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|  <p style="text-align: center;"><b>CDM: Proposed new methodology expert form</b><br/>(version 04)<br/>(To be used by methodology experts providing desk review for a proposed new methodology)</p>   |                     |
| Name of expert responsible for completing and submitting this form  | Suzana Kahn Ribeiro |
| Related F-CDM-NM document ID number   | NMO128              |
| <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>   |                     |
| <b>A. Evaluation of the proposed new methodologies by desk reviewers:</b>   |                     |
| <b>I. Evaluation of the proposed new baseline methodology:</b>  |                     |
| Title of new baseline methodology:>>Baseline methodology for modal shifting in industry for product/feedstock   |                     |
| <p>i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):</p> <p>&gt;&gt;The methodology was developed based on the circumstances of Aracruz Plant of Barra do Riacho and its eucalyptus plantations in the south of Bahian State in Brazil. This methodology is applicable to transport modal shifting project, with CO2 emission reduction, of general industrial activities in terms of moving feedstock to the industrial plant. There is not any other approved methodology for the same conditions of application.</p> <p>The methodology can be applicable to similar projects concerning freight transport, where origin/ destination matrix is defined and Constant, as well as the kind of load to be transported.</p> <p>Therefore the methodology is applicable to similar projects globally.</p> <p>Strengths and weaknesses of the methodology:</p> <p>There is no way to assess this methodology with the approved ones, for no similar methodology has been approved so far.</p> <p><u>Strengths</u></p> <p>&gt;&gt; Of simple approach / easy calculations, data collection and verification.</p> <p>Of easy industrial production association with transport energy consumption, what makes emissions reduction not connected with business cycle variation, which is good.</p> <p><u>Weaknesses</u></p> <p>The modal shift could be implemented for reasons other than direct financial profits and benefits. In that case, not transporting wood through roadway could have motivations associated with the increase in accidents due to intense truck traffic flow, roadway operational capacity saturation, among others.</p> <p>A possible increase in the diesel price has not been considered, nor roadway investments to improve truck flow.</p> <p>It hasn't been considered the possibility of present vehicles efficiency improvement.</p> <p>So, many of important considerations have not been taken into account, turning the</p> |                     |

methodology too simple and not so robust.

ii. Any changes needed to improve the methodology:

- a. Minor changes:>>Since the methodology is based on the trucks, barges and loading/unloading operations fuel consumption, it would be very important to proceed an evaluation of those vehicles and machines characteristics, such as fuel efficiency, age, technological state, among others as well as operational characteristics. The methodology uses a Top Down approach, which is very simple. The emission factors should be evaluated regularly since the fuel composition could be altered during the project lifetime. Wherever possible local fuel emission factor should be used.

Major changes:>>Need to address the issue of vehicles efficiency increase, possible fleet replacement with new or even different vehicles, roadway improvement allowing a more robust baseline scenario.

## II. Evaluation of the proposed new monitoring methodology:

Title of new monitoring methodology: >> Monitoring methodology for modal shifting in industry for production/feedstocks

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

>> The methodology was developed based on the circumstances of Aracruz Plant of Barra do Riacho and its eucalyptus plantations in the south of Bahian State in Brazil. This methodology is applicable to transport modal shifting project, with CO2 emission reduction, of general industrial activities in terms of moving feedstock to the industrial plant. The methodology was developed based on the circumstances of Aracruz Plant of Barra do Riacho and its eucalyptus plantations in the south of Bahian State in Brazil. This methodology is applicable to transport modal shifting project, with CO2 emission reduction, of general industrial activities in terms of moving feedstock to the industrial plant.

The methodology aims to monitoring de CO2 emissions reductions relate to CO2 generate from combustion of fossil fuels used in a more efficient transport mode.

This methodology is applicable to any transport project involving shifting of transport mode of product/ feedstock of an industry.

- ii. Strengths and weaknesses of the methodology:

>>Strengths : Can be applied to similar projects involving transport modal shift in transporting feedstock/ products in an industry. The data use is generally reliable and accurate since almost all the needed data would be collected at the industrial site. The methodology is simple.

Weaknesses : The data are too much aggregated jeopardizing the possibility to evaluate the fuel efficiency of the vehicles. The methodology does not consider possible improvements in the roadway transport either to a better fuel efficiency of the existing fleet nor the possible replacement of this fleet. It doesn't consider the possible investments in the roadway in order to improve the trucks traffic flow, which will lead to minor fuel consumption with less CO2 emissions. There is any evaluation of a monitoring way to

analyse the load and unloading activities performance. Therefore it is not clear if the the monitoring methodology give a real picture about the CO2 avoided emissions between baseline and project scenario.

