

JICA Climate-FIT (Mitigation)

Climate Finance Impact Tool for Mitigation

Quantitative evaluation of GHG emissions reduction (removals)

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Attachment

- Estimation sheet
- Calculation sheet
- Attached table

Introduction I

- At the 21st session of the Conference of the Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015, the Paris Agreement was adopted, which is an international framework after 2020 in which all countries participated. The Paris Agreement aims to hold the increase in the global average temperature to well below 2 degrees above pre-industrial levels and to pursue effort to limit the temperature increase to 1.5 degrees above pre-industrial levels. Prior to this, in November 2015, the Japanese Government announced "Action for Cool Earth 2.0 (ACE2. 0)," which included support for climate-change measures for developing countries to reach approximately 1.3 trillion yen in total by the public and private sectors in 2020, in order to contribute to the above-mentioned international goals. For this reason, ODA will continue to be actively utilized as part of support for developing countries in the field of climate change.
- In order to provide assistance in the field of mitigation, the "Cancun Agreement" at the 16th Conference of the Parties (COP16) requires the implementation of MRVs (measurement/reporting/verification) for quantitative assessment of greenhouse gas (GHG) emissions reductions (removals).
- In light of these circumstances, the JICA, as an organization to execute ODA, needs to take measures to implement MRV from the stage of considering cooperation policies for developing countries and formulation of projects in order to ensure the MRV of GHG emissions reductions (removals) for climate-change mitigation projects to be implemented in the future.
- This guideline summarizes the methodology for quantitative estimation as a reference material in order to conduct MRV of quantitative assessments of GHG emissions reductions (removals) on study and project formulation in relation to cooperative policies on climate-change mitigation in developing countries. However, this work does not provide a methodology for estimating carbon credits represented by the Clean Development Mechanism (CDM) and aims to grasp the business effects of projects supported by JICA. Therefore, it is not anticipated to consider additionality as in the CDM.

II Common items for quantification

1. Projects subject to the quantitative evaluation

In the study and project formulation of cooperative policies for developing countries, projects that lead to climate-change mitigation are targeted to the quantification of GHG emissions reductions (removals) at the planning stage in order to grasp the project effects on climate-change mitigation.

2. Basic principles for the evaluation

Quantification of GHG emissions reductions is conducted by using a pre-established estimation methodology sheet attached to this guideline. Estimation methodology sheets refer to well-known methods for quantifying GHG emissions reductions, such as the GHG Protocol, the ISO 14064, CDM methodology, and other internationally recognized standards, and are based on JICA's experiences in quantifying GHG emissions reductions from projects. In the absence of a sheet of estimation methods to be applied, the adoption of a project-specific quantification method may be permitted. However, it should be in line with the "Common items for quantification" of this guideline.

3. Boundaries of the project

In principle, project boundaries should be established to include all sources of GHG emissions associated with activities, facilities, or infrastructures supported by JICA that are large and manageable. Although some projects may also affect upstream and downstream activities, these emissions (Scope 3) are, in principle, outside the scope of quantification. However, for emissions with a large impact, the quantifying methods are specified in the estimation methodology sheet.

GHG emission reductions are quantified annually, and the six greenhouse gases subject to quantification are carbon dioxide (CO₂), methane (CH₄), dinitrogen monoxide (N₂O), hydrofluorocarbon (HFCs), perfluorocarbon (PFCs), and sulphur hexafluoride (SF₆), and are quantified on a CO₂ equivalent. Global Warming Potentials (GWPs) for CO₂ conversion are specified in the estimation methods sheets.

4. Quantification of GHG emissions reductions

Greenhouse gas emissions reductions are estimated by comparing project emissions with baseline emissions.

(1) Baseline Emissions

Baseline emissions are emissions of greenhouse gases that would occur in the absence of a project, and are hypothetical emissions that are reasonably demonstrated. In other words, baseline emissions are emissions of greenhouse gases in the baseline scenario, and are scenarios "without a project."

(2) Project Emissions

Project emissions are emissions of greenhouse gases associated with the implementation of project activities supported by JICA.

(3) Emission reductions

The emissions reduction (ER_y) is quantified by calculating the difference between the baseline emissions (BE_y) and the project emissions (PE_y). Or

$$ER_y = BE_y - PE_y$$

Of the greenhouse gas emissions resulting from the implementation of the project, those from sources outside the boundary must be considered as leakages. However, in principle, leakages can be ignored. If the impact of leakage is likely to be non-negligible, the estimation method is specified in the individual estimation method sheet.

Baseline emissions and project emissions are, in principle, quantified by multiplying activity data by an emission factor, but the following emission factors should adopt the default values shown in the Appendix.

- Electricity emission factors
As an emission factor of electric power, a combined margin of grid electric power to be connected is applied in principle. The defaults of the electricity emission factors are shown in Appendix 4, which are summarized for each country by IGES referring to CDM projects.
- Emission factors of fuels
Emission factors for fuels are shown as default values in Appendix 2. These are the values presented in the Intergovernmental Panel on Climatic Change (IPCC) IPCC Guidelines for National Greenhouse Gas Inventories 2006.
- Fuel heat generation

The calorific value of the fuel is shown in Appendix 1 as a default value. These are the values presented in the Intergovernmental Panel on Climatic Change (IPCC) IPCC Guidelines for National Greenhouse Gas Inventories 2006.

5. Reporting GHG emissions reductions

For reporting GHG emissions reductions, the calculation sheet based on the estimation methodology sheet which is provided by the JICA should be submitted. The information on which the data entered in the calculation sheet is based should also be submitted. For example, an investigation report or a project implementation plan can be considered as a basis material.