Procedures for Accounting and Baselines for CDM Projects

EU Fifth Framework Programme
Sub-programme: Energy, Environment and Sustainable Development

Summary

Objectives PROBASE

The main objective of PROBASE was to provide recommendations to policy makers on how to operationalise baseline determination for CDM projects. As a basis for its research, PROBASE identified the following steps to be taken in the GHG accounting process of CDM projects:

- Determine the system boundary within which the project activity takes place and which comprise those emission sources that are significant and measurable and under the control of project participants.
- Describe what emissions would have taken place within the system boundary if the CDM project had not taken place, *i.e.* determining a baseline scenario and consequently additionality.

- **Identify possible knock-on effects of the project on factors outside the project boundary, which may (partly) offset the GHG emission reduction achieved within the system boundary and are therefore often referred to as leakage.**

- **Identify types of uncertainty that are related to the process of calculating GHG emission reduction and identify safeguards to reduce these uncertainties.**

In addition to the above steps, which directly influence the amount of emission reductions calculated from a project, other elements of the project cycle are:

- **The validation of the project design document: once the system boundary has been determined and a baseline determined for the situation within the boundary, the emissions are estimated that would have taken place within the system boundary in absence of the project activity. Before the project implementation starts, this baseline scenario needs to be validated by an independent, private sector entity or a government agency. Once validated the baseline is the emissions level below which the emission reductions achieved by the project are calculated.**

- The monitoring of the project results: important in the process of calculating emission reductions is to compare the project's actual emissions (including a correction for leakage) with the validated baseline emissions. In order to ensure the reliability of the actual emissions figures, a monitoring of the actual data needs to take place. The project partners themselves could possibly carry out this monitoring.

- Subsequently, the monitored data will be subject of verification by an independent entity (endorsed by the Kyoto Protocol Bodies) after which the emission reduction will be determined by taking the difference between the validated baseline for the project and the verified actual emissions.

- The resulting reductions will have to be certified by the Kyoto Protocol Bodies after which the countries involved as investor and host in the project can fulfil the transfer of the emission reduction credits.

Counterfactuality of the baselines

- Of these steps, generally most attention is paid to the development of the baseline of CDM projects.

- The baseline is of crucial importance in the design of the project as it represents the scenario that determines the emissions level from which the project's emission reductions are calculated.

- A key characteristic of the baseline is that it describes a hypothetical situation ,*i.e*. the baseline scenario will never take place due to the project .

- This counterfactuality of the baseline has led to a general concern that the scenario may not always be a reasonable description of what would have happened within the project's system boundary without the project activity.

- For example, project developers might have an incentive to overstate the baseline emissions level thereby aiming at acquiring more emission reduction credits than actually achieved. In order to prevent such baseline inflation the *Marrakech Accords* contain several safeguards to assist project developers in following a methodology leading to reasonable baselines.

Multi-project baseline criteria

•In addition, the *Marrakech Accords* text has suggested developing multi-project criteria for steps in the project cycle described above.

•Such standardisation of steps in the GHG accounting process would involve defining *e.g*. a standard project boundary for projects of a particular type in a particular host country, and/or a standard baseline scenario for that project type, and/or a standard correction factor for leakage, as well as a standard crediting lifetime for the project .

- The most obvious advantage of such standardisation would be that transaction costs for the development and implementation of CDM projects could be significantly reduced.

- For example, a project developer who aims at upgrading a power plant in a developing country could apply the standardised values for power plants derived for that country instead of calculating specific values for this project .

- In addition to saving transaction costs, standardisation is considered to be an effective safeguard against project partners who might have an incentive to overstate the GHG emission reductions achieved through their project by setting a higher than reasonable baseline.

- The latter incentive generally creates an uncertainty when CDM emission reductions are calculated from a single-project baseline without standard parameter values .

• A potential disadvantage is that standardisation provides scope for free riders ,*i.e*. parties that under a single-project accounting process would not have managed to plausibly demonstrate that their project's emission reductions are additional and reduce GHG emissions from a baseline, could with standardised procedures acquire GHG credits as long as their project beats the multi-project baseline.

•With a view on the above, the overall objective of PROBASE was to develop operational procedures for determining multi-project baselines for the project-based Kyoto mechanisms, the CDM, which would ensure environmental effectiveness) *i.e*. reasonable certainty that GHG emission reductions are additional) and economic efficiency) *i.e.* simplicity and transparency with low transaction costs).

Options for standardisation

•Based on the literature review PROBASE distinguished the following types of standardisation in the process of designing a CDM project: ***Standardising procedures***, which involves the identification of specific steps to be taken by all project developers in the design of a CDM project and which will be subject for the validation of the project design document. Generally, this type of standardisation does not involve standardised parameter values. An example of a programme where standardised procedures have been applied can be found in the CDM tender programme of the Netherlands' government, which provides a specific step-by-step guidance to project developers. A proposal for a standardised step-by-step guidance has furthermore been developed by the Japan Working Group on CDM Baselines (Japan Working Group, 2001).