- iii. Any changes needed to improve the methodology:
  - a. Minor changes:>>Include disaggregate data about the baseline scenarios and its evolution in order to be possible to evaluate the net emission reduction in a more detailed way.
  - b. Major changes:>>Include data and monitoring system about fuel efficiency of trucks/barges and load and unloading systems with a periodic evaluation in order to analyse its evolution.

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

### **I. Proposed new baseline methodology (specify title here): >>Baseline methodology for modal shifting in industry for product/feedstocks**

**(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:*

>>Basically it is an evaluation of CO2 emission reduction due to the transport modal shift of the feedstock/product transport within in a specific industry activity (pulp and paper industry).

Before the Project, the transport was made through roadways using trucks and if the CDM Project is implemented the transport will be done by trucks (from plantation to the port) and barges (from the port to the industry). Besides this transport modal shift it needs to be considered the load and unloading operations in the port. Regarding emission reduction, the calculations are simples since it is available the truck fuel consumption, as well as the fuel composition and its emission factor, the barges fuel consumption with its emission factor too. It is also available the fuel used in the operations of loading and unloading in the port with the respective fuel emission.

The emission of the other GHG are not significant but are also calculated anyway.

In order to demonstrate addicionality the methodology uses the “Tool for demonstration of Addicionality”. The most relevant aspect for assuring addicionality is related to financial issues. The project seems not to be financial attractive. However, sometimes a Project needs to be done due to other reasons not always related to financial aspects, for example strategic, environmental reasons among others. .

The way emission reduction evaluation is done is too aggregate. All the road fuel used is considered together as well as all maritime fuel consumed. So, in such a way the methodology does not inform the fuel efficiency per kilometer for each vehicle type.

Other possible scenarios are not analyzed, only the “business as usual” one, where it is not clear if best practices is used in relation to the wood road transport. Therefore, it would be important if the methodology uses a conservative assumption by using a baseline scenario that results in the lowest baseline emissions.

*b) State the approach selected:*

>>The approach selected was : Existing actual or historical emissions, as 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:*

>>This approach was correctly selected; since the whole methodology is based on the verified emission occurred before and after the project. According to the documents presented all the emissions are quantified taking into account the kind of fuel and its consumption in the feedstock/product transport, from the plantation to the industrial plant. This consumption data are available and are easily verified since all of them are in the industry records.

The second approach option is inappropriate since the methodology does not deal with particular Technologies, but transport modalities.

Option 3 is also inappropriate since it is the first project of its kind in a country, with nothing to compare it to.

**(2) Basis for determining the baseline scenario:**

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

>>

The documentation explains how the baseline scenario was chosen, where it is assumed that if there isn't a CDM Project, the wood transport will keep being through trucks which is the cheapest and easiest way to transport wood in the country/ region.

This statement must be re evaluated since during the 10 year period, which is the project lifetime, the intense use of the roadway that links the plantation to the industry plant could not be sustainable. Which means the roadway could not be able to "ESCOAR "the wood in the case of increasing industry production, what is reasonable. Therefore the industry would likely make something regarding this problem as enlarging the present roadway or even looking for an alternative way to "ESCOAR "its feedstock. Another difficulty, the company might face is along with the local communities, due to the fact that the increasing truck traffic will lead to an increase in accidents.

Another possibility, which was not mentioned, is the more efficient use of road transport. In the baseline scenario there is an assumption that in the next 10 year it will be used the same kind of trucks that are used nowadays without any fuel efficiency improvement. There is plenty of room in the freight transport for fuel efficiency gains using other kind of trucks. This is a reality for the sugar cane industry transport system in the southeast of Brazil.

Therefore, in the baseline design it was not considered other opportunities for the increase of road transport efficiency, fleet substitution or improvement in the road traffic flow.

Besides, it is worth mentioning that the company has already built the port and bought some barges in order to introduce maritime transport between the plantation and the industry plant, therefore it is not clear what is the destination of this already done investment

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

>>The calculation is simples, where it is considered the transport fuel consumption reduction for 1 unit of feedstock when there is a shift in the transport mode from plantation to the industry plant.

For each kind of fuel there is a correspondent CO2 fuel emission factor, so this gives an overall emission reduction for the Project. In relation to the others GHG the same kind of calculation is done.

