



May 28, 2003

[Revision of the March 16 and May 13 version]

REALITY AND DEVELOPMENT OF THE CDM BASELINE SETTING

—MAKING BASELINE PROCEDURES CREDIBLE AND WORKABLE—

CLIMATE EXPERTS

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Abstract

There are a number of misunderstandings about the reality and meaning of CDM baseline setting. This paper clarifies them, and provides theoretical bases for setting guidelines on methodologies for the Methodology Panel under the CDM Executive Board. At the same time, it presents concerns over the current procedures, intending to make the future CDM scheme more effective and workable.

The contents of this paper include the reconsideration on what a baseline scenario is all about, the significance of establishing a high-quality baseline in business terms, the approach of adding CDM parts to existing projects under consideration, the position of setting baseline methodology in scenario building and standardization process, and concerns over current baseline-related processes and the template (version 01) of project design document.

As the first round of methodologies approval process started, several problems are getting obvious, especially the lack of proper understanding of the Project Design Document and the baseline/monitoring methodologies, which are to be discussed.

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This paper is supported by IGES, where the author serves as a visiting senior research fellow.

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1.

Reconsideration of Baseline for CDM Project Activities

1.1. What Is Baseline?

1.1.1 Introduction

Baseline for a CDM project activity represents a scenario “that would otherwise occur in the absence of the project”, and the resulted emission reductions (the amount of CERs to be earned) are to be defined as:

Emissions Reductions = Baseline Emissions – Actual Emissions from the Project Activity.

For project participants, higher baseline emissions provide more credits.

In an “actual” project, then, how should such a baseline scenario be designed, and how should it be interpreted? The answer is not straightforward, and no literature on baseline can tell you what it is all about, especially from the aspect of the *quality* of the baseline scenario.

Therefore, this paper intends to clarify these points from the perspective of projects participants.

1.1.2 Reconfirmation of Concepts in Baseline Setting

The baseline scenario for a CDM project activity is one of the scenarios that *reasonably* represent the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity.

Although a “Baseline Scenario”, or a formula/algorithm representing a baseline scenario, is to be defined at the stage of the PDD development, the “numerical value” of the baseline emissions, —or the quantified number of parameters constituting a formula, —is only an ‘anticipated’ value at this stage (to be described in Section E of the PDD). At the verification stage, however, the “actual measurements” are to be done to these parameters, to settle the numerical value of the baseline emissions (which is, in general, the function of time) in the year of monitoring and verification.

The procedure to establish a baseline ‘scenario’ consists of the following three elements:

- (a) Various conditions used as discrimination criteria in the process of specifying the relevant scenario [*specifying applicable set of conditions required to use relevant mathematical formula* (b)];

- (b) Representation of the baseline scenario in the form of a mathematical formula or algorithm [*logically induced from above conditions (a)*];
- (c) Justification of above (b) to be applied for the related project case [*demonstrating evidences that (a) is satisfied in the relevant project case*].

As stated below, baseline “methodology” refers to a set of above (a) and (b) in this paper.

“Reasonableness” in establishing a baseline scenario consists of this “logical consistency of the methodology” and “methodology’s applicability to the relevant project”, both of which should be satisfied in the baseline scenario determination. This paper assumes that the current CDM Executive Board (EB) acknowledges that the former should be mainly judged by the CDM EB, while the latter should be judged by the Operational Entity.¹

Some “baseline methodologies” may include “the categorization of cases” to reflect various conditions.

In addition, a baseline “approach”² is the categorization of such methodologies. In reality, once a most appropriate methodology has been prepared, it must be examined to determine under which approach the relevant methodology would fall. Even though the PDD assign the selection of the approach before specifying a methodology.

1.2. Reconsideration of the Baseline Scenario

1.2.1 Non-technological Aspects in Baseline Setting

A baseline scenario is a counterfactual scenario by definition.³

¹ However, the guidance for the expert desk reviewer to assess new methodologies ‘clarified’ by e-mail that “*the analysis should include the appraisal on whether the proposed new methodologies described in Annex 3 and Annex 4 could be applied to the project case in such a way that if this methodology would be approved, any applicant entity/designated operationally entity looking at the section B of the CDM-PDD would come to the same conclusions and would not have to make value judgements*”. If the desk reviewer is asked to check the condition (c), in addition to (a) and (b) above, he/she must confirm so many conditions, e.g., the local regulations of the host country, the status of power grid, and recalculation of investment analysis, i.e., whether the underlying assumptions/conditions are correct or not... In reality, the desk reviewers are checking the appropriateness of the methodologies (logical consistency and completeness of the requirements), without confirming whether the facts/assumptions used in the PDD are correct.

² Decision 17/CP.3 (FCCC/CP/2001/13/Add.2) states in the paragraph 48 in the ANNEX (Modalities and procedures for a clean development mechanism) of the Draft decision -/CMP.1 (Article 12):

48. In choosing a baseline methodology for a project activity, project participants shall select from among the following approaches the one deemed most appropriate for the project activity, taking into account any guidance by the executive board, and justify the appropriateness of their choice:

(a) Existing actual or historical emissions, as applicable; or

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

(c) The average emissions of similar project activities undertaken in the previous five years, in similar social, economic, environmental and technological circumstances, and whose performance is among the top 20 per cent of their category.

³ Therefore, “accurate baseline” is not a proper expression. The concept of “uncertainty” is not equivalent with “inaccuracy”, which requires a caution for usage.

In other words, it is a scenario *reasonably* representing the situation that would otherwise occur in the absence the relevant project activity; and project participants are required to *justify* its “reasonability”.

This requires the practice of presenting several possible scenarios—plural scenarios are found to be reasonable in some cases—and claiming one of them to be “the most reasonable”. One has to provide the basic logic to be based on as well as its supporting data and evidences, *persuading* its justification to the CDM Executive Board and the Operational Entity (OE).⁴

1.2.2 Relation between Project and Baseline Scenarios

The expression of “that would otherwise occur in the absence of the project activity” may not be a well-defined one to handle. For example, it might be doubtful whether this definition could appropriately exclude such project activities “that would be implemented *anyway* even if the relevant project activity would not be implemented”.