Standardising parameters. This involves determining standard parameter values for *e.g*. the baseline, such as: a standard system boundary (*e.g.* one or two levels upstream and downstream), a standard fuel basis (*e.g*. average emissions of currently operational coal-fired boilers of a particular host country), standard geographical scope (*e.g*. Northeast region of the host country), fixed crediting lifetime (*e.g*. maximum of 10 years, or 7 years with the possibility of extension through renewal periods, or just the period 2008-2012 as in ERUPT/CERUPT), a standardised correction for leakage (*e.g.* 10% leakage correction factor), *etc*. Standardising parameters would upgrade the 'blue print' of the standardised procedures to a 'cookbook', where the fixed steps have been (partly) standardised with standard parameter values.

Standardising emission factors. This involves the calculation of multi-project GHG emission reduction factors for a particular project type in a particular host country. These emission factors or benchmarks need to be multiplied with the project activity level in order to obtain a multi-project baseline. PROBASE used two approaches to derive such benchmarks. First, it derived benchmarks from traditional energy sector models, with which the power and heat sector developments in a number of host country were modelled. Second, PROBASE derived country or region-specific benchmarks and used these as proxies for the baseline for heat and power sector projects in particular host countries. Both benchmark value methodologies are described below.

Multi-project baselines and benchmarks

- Multi-project (or standardised) baselines are generic baselines derived for application to multiple projects; a benchmark is a subset of this and is defined as a performance level generic baseline, which may or may not be single country dependent. Benchmarks could assume a particular technical performance in the host country.

- For example, if for the power sector in a host country it can be reasonably assumed that under business-as-usual circumstances the power plants had used gas-fired boilers then this would be the technical performance on which to base the benchmark .

- The level of aggregation of these benchmarks depends on the project situation, but this could vary from aggregating the project technology/fuel situation to the sector and perhaps to the country level.

- Most technology-based performance standards will be country dependent but some may even apply across more than one country.

- In addition, discussion arose about whether more detailed project-specific (or single project) baselines would indeed have a higher environmental integrity than multi-project baselines.

- Initially, it was assumed that higher information density of single-project baselines would imply that such baselines would form a better description of what would have taken place in absence of the project.

- However, single-project baselines also are more sensitive for gaming as project developers could have an incentive to claim more credits from a project by setting the baseline at an emissions level that is higher than what could reasonably be expected .

- The risk of such gaming is larger for single-project baselines than for multi-project baselines because project developers generally cannot control the latter.

- Finally, even if a project developer had no such incentive to inflate a baseline, the larger data requirement for single-project baseline does not automatically imply a better baseline.

- After all, both single and multi-project baselines describe a counterfactual situation based on a set of assumptions about project, meso and macro level parameters.

- Given the above descriptions, a benchmark can be defined as an aggregate business-as-usual GHG emissions factor (CO_2----eq. emissions per unit of output) for a given country or region and for a given project-type or sector derived from either historical trends or forecasts of future emission trends in the host country.

- Multiplying the benchmark emissions factor with the output of the project (assuming equivalence of service) then results in a project baseline scenario.

- As mentioned earlier the counterfactual nature of determining baseline scenarios for CDM projects creates an uncertainty about whether the baseline indeed is a reasonable representation of what would have taken place in absence of the project.
- This uncertainty provides some scope for gaming as project developers may have an incentive to set the baseline at a higher emissions level in order to acquire more credits.
- Especially, with single-project baselines, the latter requires a strict validation of the baselines, which generally increases the transaction costs of baseline determination.

- Although standardising baseline procedures, parameters and emission factors does not remove the counterfactual character of a baseline, it reduces gaming as the baseline emission factors are determined on a multi-project basis and cannot be changed by individual project developers.

- This also reduces the pressure on validation because the multi-project baseline emission factors do not need to be validated for each specific project.

- A potential problem with multi-project baselines is that they insufficiently take into account project-specific elements of the CDM investment, which is specifically required by the *Marrakech Accords*,

- However, it is not explicitly defined to what extent baselines must be project-specific.

- On the one hand, it could be argued that multiplying multi-project baseline emission factors – even those derived from a top-down baseline methodology – with the project activity level makes the baseline project-specific.

- On the other hand, the Marrakech text could require standardised baselines to have a strong link with the project context, which would exclude a number of top-down based benchmarks .

- It seems clear though from the Marrakech text that standardised baselines are eligible for CDM projects given that the text refers to the option of multi-project variables for baseline determination and identifies a benchmark method as one of the three baseline approaches for the CDM.

- For a graphical summary of the baseline approaches discussed in this chapter showing the different levels of standardisation, aggregation, and stringency, see Figure below.

Classification of baselines according to standardisation, aggregation and stringency