However the kind of vehicle is not mentioned neither their characteristics nor specific fuel consumption. All information is given in an aggregate form. Therefore there is no way to evaluate neither the road transport fuel efficiency potential nor the baseline scenario. So, with this aggregation it is impossible to evaluate if the baseline scenario follows the best practices for freight transport in the country/region.

The same happens regarding barges fuel consumption.

*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 documentation mentions the use of the “Tools for the demonstration and assessment of additionality”, which is in PDD document, to demonstrate that the project activity is additional, highlighting the financial aspects.

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

>> The determination of the baseline additionality is not quite appropriate and adequate.

In terms of CO<sub>2</sub> reduction, the calculation shows easily the amount of avoided CO<sub>2</sub> with this Project. However, all this calculations assume that in the project's absence all wood transport from the plantation to the industry plant will be done by trucks, exactly in the same way it is done nowadays, what might not happen.

Baseline efficiency increases gradually over time, so the methodology must take this into account. Therefore it would be necessary to include an average annual efficiency improvement regarding road transport. Besides that, it should be consider more efficient ways of road transport.

Another issue to be analyzed when dealing with addicionality is that according to PDD document (where is shown the addicionality analysis regarding CDM criteria), the only option, in the case of the project disapproval is keeping the way the transport is made nowadays. This is likely not reasonable, since the roadway could present a saturation in its capacity so that the company might need to look for other alternatives for the wood transport, therefore not necessarily related to climate issues, or the company could have to make some investments in the existing road transport.

The document “*Tools for the demonstration and assessment of additionality*”, does not make clear about what the company will do, in the case of not having the project approved, with the port and the barges already built and bought in order to introduce the wood maritime transport.

Therefore, since only one alternative is analyzed which is the shift from existing trucks toward barges, the baseline emissions might be overestimated.

### **(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

*Please explain:*

>> Once adopted the baseline scenario, the anthropogenic emissions are simple.

### **(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 it does it reasonably.

However to be more useful for other activities projects, it would be more helpful if the methodology uses disaggregate data as truck specific fuel consumption, barges specific fuel consumption and so on.

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

>> The spatial scope is appropriate and also fuel consumption data. They are all collected from the company. Emissions factors are the default ones from IPCC.

*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:*

>> It would be important to consider the technology improvement factor for each vehicle category, which does not happen since there are only Constant values for the aggregate consumption regarding each type of transport mode.

**(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*

>>CO<sub>2</sub>/ CH<sub>4</sub> /N<sub>2</sub>O from: trucks/barges/ loading and unloading activities

*ii) Physical delineation*

>>The physical delineation is the roadway from the plantations to the loading facility for the ocean-going barges, the transport of the product/feedstock via the barges to the unloading facility, and the unloading of the product/feedstock and transport into the plant.

*b) Indicate whether this project boundary is appropriate:*

>>Yes

**(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:*

>>IPCC default values are used and fuel emissions remain constant over life of the project.

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

>>Assumptions are clear

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

>>Fuel emissions constant: This could not happen since the fuel specification might change.  
 Fuel consumption per vehicle constant: Any possible efficiency improvement is considered.  
 Investments in the baseline scenario: There won't be any investments in the baseline scenario, what might not likely occur.

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

>>Most of the data comes from the plant management accountancy systems.

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

>>Yes they are reliable, however too aggregate

*f) State possible data gaps:*

>>Fuel consumption for each kind of vehicles, fleet characteristics as well as transport operational characteristics

#### **(7) Assessment of uncertainties:**

*a) State whether the methodology includes an assessment of uncertainties regarding:*

*i) The basis for determining the baseline scenario:*

>>No

*ii) Algorithms/formulae:*

>>No

*iii) Key assumptions:*

>>No

*iv) Data:*

>>No

*b) State whether the uncertainties presented are reasonable:*

>> The methodology does not consider any level of uncertainties, which is not reasonable, specially for the baseline scenario design.

#### **(8) Leakage:**

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

>>The baseline methodology does not consider leakage.

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

>>It seems to be adequate despite the possible leakage due to the use of the existing barges and port if the project is not implemented. The baseline scenario is not clear regarding this issue.

#### **(9) Transparency and “conservativeness”:**



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

>>Yes, it was described in a transparent way

b) State whether the baseline methodology is conservative:

>> Due to the issues already mentioned, the methodology does not seem conservative. Many possible improvements in the roadway transport leading to a lower fuel consumption and related emissions were not considered.

