) Bio diesel, without incentives (CER, tax breaks etc) is not an economically attractive fuel - this is problematic as this may be the current scenario but in view of the increasing crude prices, the prevailing trading price of the emissions reduction credits (of EU origin) and the penalty for non compliance under the EU ETS, this may not always hold true, as export markets could become economically attractive. The methodology should build a detailed scenario analysis, clearly stating the end (delivered to customer) cost of the Bio diesel, in order to enable an assessment of the various price sensitive issues involved.

(vi) Impact on the efficiency / delivery of service per unit of fuel, on account of the fuel switch can be easily computed - This is problematic as the document does not explain how the relevant data is going to be collected accurately.

(vii) GHG emissions on account of the use of methanol / other chemicals during the production process is not relevant - this may not be the case and it may be desirable to look at GHG emissions from each and every step / component of the value chain.

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

>> Yes, the key assumptions are arrived at in a transparent manner.

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

>> Subject to issues raised elsewhere in this review report, I am of the opinion that the assumptions / parameters are adequate.

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

- >> i) N₂O related data (related to use of synthetic fertilizer in the plantations)- Source IPCC;
 ii) Emission factor for the grid - local / national statistics provided by the power company;
 iii) LCA adjusted emission factor for the fossil fuel displaced or used - sourced from the fuel supplier, if not available - IPCC default factors;
 iv) Fuel efficiency of the bio-fuel - for the principal usage mode, adjustment factor shall be assessed by using scientific literature or reports.
- e) *Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:*
- >> I am of the opinion that the data used are generally adequate, consistent accurate and reliable.
- f) *State possible data gaps:*
- >> (i) Potential GHG emissions on account of usage of other chemicals (eg. methanol) during the manufacturing process.
- (ii) Impact on the Fuel Efficiency / performance of the engine and its impact on net GHG emissions per unit of service delivered needs to be revisited and this could pose a problem.
- (iii) I am of the opinion that the possibility of leakage on account of exports to an Annex 1 country has not been suitably addressed. It should be pointed out that with increasing demand (and thus price) of bio diesel in the Annex 1 countries, the possibility of exports to Annex 1 countries is a very real.

(7) Assessment of uncertainties:

- a) *State whether the methodology includes an assessment of uncertainties regarding:*
- i) *The basis for determining the baseline scenario:*
- >> Yes
- ii) *Algorithms/formulae:*
- >> Yes
- iii) *Key assumptions:*
- >> Yes
- iv) *Data:*
- >> Yes
- b) *State whether the uncertainties presented are reasonable:*
- >> In my opinion, the uncertainties presented are reasonable. I must however reiterate the need to revisit (i) Impact on GHG emissions on account of changes in the efficiency due to the fuel substitution and (ii) possibility of exports to a non similar host country (eg. an Annex 1 country).

(8) Leakage:

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

>> Potential leakage is computed as under :

Leakage = [electricity consumed by the project x Carbon Emission factor of the grid (adjusted for transmission losses)] - [N₂O emissions reduced due to a switch from Synthetic fertilizers to bio fertilizers produced as a by product by the project] + [GHG emissions on account of the use of synthetic fertilizer at the plantation site] + [Indirect GHG emissions on account of the feedstock used at the bio-fuel production site] + [Indirect GHG emissions on account of the production of the synthetic fertilizer used].

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

>> The treatment for leakages is generally appropriate and adequate. However, it may be desirable to look at leakages (i) on account of the use of methanol (and / or other chemicals) during the manufacturing process; (ii) possible exports of the bio fuels to an annex 1 country; (iii) impact on GHG emissions due to changes in the efficiency on account of the use of bio diesel.

Another key issue would be to ensure that the bio diesel sold has been actually used for the intended

purpose. Issues like the destruction of the bio-fuel after its expiry period without accounting it as a leakage, loss on account of pilferage, spills etc. after the point of sale needs to be looked at and if deemed significant, this needs to be suitably addressed.

(9) Transparency and “conservativeness”:

a) *Indicate whether the baseline methodology was developed in a transparent way:*

>> Yes the baseline has been developed in a transparent way.

b) *State whether the baseline methodology is conservative:*

>> The baseline is generally conservative.

(10) Potential strengths and weaknesses of the proposed baseline methodology (please explain):

>> **Strengths :**

The approach of splitting the whole bio fuel value chain into three key components and then analysing each component is very appropriate and relevant to the project category. It is quite evident that significant efforts have been put in to establish and ensure environmental integrity. The document touches upon a host of issues in great depth and its use of the Life-Cycle- Assessment for computing leakages is very interesting.

Weakness:

(a) There is scope for improving the quality of the drafting. In its current form it tends to get difficult to follow. To clarify things, it may also be desirable to provide explanations for the short forms / acronyms used.

(b) At places it seems that the document is incomplete and states things like "to be elaborated..", "attachment at a later stage". It is generally expected that the submitted document should be complete with regards to the project under consideration, else it is indeed very difficult to review it in totality.