A baseline scenario can be identified as a scenario under which there is no additional incentive (“Incentive = Nil”). In the context of CDM, a baseline scenario (in the case of project activities by the private sector) is almost equivalent with a scenario under which “the CER price⁵ is 0”.⁶ In Figure 1, the case in which “the CER price = 0” is the baseline scenario, implying that the higher CER price will make several technological options feasible to realize emission reductions. In this figure, the project emissions are expressed as those of the case for expected CER price is p_0 .

In addition, it should be noted that the baseline scenario under which the CER price is zero does not always represent the current emissions amount (without the implementation of the project activity), and that it may represent one of possible project activities that are profitable (which might be implemented even when the CER price is zero).

It means that a baseline scenario can be developed through the examination of “the CER price = 0” scenarios—some of them may assume the implementation of a certain project—from various perspectives.⁷

⁴ That can be compared to a relationship among a lawyer (project participant), a jury or a judge (CDM EB or OE).

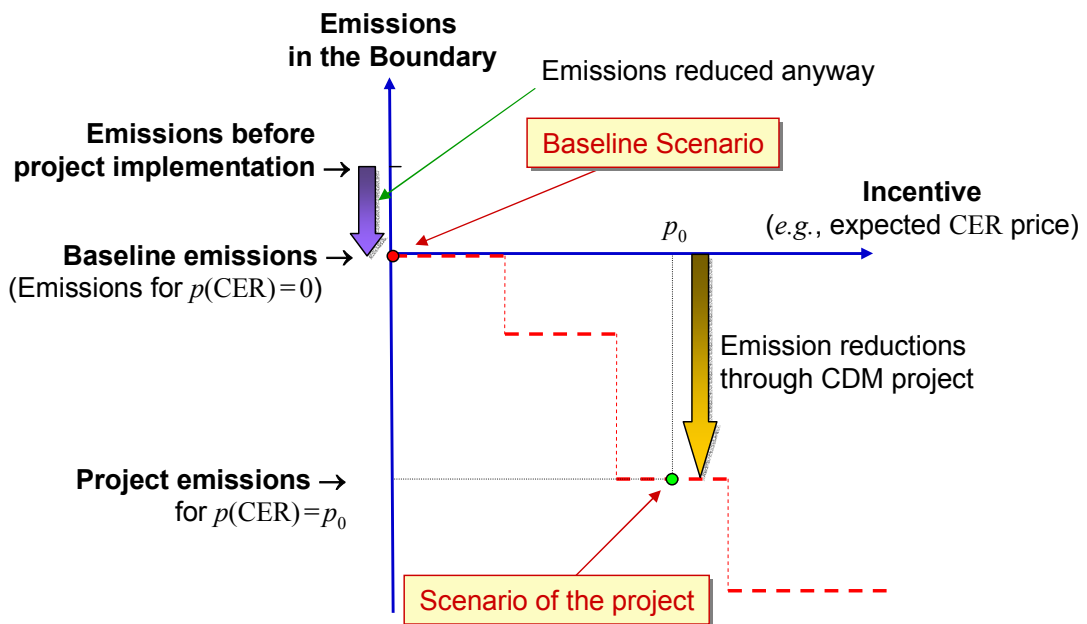
⁵ Here, the CER price is used as a typical incentive. In addition, the CER price here means the estimated future price used for decision-making associated with project investment.

⁶ Projects financed by public funds and voluntary-based projects without direct financial incentives other than CDM can demonstrate their additionality by showing whether there are any other ‘incentives’ or not.

⁷ Let us suppose an imaginary experiment of implementing emission reductions through a series of practices: “harbor improvement \Rightarrow installation of pipelines \Rightarrow installation of a LNG thermal power plant”. If the installation is not completed just because of the 1 m shortage of the pipeline, for example, the entire process will be interrupted without any emissions reduction achieved. Then, would it be possible to consider that massive emission reductions have been achieved just by the installation of 1 m pipeline (as a CDM project activity)? This argument is not reasonable. This additional 1 m should be considered as already included in the existing project (with financial feasibility) (which is the baseline part that would *anyway* be implemented even under the condition of “CER price = 0”).

The separation of “the underlying part” and the CDM project part which is “additional (due to incentives from CERs)” to it can be made clear by an indicator like the CER price to the parameters. Such separation may also substantially increase the number of feasible CDM project activities (stated below).