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

>>The potential strength is that it is very comprehensive, easy to follow and to use and replicate with some minor modifications

The weakness is related to the construction of the baseline scenario, where there are other considerations to be done that are not related to financial profits and benefits or climate issues.

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

>>Considerations regarding national and sectoral policies could be included to the methodology as an example of how a possible change in fuel composition might change the baseline emissions.

Another important consideration could be in relation to the fleet replacement with new trucks that would meet new environment standards what would lead to more efficient vehicles or some road traffic restrictions.

All those consideration would modify the baseline scenario.

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

>>

The applicability of the proposed methodology is more related to the kind of transport activity then the region. It is applicable to freight (feedstock/ product) transport modality shift within an industry activity.

**(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:

>>CDM Methodology Guidebook from Global Environment Centre Foundation from Japan

b) Indicate any further comments:

>>

**II. Proposed new monitoring methodology (specify title here):** >>Monitoring methodology for modal shifting in industry for product/feedstock

*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 methodology focuses on the monitoring of the project emissions and calculates the net emission which is the difference between the baseline and project emissions.

For that, the methodology considers the quantity of fuel used on alternative transport mode (i.e. trucks and barges), quantity of fuel on loading and unloading operations and the amount of product/feedstock transported to the plant.

So, this methodology assumes that it is not expected to achieve better roadway fuel consumption and therefore less emission in the baseline scenario. The methodology does not consider what is going to happen with the port and barges, as well, if the project is implemented.

**(2) Key assumptions/parameters:**

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

>>GHG emission factor for fuel will not change over the lifetime of the project.

Fuel efficiency of the actual transport system will be the same.

Vehicles used presently will be abandoned (including barges).

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

>>In general they are arrived in a transparent manner; however it is not clear how the load and unloading operation is and if the actual transport system is related with the best practices in the country and or region. It is also not clear what is going to happen with the maritime transport system already built (barges/port/ load and unloading systems) if the project is not going to be implemented.

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

>>Details about the actual transport system and its possible evolution in respect to fuel consumption and GHG emissions should be explained as well as the use of the port and barges in the baseline scenario.

**(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):*

>>yes, data source are mainly from the industry through its Environmental Department and the Plant Quality Department.

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

>>yes

*c) State possible data gaps:*

>> Fuel consumption per vehicles, fleet details as well as operational details of the fleet, both for the baseline and project scenario .

**(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):

>>Yes

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

>>Yes

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

>>The document mentions that no leakage is expected from the project activity, due to the very clear project boundaries. It is mentioned that it could be possible to have even less emissions related to the project scenarios because of the fuel savings due to less fuel needed to fill the trucks tanks. However this is not so clear, since there will be the need to supply the barges and the loading and unloading facilities. But, this fuel consumption and the related emissions are likely to be very small, therefore it can be not considered.

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

>Quality assurance and quality control procedures have been included in the monitoring methodology. Appears to be very adequate since apparently the industry already practices those procedures.

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

>>>>Strengths : Can be applied to similar projects involving transport modal shift in transporting feedstock/ products in an industry. The data use is generally reliable and accurate since almost all the needed data would be collected at the industrial site. The methodology is simple.

Weaknesses : The data are too much aggregated jeopardizing the possibility to evaluate the fuel efficiency of the vehicles. The methodology does not consider possible improvements in the roadway transport either to a better fuel efficiency of the existing fleet nor the possible replacement of this fleet. It doesn't consider the possible investments in the roadway in order to improve the trucks traffic flow, which will lead to minor fuel consumption with less CO2 emissions. There is any evaluation of a monitoring way to analyse the load and unloading activities performance. Therefore it is not clear if the the monitoring methodology give a real picture about the CO2 avoided emissions between baseline and project scenario.

In short there is not enough information in order to provide a deep analysis if the baseline

scenario is following the best practices related to freight roadway activity in the country/region

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

>>The methodology should be applied everywhere as long as it is related to transport activity of feedstock/products within an industry.

**(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:

>> CDM Methodology Guidebook from Global Environment Centre Foundation from Japan

b) Indicate any further comments:

>>

Signature of desk reviewer .....

Date: / /

**Information to be completed by the secretariat**

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|---|--|
| F-CDM-NMEX doc id number                              |  |
| Date when the form was received at UNFCCC secretariat |  |
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