(c) Financial analysis : though the PDD does mention that the financial details are enclosed, I was however, unable to locate it. In the absence of relevant details on the underlying assumptions used, it is difficult, if not impossible to comment on the validity of the financial analysis and results. Details of critical assumptions eg. projected selling price of the bio diesel, details regarding the impact of CDM registration on the projects viability, cost of the project, capital structure and the cost of funds etc. should be included in the document.

In addition as "cost" is considered to be the largest barrier, details should be provided outlining the selling price at which the Bio-diesel produced becomes economically viable. This would help to establish the point of inflexion, i.e. the price point of petro-diesel above which the bio-diesel becomes economically attractive (all things remaining constant) and thus perhaps the baseline scenario.

(d) Whereas the project does seem to have a very strong case for establishing additionality (being the first of its kind in Thailand etc.), the explanation given in D.1 & D.3 is very confusing and difficult to follow. It may be desirable to simplify this.

(e) Engine efficiency: The details stated in Page 45 of the PDD deals with a modern series 60 engine, I'm not sure that the same is applicable to all the vehicles in the target market.

The methodology does provide for the use of an "Adjustment factor related to the difference of fuel efficiency for km drive per GJ", I am unable to visualise how the relevant data is to be generated accurately. This should be explained in greater details in the PDD as it could play a key role in determining the actual GHG emissions reduction on account of the use of bio-diesel produced.

(f) GHG emissions on account of the waste water / effluent treatment at the project site needs to be looked into and if significant, accounted for.

(11) Other considerations, such as a description of how national and/or sectoral policies and circumstances have been taken into account (please explain):

>> The methodology examines the impact of local regulations in depth under the following circumstances:

(i) No regulations; (ii) Subsidies or tax incentives to promote the bio fuel or other compatible biomass based fuel; (iii) Non-mandatory or non-effective regulations to promote the bio-fuel or other compatible biomass based fuels; (iv) Mandatory or virtually mandatory regulations (targeting the fuel seller) to penetrate the bio fuel or other compatible biomass based fuels by setting a quantified threshold; or (v) Mandatory of virtually mandatory regulation (targeting the seller or consumer) which exclude the use of fossil fuel and mandate the use of pure biomass-based fuel use.

In my opinion, the analysis is fair and adequate.

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

>> **Project Type :** This methodology is applicable to projects that involve a voluntary partial / complete substitution of liquid fossil fuel with bio diesel in the transport sector.

Region : The methodology should be relevant & applicable to regions across the world, provided the country does not have local legislations requiring a mandatory shift to bio-diesel / fuel.

Others :

(i) The entire production volume is consumed in the country of origin / another non annex 1 country with similar regulatory and operating environment. There is no incidence of 'leakage' to a non similar country.

(ii) The project should not result in reducing the forest cover nor should it prevent afforestation / reforestation efforts.

(13) 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:

>>

b) Indicate any further comments:

>> In my opinion, it may be desirable for the project developer to focus on the project on hand instead of trying to develop a general bio-fuel methodology, as it will be simpler to conceptualise and explain. The project focus will help in simplifying a lot of issues and in the process will lead to the development of a broad bio-fuel consolidated methodology.

Ownership of the Carbon Credits : as the bio fuels will be used by the vehicle owners, the emissions reduction credits should legally accrue to the vehicle owners. Unless the entire production will be used in-house, I'm not clear on the grounds on which the project developer is submitting the PDD, as he may not be the owner of the CER awarded (if any)?

In my opinion, it may be desirable to introduce a suitably structured agreement that would facilitate transfer of the rights to the credits from the end user of the bio fuel to the project developer.

II. Proposed new monitoring methodology (specify title here): >>Generalised monitoring methodology for transportation bio-fuel production with LCA.

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:

(1) Brief description of new methodology:

Describe new methodology:

>> The proposed methodology is applicable to the project which produces a biomass-based transportation fuel. The methodology proposes to monitor each step in the bio-fuel manufacturing value chain for both the baseline and the project scenario. However, emissions at the bio-fuel consumption stage are monitored at the supply point (i.e. output of the Bio-fuel production stage).

Characteristic feature of the methodology is to include Life Cycle Analysis. Thus, despite the fact that main component of the project is the second stage (i.e. the bio diesel production site), a lot of activities are monitored at the first stage (Plantation related).

(2) Key assumptions/parameters:

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

- >> (i) Monitoring of emissions at the bio-fuel consumption stage can be achieved by monitoring the supply point (i.e. output point of the bio fuel production stage) : I find this problematic as it does not account for pilferage, spills, damaged stock, exports to Annex 1 countries etc.
- (ii) Sale of bio-fertiliser (if any) is equal to its usage and a corresponding reduction in the application of synthetic fertiliser and thus N₂O emissions - This is problematic as sale cannot be assumed to be equivalent to usage. If the methodology is to claim credits for production of bio fertilisers and its use in replacing synthetic fertilisers, it needs to put in place a methodology to actually monitor end use of the bio fertiliser.
- (iii) Impact of changes in engine efficiency is negligible - this is problematic as it may well be the case in the modern engines that is referred to in the PDD, but is it also applicable to the engines in use in the target market, is a question that needs to be answered.