Figure 1: Conceptual illustration of additionality and baseline



1.2.3 Environmental Integrity and high quality baseline

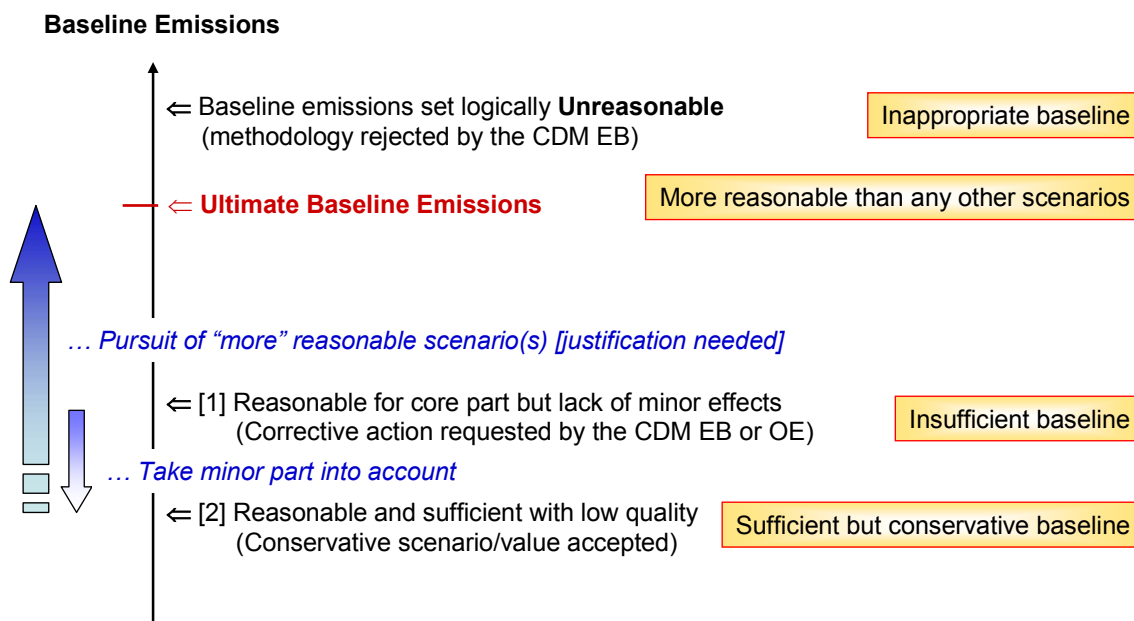
When an expression “Environmental Integrity”, which was also emphasized in the negotiation process of the Marrakech Accords, is used in relation to baseline issues, it is used almost as the equivalent of “adopting conservative baseline”.

This implies a concern that credits might be issued over ‘actual’ emission reductions if a status-quo scenario is simply applied for the baseline, or if the project activity is such a one that would be implemented anyway (as credits will later be offset with emissions from Annex I countries, the total global emissions would be increased due to such CDM projects activities).

Let us consider how such a concern will affect the process of actual baseline setting.

Generally, baseline scenarios that may be questioned in terms of environmental integrity are those that cannot be fully *justified its reasonableness*. As mentioned in Subsection 1.1.2, that may be considered from two aspects: in terms of its methodology [(a) and (b) in Subsection 1.1.2], and the applicability of the methodology (c).

Figure 2: Various baseline scenarios [inappropriate, insufficient, conservative, ...]



When a person with less expertise on baseline develops a baseline scenario, he/she may often develop such a methodology as follows:

- (1) Methodology that is illogical;
- (2) Methodology that is logical but not sufficient (incomplete),⁸
- (3) Methodology that is logical but not applicable to the relevant project activity.

The cases (1) and (2) above will not be approved by the CDM Executive Board due to their logical insufficiency. On the other hand, (3) may be approved by the Executive Board, but will be judged as “inappropriate” by the OE in the process of validation to check its applicability to the relevant project activity.

In the case of (1), its approval will probably be rejected by the CDM Executive Board. In the case of (2), the insufficient part might be pointed out (to be complemented?). In the case of (3), it will be required to redesign the methodology to make it applicable to the relevant project activity. In any cases, the project participants will waste for around four months.

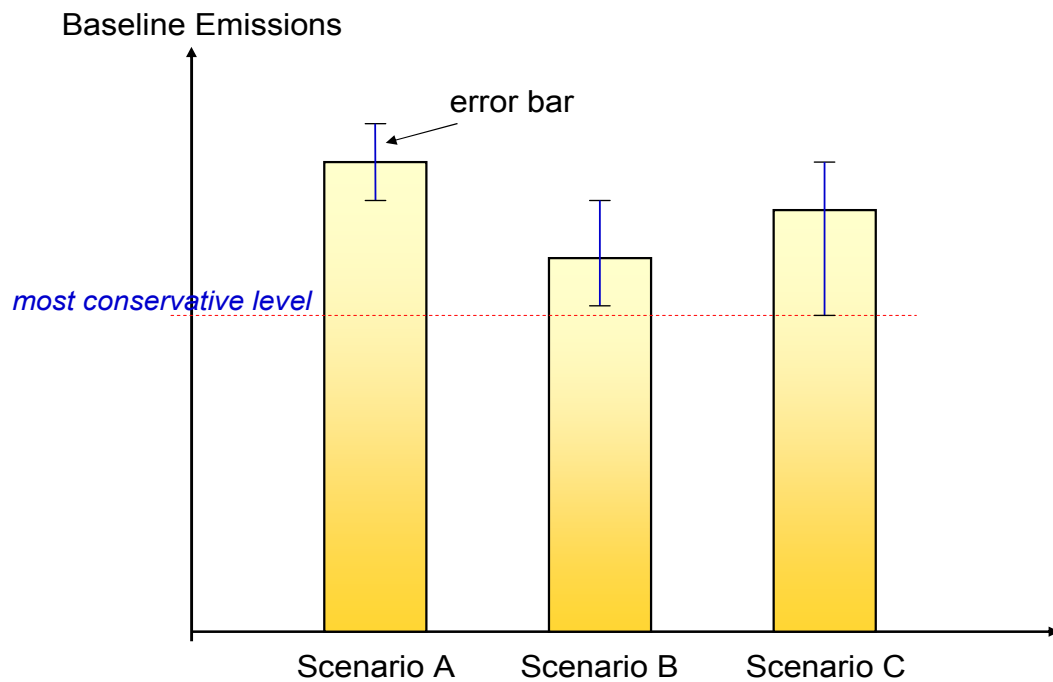
On the other hand, there are more than one baseline scenarios that are logical and at the same time applicable to the project. Project participants wish to choose a scenario with the largest baseline emissions, though the Marrakech Accords require them to choose conservative one (among reasonable scenarios). If project participants cannot sufficiently quantify several

⁸ This means an “insufficient methodology” where the “core part (main part of emissions reductions)” of the baseline has been judged as logical by the CDM Executive Board, but the other auxiliary effects (including effects from non-operational part of the project and/or effects from fuel transfer, ...) have not been well incorporated.

uncertain factors related to baseline scenario, they might be obliged to adopt some sort of a conservative estimation.⁹

There are two types in the range of (reasonable) baseline scenarios: due to a fact that there are more than one scenarios (discrete), and due to the range of parameters and errors within a given scenario (continuous).

