

CDM-EB69-A06-GUID

Guideline

Application of materiality in verifications

Version 02.0



United Nations
Framework Convention on
Climate Change

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1. Introduction

1.1. Background

1. The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (hereinafter referred to as the CMP) adopted at its seventh session decision 9/CMP.7, i.e. the “Materiality standard under the clean development mechanism” (hereinafter referred to as the CMP materiality decision).
2. In adopting its decision, the CMP decided, inter alia, that the scope of materiality under the clean development mechanism (CDM) initially covers the stage of verification by designated operational entities (DOEs).
3. In its decision, the CMP also requested the CDM Executive Board (hereinafter referred to as the Board) to increase its interaction with DOEs in order to facilitate a uniform interpretation and application of the concept of materiality with the overall view of increasing transparency and efficiency and reducing costs.
4. This document, the “Guideline on the application of materiality in verifications” (hereinafter referred to as this Guideline), addresses the CMP request described in paragraph 3 above.

1.2. Objectives

5. The objectives of this Guideline are to:
 - (a) Facilitate a uniform interpretation and application of the concept of materiality by DOEs in verifications;
 - (b) Improve transparency, consistency and efficiency in verifications and verification/certification reports submitted in the CDM project cycle.

2. Scope, applicability and entry into force

2.1. Scope and applicability

6. This Guideline is applicable to DOEs for the verification of all types of CDM project activities.

2.2. Entry into force

7. Version 02.0 of this Guideline enters into force on 1 April 2015.

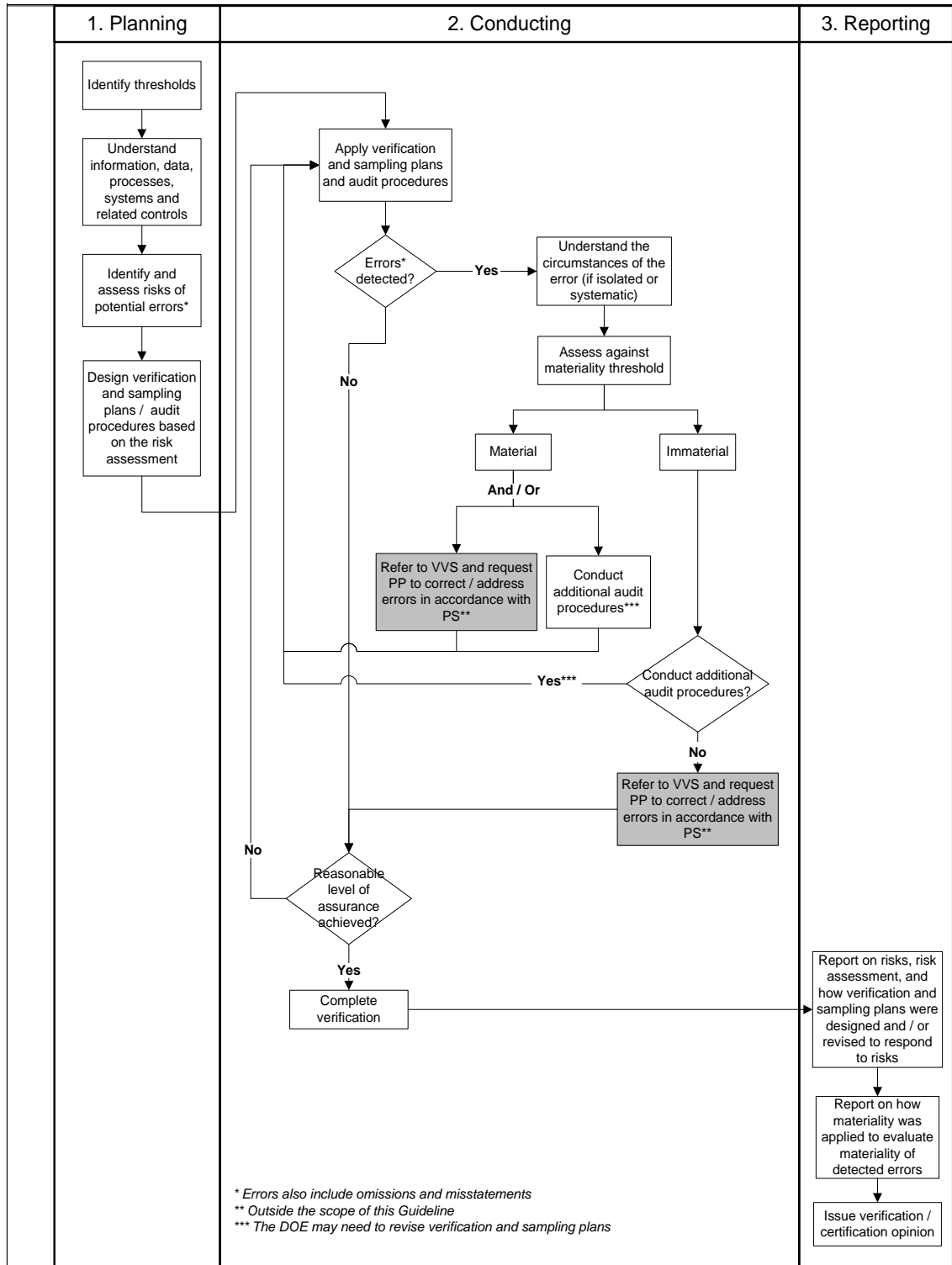
3. Normative References

8. The following referenced documents are indispensable for the application of this Guideline:
 - (a) “CDM validation and verification standard”;
 - (b) “Glossary: CDM terms”.

4. Flowchart on the application of materiality in verification

9. The flowchart in Figure 1 illustrates how to apply materiality in verifications in accordance with the “CDM validation and verification standard” (VVS).

Figure 1. Flowchart on the application of materiality in verification



5. Examples of the application of materiality in verifications

5.1. General

10. The following are examples of situations where the concept of materiality is applied in verifications. These examples are only intended to help understand how materiality can be applied, and are not binding rules.

5.2. Examples in planning verifications

11. Example 1:

- (a) In planning the verification, the DOE should identify and assess the risks of individual or aggregated material errors, omissions or misstatements in consideration of the applicable materiality threshold and the required level of assurance to reach. Examples of potential causes of risk may include¹:
 - (i) Human error in the quantification of emissions (which may be more likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording);
 - (ii) Undue reliance on a poorly designed information system, which may have few effective quality controls; for example, the use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security, etc.;
 - (iii) Manual adjustment of otherwise automatically recorded activity levels; for example, manual input may be required if a flare meter becomes overloaded.
- (b) The DOE may design its verification to respond to the assessed risks by applying the following audit techniques:
 - (i) Depending on the monitoring period being verified, conduct increased sampling during the months when there is a greater likelihood of errors and issues with data quality control due to project participants' leave schedules;
 - (ii) Depending on how data is generated, processed, and reported, place greater emphasis on verifying data captured and processed manually and/or in spreadsheets versus those that are generated from an automated system.

¹ Drawn from ISAE 3410, Assurance Engagements on Greenhouse Gas Statements (Exposure draft January 2011).

12. Example 2:²

- (a) The project is a large-scale CDM project activity achieving total emission reductions of <300,000 tons of CO₂e per year; as such, a 2 per cent materiality thresholds is applied.
- (b) The verification of this project activity requires the verification of emissions from only three sources. From an initial review of top-level data, the first emission source reportedly accounts for 78.2 per cent of the total emission reductions, the second source accounts for 20 per cent of the total emission reductions and the third source reportedly accounts for 1.8 per cent of the total emission reductions (i.e. less than the materiality threshold of 2 per cent).
- (c) Based on the DOE's knowledge of how the project participants collect, measure, process, and report data for each source, the DOE determines that the second source (accounting for 20 per cent of total emission reductions) has the highest potential for errors, omissions or misstatements since the data are manually recorded in a spreadsheet. The other two sources use automated data feeds to record the data.
- (d) The verification plan is therefore designed to ensure that the majority of time to test and detect potential errors is spent on verifying the source with the highest risk for potential misstatements versus the first and third sources that together account for 80 per cent of total emission reductions.