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

- >> Yes the assumptions are arrived at in a transparent manner.

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

- >> Whereas most of the assumptions are generally adequate, the ones listed above (in 2a) deserves a serious re examination.

(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):

- >> (i) Electricity used by the project - source: project operation records
- (ii) Grid emission factor - source: Official statistics
- (iii) Petro diesel consumed for off-site transport - source: project operation records/ third party data
- (iv) Emission factor for fossil fuel used on site - National data / IPCC emission factor , LCA
- (v) Fossil fuel used for plantation related activity - fuel bills / receipts
- (viii) N₂O emission due to use of synthetic fertilizers : receipts / weight meter of the fertilizer received and used.
- (ix) Bio fuel consumed - derived from the quantity of bio fuel sold -source : sales records.

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

- >>The data used are generally adequate, consistent, accurate and reliable.

c) State possible data gaps:

- >> Bio fuel sold may not be equal to the bio fuel consumed. This, in my opinion is a key concern.

(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):

- >> Subject to issues raised elsewhere in this report, the proposed methodology is generally appropriate.

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

- >> The proposed monitoring methodology is generally compatible.

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

>> Possible leakage on account of diversion of the bio fuel after the point in sale (that is monitored) needs to be looked into.

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

- >> (i) **Electricity used by the project** : monitored using calibrated, energy meters installed within the premises. Electricity bills will be regularly verified.
- (ii) **Grid Emission factor**: Source : power company, based on national / local statistics .
- (iii) **Fossil fuel consumed at the project site** : fuel purchase records
- (iv) **Bio-fuel sold or utilised** : Weight meter, cross checked with sales records.
- (v) **Petro diesel consumed for off site transport**: Project proponents will maintain a record of the petro diesel purchased for the vehicles used for transportation. Bills & amounts paid towards the purchase of the petro diesel will be verified. -- In my opinion the QA /QC needs to be strengthened by cross checking the actual consumption of petro diesel with the theoretical based on approximate distances travelled.
- (v) **CO2 emission factor for petro diesel**: based on national data / official statistics or IPCC emission factors adjusted for LCA.
- (vi) **Plantation related emissions**: monitoring of fossil fuel used, sunthetic fertilizers used etc.
- (vii) **Bio fertilizer sold** : weight meter, corss checked with sale records.

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

>>**Strength**: The methodology is simple and easy to implement.

Weakness:

- (i) Description of the system for monitoring the actual quantity of bio fuel produced is missing. This, in my opinion is a key data.
- (ii) Lack of suitable provisions to monitor the actual quantity of bio diesel consumed (and the resultant replacement of petro-diesel for a given level of service delivery). As the CER computation is based on the bio diesel actually consumed (and the corresponding net reduction in consumption of petro diesel for a similar level of service delivery), this is a key factor to ensure the environmental integrity of the methodology.
- (iii) Absence of suitable provisions to monitor increase (if any) in the consumption of petro diesel, on account of blending bio-diesel. It should be pointed out that the PDD refers to modern engines and the fact that there is negligible difference in the fuel efficiency. Whether this is also true for the engine mix in the target market needs to be addressed.
- (iv) Lack of suitable provisions to monitor and account for possible 'leakages' of the bio diesel on account of sale by the distributor to a 3rd party for exports to a Annex 1 country.
- (v) Leakages on account of destruction of 'expired' bio diesel stock (in its unblended form) by the distributor / retailer needs to be monitored effectively. The incentive for doing this is evident.

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

>> **Project Type** : This methodology is applicable to projects that involve a voluntary partial / complete substitution of liquid fossil fuel with bio diesel in the transport sector.

Region : The methodology should be relevant & applicable to regions across the world, provided the country does not have local legislations requiring a mandatory shift to bio-diesel / fuel.

Others :

- (i) The entire production volume is consumed in the country of origin / another non annex 1 country with similar regulatory and operating environment. There is no incidence of 'leakage' to a non similar country.
- (ii) The project should not result in reducing the forest cover nor should it prevent afforestation /

reforestation efforts

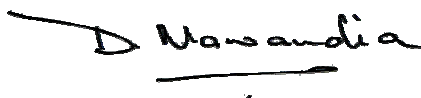
(9) Any other comments:

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:

>> -NA -

b) Indicate any further comments:

>> In my opinion, the methodology is very well thought through, but needs to be edited for making it easier to read and follow. The key issues that needs to be monitored / established is the actual end use of the bio fuel / diesel and the corresponding performance data.



Signature of desk reviewer

Date: 27 /May / 2005

Information to be completed by the secretariat

F-CDM-NMex doc id number	
Date when the form was received at UNFCCC secretariat	
Date of transmission to the Meth Panel and EB	
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