Figure 3: Two kinds of uncertainties associated with the baseline setting



Therefore, if it is possible to limit the number of possible (reasonable) scenarios in terms of logic, and to limit the total scale of an error bar by estimating the order of a range allowed in a particular scenario, or limiting them to a certain range; even the adoption of the most conservative figures may not disadvantage project participants. (On the contrary, if they do not estimate such ranges at all, they might be forced to accept substantially conservative figures).

In baseline scenario building, therefore, project participants should develop the reasonable scenarios for the core part of a project, listing up all possible effects. Then, by limiting the number of such scenarios and quantifying such effects as much as possible while making them as reasonable as possible, they can bring their baseline emissions closer to the idealistic one. (However, the CDM EB and/or the OE will be required to have enough capability to judge its appropriateness). And at the same time, such a baseline with *high quality* can also be a baseline that would promise “the maximum number of credits.”

⁹ For example, project participants might be forced to accept 10% discount if they cannot estimate a particular leakage effect.

1.2.4 Implication of Core Part

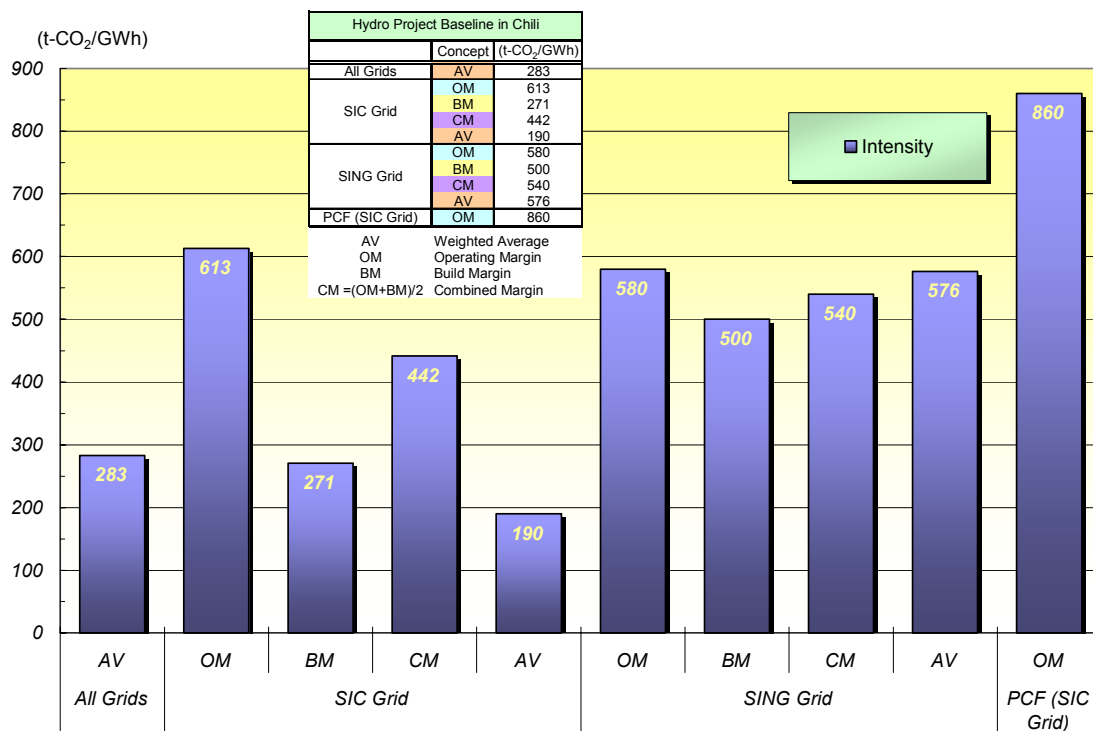
What is most significant in this whole process is how you can develop “the core part” of a scenario that is “reasonable”. If you could not develop a reasonable one, you would have no choice but to accept a conservative setting.

What would be the implication of that?

Figure 4 shows how the core part can be differentiated in terms of carbon intensity depending on the choice of baseline concepts.¹⁰ Each of AV (average), OM (operating margin), BM (build margin), and CM (combined margin) represents concept defining the intensity associated with a scenario (we do not mention about the detail of each idea here). You can see that a figure used by PCF is quite large. According to Bosi, *et al.*, this is because the dispatch of the power plant has been taken into account more in detail for this figure, while simplified methods have been used for others (especially CM) with more conservative figures.

This paper would not mention which is the most reasonable, but what is clear here is that the credits you earn can be dozens to hundreds of percents depending on which intensity is chosen! (In some cases, you may not earn any credits). It is expected that the pursuit of “higher reasonability” may substantially (at least dozens of percent) increase the number of credits you earn. On the other hand, if you cannot specify a reasonable and justifiable scenario, you may have to accept the most conservative one from all options.

Figure 4: Range of earned credits from different baselines



¹⁰ Sources: Martina Bosi, *et al.*, “Road-Testing Baselines for Greenhouse Gas Mitigation Projects in the Electric Power Sector”, OECD and IEA Information Paper, October 2002.

For project developers, “the pursuit of reasonability in more detail” may increase the cost, but may increase the number of credits they earn. It is a matter of *balance*.

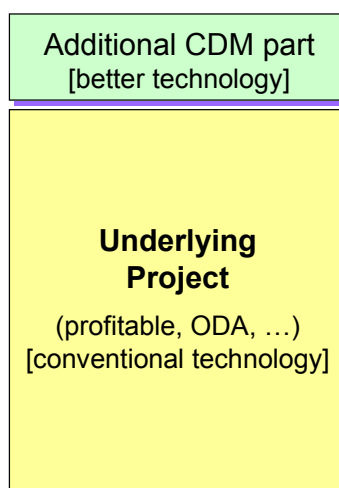
In practice, costs for baseline setting¹¹ may not be so much larger compared to the total number of credits to be earned (except the case for quite smaller projects). Therefore, the investment effect of considering a baseline scenario pursuing the maximum reasonableness is quite large.