5.3. Examples in conducting verifications

13. Example 3:³

- (a) The project is a small-scale CDM project activity achieving total emission reductions of <30,000 tons of CO₂e per year; as such, a 5 per cent materiality threshold is applied.
- (b) The project activity's monitoring plan involves surveying thousands of households. Along the audit trail the DOE checks by random sampling, following the sampling standard, whether the transfer from hand-written survey records to a project data base was performed adequately.
- (c) The sampling approach by the DOE showed that out of 200 samples, two data transfers were made erroneously. When extrapolating the resulting error to the whole data set the overestimation at a 95 per cent confidentiality interval would be less than 0.5 per cent.
- (d) The DOE requests, in accordance with the VVS, the project participants to correct the two identified errors and to review the whole data set to check whether similar errors also occurred in the remaining data set not checked by the DOE. After having confirmed that the project participants have corrected the

² Adapted from an example provided by the Designated Operational Entities and Independent Entities Association (D&IA).

³ Adapted from an example provided by D&IA.

identified errors, and having determined that there is no risk of material errors within the data set, the DOE determines that further sampling is not needed.

14. Example 4:⁴

- (a) The project is a large-scale CDM project activity achieving total emission reductions of 400,000 tons of CO₂e per year; as such, a 1 per cent materiality threshold is applied.
- (b) During the course of the verification, errors are identified within a data set and are identified to have been caused by errors in manual transposition.
- (c) Due to the cause, these errors are easily quantified, and are identified to represent an error of 0.5 per cent of the total emission reductions (i.e. less than the materiality threshold of 1 per cent).
- (d) Despite these errors being less than the materiality threshold of 1 per cent, the DOE, in accordance with the VVS, requests the project participants to correct the data set containing the errors. These errors are corrected by the project participants and the DOE confirms the corrections but also decides to test another sample of data in order to reach a reasonable level of assurance that no additional errors are present in the data set that when aggregated with other detected errors could be material.
- (e) No further errors are identified in the additional data set, and the DOE proceeds with the remaining elements of the verification as defined in its verification plan.

15. Example 5:⁵

- (a) The project is a large-scale CDM project activity achieving total emission reductions of >500,000 tons of CO₂e per year; as such, a 0.5 per cent materiality threshold is applied.
- (b) During the course of the verification, errors are identified within a data set caused by erroneous meter readings. These errors are quantified to represent an error of 1 per cent of the total emission reductions (i.e. more than the materiality threshold of 0.5 per cent).
- (c) The DOE, in accordance with the VVS, requests the project participants to correct the data set containing the errors before conducting any further audit procedures.
- (d) The errors are caused by a failure of the meter to provide updated readings at the defined frequency and have resulted in the last reading being repeated for a period. The monitoring plan defines the approach to be applied in these circumstances and the project participants correct the data set in accordance with the defined approach.
- (e) The DOE confirms the corrections are in accordance with the monitoring plan and continues with the verification of the same data set. No further errors are

⁴ Adapted from an example provided by D&IA.

⁵ Adapted from an example provided by D&IA.

identified in the data set, the DOE confirms the data set to be free from material error and proceeds with the verification as defined in the verification plan.