In the case of a project that may result the annual emission reductions of 300,000 t-CO₂, 10% of it equals to 30,000t-CO₂. If the credit is assumed to be fixed at US\$ 5/t-CO₂, its annual value is US\$ 150,000. Under the condition of the crediting period of 10 years with 5% interest rate, its present value is approximately US\$ 1200,000. Therefore, it would be beneficial for you to pursue a detailed baseline setting regardless of the costs in order to get the highest possible baseline. Not only to save time-losses (in reality, this problem is also significant), but also to set a high quality baseline, expertise on baseline would be very important.

1.3. Underlying Project and Additional CDM Part

A CDM project activity has high risks in practice, and is not attractive as it is as an investment target in many cases. A solution to this is to consider the possibility of *adding* “CDM part” to an existing project under consideration for non-CDM purposes. (In a company, it may be possible to introduce such a screening process). Then, with the smaller additional CDM part compared to the relatively large underlying part, the feasibility of that project would become higher.

Figure 5: CDM as an additional part to the underlying project with another purpose



In this approach, baseline setting is quite easy. The status of the underlying project *before*

¹¹ More precisely, “difference” between “costs for rough (but reasonable) baseline setting” and “costs for considerably precise baseline setting”.

adding the CDM part is to be the baseline.

Furthermore, in such cases, the matter of additionality should not be raised even if the underlying project is with high ROI, or with ODA funds (as long as ODA funds are not used for the CDM part), because it is obvious that the CDM part would not have been otherwise implemented (under a condition where the revenue from CERs is not considered).

In such cases, there will be no argument if the additional CDM part is just the additional installation of equipment, but there will be some argument if the enhancement of power generation efficiency from 38%—which is to be achieved by the underlying project—to 42 % is claimed to be a CDM project activity. However, if it is obvious that only the equipment with 38% efficiency could have been installed without making it a CDM project, it does not include any problems theoretically to approve the additional 4% reduction as a CDM project activity.

In addition, it should be noted that such additional part stimulate the implementation of higher efficient technologies in the host country which cannot be realized without CDM and the market of such very high level of technologies..

2. Baseline Methodology

2.1. All about Baseline Methodology

2.1.1 What is Baseline “Methodology”?

Here, let us reconsider about a baseline methodology: “What a baseline *methodology* is all about”, and “how it is positioned in *baseline scenario setting*”.

2.1.2 What is Baseline Scenario Development?

What is required in the PDD is the development of a baseline scenario (that is reasonable for the relevant project). A baseline scenario is a “scenario”, or “concept”, which is expressed in a “mathematical formula/algorithm”.

On the other hand, a methodology itself is a concept expressed in a formula also.

The development of a baseline scenario “that is reasonable for the relevant project” in general (which should be finally demonstrated in the PDD) can be broken down into three elements as discussed in subsection 1.1.2:

- (a) Does it duly take it account all items to be considered in baseline setting?

(Items mean conditions¹² that have been considered and used for judgment in setting a baseline scenario, based on which the project will be “categorized”. They are used to judge the applicability of *similarity* for similar projects to which the *same* methodology can be applied).

(b) How are baseline emissions calculated?

(Develop a formula. Is it expressed as a formula logically resulted from items in (a)?)

(c) Is the methodology applicable to the project?

(The logic may be OK, but does this show any evidence to support its use for the relevant project?)

In the mathematical way of thinking, (a) is a set of “conditions”, and (b) is a formula expressing the baseline scenario based on (a).

(c) is not a methodology, but a check for the applicability of the formula in (b). Under the current rules, the evidence check of whether the conditions in (a) have been fulfilled is to be executed by the OE.

There may be an interpretation that only (b) is considered as a methodology, but this paper considers the combination of applicable conditions in (a) and a formula expressing the scenario in (b) as a “methodology”. This is because of a fact that the CDM Executive Board, which is to evaluate the reasonability of a methodology, cannot give such a judgment only from a formula in (b).

2.2. Standardization of Baseline Methodologies

In the process of developing baseline scenarios, project participants must consider various (all likely) possibilities.

During that process, they have to narrow down baseline scenarios by identifying several items for evaluations and judging them as objectively as possible. Such evaluation items correspond to the conditions in (a) mentioned above, which can be organized in the form of a decision tree. That decision tree itself is the illustration of a methodology itself.

On the other hand, when project participants are to implement a “similar” project activity, they should check whether there is any existing methodology that is applicable to their project.

¹² Items for screening to be used for such project categorization are as follows:

- Legal Aspect: Compatibility to energy policies (by central or local government), designation of technologies by laws, and environmental approval,...
- Technological Aspect: Development status, practical risks, performance, market penetration, and human resource capacity,...
- Economical Aspect: Investment cost, ROI, operational cost, maintenance cost, and fund raising,...
- Others: Fuel availability and supply/demand balance,...

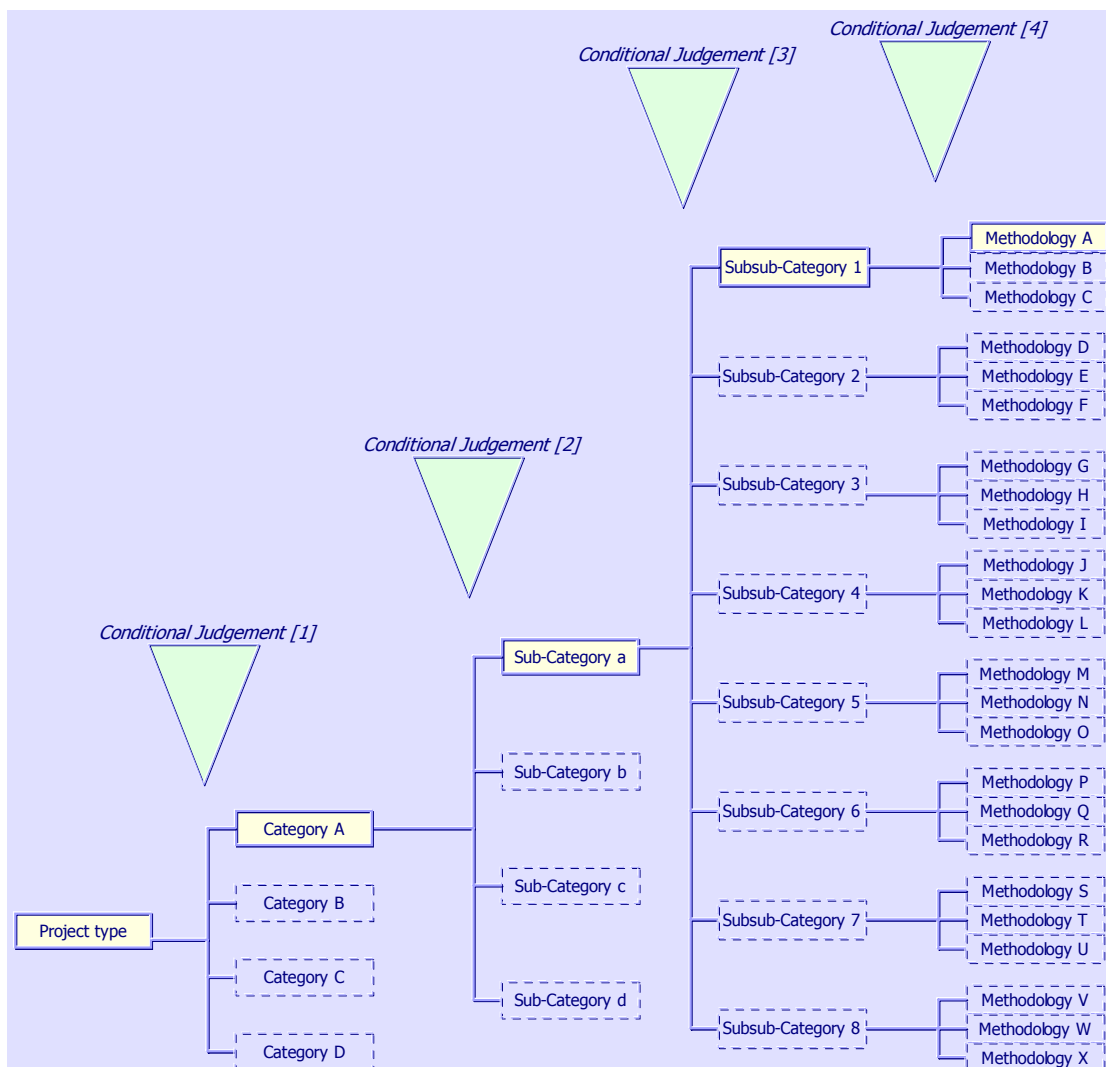
They may vary by project types. (a) is the process of defining these barriers in the form of a formula. (b) should be induced without ambiguities from (a) once it has been defined.

And the applicability of a particular methodology is to be judged based on whether the project activity satisfies the conditions in (a).

The application of the “same” methodology to such a “similar” project is nothing else but the *standardization* of methodologies. The definition of “similarity” is to satisfy the same conditions of (a).

Then, let us think about a project activity that satisfies almost all of the conditions in (a) except one. In such a case, the decision tree is to diverge at the point of the relevant condition, or it may add extra conditions. As a result, the decision tree will grow to the set of more standardized methodologies that could cover more extensive range of project activities (with more diverse situations).

Figure 6: Concept of the standardization of baseline methodologies



Such process itself is the whole picture of a scheme gradually standardizing baselines.¹³

¹³ N. Matsuo, “Proposal for Step-by-Step Baseline Standardization for CDM—From Project Specific to Generalized Formula”, IGES Discussion Paper, August 2000.

What is important here is to define the prerequisites of (a) as clearly as possible for the approval of new methodologies by the CDM Executive Board. If the definition of such applicable conditions is not clear, the judgment on whether they can be standardized for the use of other projects would be ambiguous or impossible.

It might be necessary for the Methodology Panel to organize the theory, as well as to present operational definitions and guidelines.

3. Concerns over Current Baseline Procedures

3.1. Initial Screening of Methodology

3.1.1 EB 7's Clarification on New Methodology Approval Process

Sub-agenda item (a): Accreditation process for operational entities at the seventh session of the EB in January, 2003, states as follows:

8. The Board agreed to clarify that when a project activity proposes a new methodology, in accordance with paragraph 38 of the CDM M&P, a DOE is to check whether documents are complete and shall, *without further analysis*, forward the new methodology to the Board for its review and approval. After approval of the methodology by the EB, the same DOE, or another DOE, shall undertake the validation of the project activity in accordance with the CDM M&P.

The words, "*without further analysis*", have significance in the entire operation of the CDM scheme in many senses.

3.1.2 Concerns

The literal meaning of "without further analysis" may allow an interpretation that when a PDD with a new methodology (for baseline and/or monitoring) is provided to the OE, it might not assess its propriety, just transferring it to the EB "as it is".

This implies the followings:

1. Regarding methodologies, the OE is nothing more than a mere messenger;
2. The great amount of responsibility as well as burdens will be concentrated on the CDM Executive Board, the Methodology Panel and desk reviewers under it;
3. A methodology prepared by non-experts (sometimes even by experts) on baseline may not be approved as it is on the first attempt. It means that maximum four months will be wasted, taking the whole process back to square one. In other

words, such methodologies burden the approval process twice or more.