16. Example 6:⁶

- (a) The project is a large-scale CDM project activity achieving total emission reductions of >500,000 tons of CO₂e per year; as such, a 0.5 per cent materiality threshold is applied.
- (b) The project activity includes the operation of a back-up generator powered by fossil fuel which contributes to 2 per cent of the project emissions. Fuel consumption of the generator is monitored by a fuel balance comprising the determination of the fuel stock at the beginning and the end of the monitoring period and the determination of all fuel purchases during that period. The maximum fuel stock is equivalent to an amount of 0.1 per cent of the project emissions.
- (c) While it could be confirmed that there is no material misstatement within all other data required for the calculation of the emission reductions as well as regarding the completeness, consistency and plausibility of fuel purchase data, the record for the fuel stock at the end of the monitoring period was taken manually by a single person without any corroborating evidence. The reading for the fuel stock at the beginning of the monitoring period is consistent with the one at the end of the previous period.
- (d) When planning the verification activities for this emission source the DOE will focus on the completeness, consistency and plausibility of fuel purchase data. No specific attention will be paid to the fuel stock as even in the worst case any misstatement would result in a significantly lower over-estimation of emission reductions compared to the materiality threshold and would result in an equivalent under-estimation in the following period.

17. Example 7:⁷

- (a) The project is a large-scale CDM project activity achieving total emission reductions of 150,000 tons of CO₂e per year; as such, a 2 per cent materiality threshold is applied (3,000 tons of CO₂e).
- (b) One of the parameters used for determining the project's baseline emissions is the measurement of the chemical oxygen demand (COD) of wastewater, which according to the monitoring plan is performed daily.
- (c) The monitoring period covers 540 days. The daily COD values are presented for verification in the emission reduction calculation spreadsheet and records are available for all 540 measurements carried out during the monitoring period. The COD values are manually transferred from the measurement records to the emission reduction calculation spreadsheet.

⁶ Provided by D&IA.

⁷ Provided by D&IA.

- (d) The DOE has assessed the reported data and found that the reported COD values are reasonable and there are no outliers which need further investigation. The DOE thus applies sampling for verifying that the COD values in the emission reduction calculation spreadsheet are consistent with the actual measurement records and selects a random sample.
- (e) The DOE identifies that for five of the records checked an error was made in transferring the data from the measurement record to the emission reduction calculation spreadsheet. The errors identified (typographical errors with some digits) do not represent more than 10 per cent of the reported value. Nonetheless, assuming that the frequency of errors in transferring data may be at least the same in the remaining data set as found in the sample (when applying the percentage of error for the COD value of the records to the total COD value for 540 records the error in the emission reduction calculation is more than 3,000 tons of CO₂e), the possible error in the total reported emission is therefore material. The project participants are thus requested, through a corrective action request (CAR), to correct the errors identified in the sample and once more check the remaining records and correct any further errors.
- (f) The project participants submit a revised emission reduction calculation spreadsheet in which the eight errors identified by the DOE's sample were corrected in addition to 15 other values. To further verify the data set, the DOE selects a further random sample from the remaining data set. The DOE identifies that for one of the sampled records, the value was erroneously transferred to the emission reduction calculation spreadsheet. Again, the error identified (typographical errors with some digits) does not represent more than 10 per cent of the reported value.
- (g) The project participants are thus requested, through another CAR, to correct the error identified in the second sample and once more check the remaining records and correct any further errors. The project participants submit a revised emission reduction calculation spreadsheet in which the identified error is corrected. The DOE decides not to carry out further verification and does not select another sample. Even if there are possibly further errors in the remaining data set not checked by the DOE, when applying the percentage of error for the COD value identified in the sample of records to the remaining COD value the error in the emission reductions calculation is less than 3,000 tons of CO₂e. Hence, any possible remaining misstatement in the reported COD values would not have a material impact on reported emission reductions.

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	20 February 2015	EB82, Annex 11. Revision to remove provisions that were incorporated into the “CDM Validation and Verification Standard” (version 08.0) (CDM-EB65-A04-STAN) and “Glossary: CDM terms” (Version 08.0) (CDM-EB07-A04-GLOS).
01.0	13 September 2012	EB 69, Annex 06. Initial adoption.

Decision Class: Regulatory
Document Type: Guideline
Business Function: Issuance
Keywords: DOE, concept of materiality, sampling, verification