The first item contains the fundamental question of the “OE’s responsibility”. It has been considered that ability to “duly evaluate” baseline is the required skill and expertise for an applicant company to the OE. The Marrakech Accords may allow an interpretation that efficient methodologies with high quality can be accumulated through the double checking by the EB (in practice, to be implemented by experts under them) in addition to an initial screening by the OE. (It means that the high-quality screening for a methodology will be done by the OE, to be checked by the EB). In such a case, project participants need to persuade the appropriateness of the methodology to the OE in the first place.

In addition, it seemed to be assumed in paragraph 8 in the above EB 7’s report that an OE sending the methodology to the EB should be a different OE from one implementing validation using the approved methodology. If so, the responsibility of the former OE will be ambiguous.

The second item also reminds us of operational concerns. If more than 100 projects are to be registered, it is assumed that the number of actual applications should be several times larger. Considering the lower possibility of the successful approval on the first attempt, the application number can still be several times larger. If so, with the order of 1000 applications to be checked per year, it would raise a question of whether they can be handled. More importantly, it is the EB that would bare responsibility if they have approved an erroneous methodology (due to overwork). The EB should be well aware of this fact.

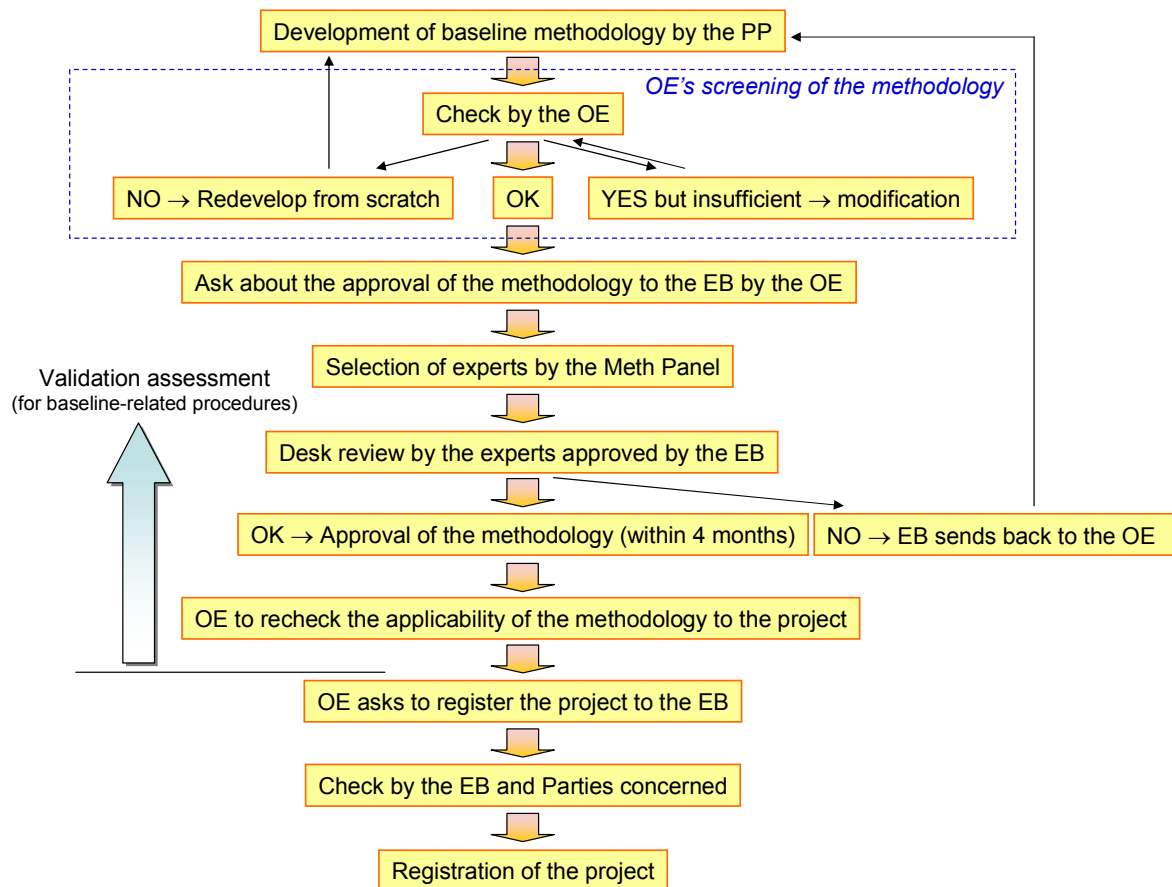
Furthermore, there will also be a problem of how much money project participants must pay to the EB and/or the OE for the transfer of a new methodology to the EB.

Last but not least, the third item is the biggest concern that may threaten the operation of the CDM scheme. As seen in several feasibility study surveys and the initial stage of the USIJI (US Initiative on Joint Implementation), there are a lot of baseline methodologies developed by non-experts that are not likely to be approved smoothly. The initial screening by the OE may reduce the number of approval processes on the baseline/monitoring methodologies by the EB. One of the major transaction costs required for a CDM project activity is “time loss”. Two rounds of reapplication, for example, would take a whole year at maximum.¹⁴

From the above perspectives, it might be desirable to have a system that allows an “initial screening” by the OE.

¹⁴ As a matter of fact, many tasks related to the validation procedure can be done in parallel.

Figure 7: Baseline setting with the initial screening by the OE



3.2. Inconsistencies in PDD Template

Regarding the PDD template (version 01) as of August 29th, 2002, it is desirable that two points should be revised.

3.2.1 Inconsistency in Monitoring Items

In the current PDD template, it is required to describe a new methodology in its Annex (specifying items (a) and (b) mentioned before), and the application of the methodology to the relevant project activity ((c)+(a), (b)) in the main text. The CDM Executive Board is to check the appropriateness of the Annex (new methodology).

The PDD does not seem to be consistent in its treatment of monitoring. In “D: Monitoring Methodology and Plan”, the followings are listed up as items to be described:

- Emissions from the project activity (inside the project boundary);
- Emissions from the project activity (outside the project boundary);
- Baseline emissions (inside the project boundary).

However, there are no places to describe on the monitoring of baseline emissions in “Annex 4: New Monitoring Methodology”. As monitoring should cover both project emissions and baseline emissions, it is theoretically inconsistent that the monitoring of baseline emissions specified in D in the main text is not described for the new monitoring methodology.

In addition, regarding baseline emissions as well, the effects of both inside and outside of the project boundary should be calculated. The absence of blanks to state effects outside the boundary only for baseline emissions is equivalent with defining such a boundary to be chosen so that an effect outside of the boundary can be negligible small. This definition is not necessarily consistent with the definition¹⁵ of a project boundary defined for project emissions.

Specifying effects both inside and outside of the boundary is also beneficial for baseline emissions in that it can exclude arbitrariness associated with definition of the boundary for the relevant project. (The choice of a boundary may not influence the result as long as both of its effects are duly evaluated).

3.2.2 Description of the Methodology

Another problem related to PDD is the issue of how to describe the methodologies.

It should be desirable that applicable conditions and a formula representing emissions should be clearly separated and explicitly described.

3.2.3 Summary of Interrelationship among Methodologies

Baseline emissions may be a matter of great deal for some projects, but in other cases, a methodology of calculating project emissions may have significance. For example, there is a case where the baseline scenario just holds the current emissions, while various sources including leakage effects must be covered in a project scenario.

There are two types of “methodologies” to calculate such project emissions:

- P1. Which kind of sources should be covered?
- P2. How can emissions from such sources be monitored?

Both of these methodologies are addressed in “Monitoring Methodology” in the current PDD form.

On the other hand, there are also two types of methodologies for baseline emissions:

- B1. Which scenario is to be chosen?
- B2. How can emissions from such scenario be monitored (or calculated)?

In the current PDD, the first methodology B1 (scenario) is addressed in “Baseline

¹⁵ “52. The project boundary shall encompass all anthropogenic emissions by sources of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the CDM project activity” in the Decision 17/CP.7.

Methodology”, and the second methodology B2 (monitoring of baseline emissions) is addressed in “Monitoring Methodology”.

As for grouping of methodologies, ((P1, P2), (B1, B2)) or ((P1), (B1), (P2+B2)), instead of the current ((B1), (P1, P2, B2)) seems to be easier for understanding. (P2+B2) represents a methodology covering both baseline and project emissions, and specifying all monitoring points to calculate them. This methodology does not require justification in principle (while P1 and B1 require justification).

4. Lessons Learned from the 1st Round of Methodologies Approval Process

In the first official round of the methodologies approval process, many *realities* became obvious. The concerns which the author finds in reading the submitted PDD and methodologies are as follows:

- Lack of proper understanding of the “IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories”¹⁶ (and 1996 Revised Guidelines). The approach is to use the local and experimented figures as much as possible and the default value mentioned should be the last resort. The big difference between national GHG inventory and CDM is that the inventory tries to be accurate as possible (*e.g.*, by using mean value), however, CDM should use the conservative ones. QA/QC and decision tree is well defined in the Guidance for many cases.
- Lack of common understanding what to be described in each subsection of the PDD.
- Lack of common understanding what the “methodology” is.
- Many PDD does not explain the reason sufficiently why such a formula can be used and appropriate for the project. Explicit identification of applicability conditions is rare.
- Explicit explanation of why the project is not *anyway* project is lacking in many cases.
- Few PDD explains why the methodology can be applicable during whole of the crediting period.
- Few PDD tries to set the formula with a view to generalize/standardize it to similar type of projects.
- Few PDD describe the baseline emissions and project emissions in the form of

¹⁶ See <http://www.ipcc-nggip.iges.or.jp/public/public.htm>.

mathematical formula/algorithm explicitly. Many PDD confuse these two scenarios in the description.

- Time-dependence of the parameters is neglected in many cases (by lack of proper understanding?).
- Many PDDs confuse the *ex-ante* anticipated value of emissions (described in Section E) and the *ex-post* verified value of emissions. The methodology should focus on the latter one.
- Monitoring of pollutants is not specified in the monitoring methodology in many cases.
- Many monitoring methodology has a wide range of ambiguities (not well defined), so the OE to verify the emission reduction will be much burdensome.
- In general many PDDs have only low quality in the methodologies. Only a few are expected to pass the approval process.
- As the approval process is free of charge, some PDD may be submitted at incomplete stage (submission fee is needed?).
- What OE does in developing the baseline scenario is lack of common understanding.

The author tried to keep a PDD (NM 0007 - HFC Decomposition Project in Ulsan)¹⁷ as high quality as possible in its development of methodologies and drafting it.

On May 27, the Methodology Panel released its recommendation to approve (with grade (a)) only one methodology among 15 submissions. This may be a clear message from the Methodology panel that the methodology is to be strictly reviewed with logical consistency and completeness. This may influence how the Operational Entity to validate the project.

5. Conclusion

This paper, taking account of so many misunderstandings on the reality and meaning of CDM baseline, has clarified them, as well as provided theoretical bases for setting guidelines on methodologies for the Methodology Panel. In addition, it presents concerns over current procedures, intending to realize the effective future CDM scheme.

In fact, the process of baseline setting by the Methodology Panel, *etc.*, is not transparent yet, and at the same time, an issue like “what is a baseline methodology?” has not been theoretically answered.

This paper has provided one of viewpoints to address these issues, while providing the

¹⁷ See <http://cdm.unfccc.int/EB/Panels/meth/CallForInputs/NM0007> and http://cdm.unfccc.int/EB/Panels/meth/PNM_Recommendations/.

theoretical bases for establishing guidelines on future baseline setting by the Methodology Panel.

In the near future, the Methodology Panel and/or the CDM Executive Board is to prepare more systematic template of the project design document and provides the detailed explanation associated with each item in it (with examples, preferably). The well-made guide may contribute to the development of the CDM scheme a lot.