

The logo for Econ, a member of the Pöyry Group. The word "econ" is written in a dark blue, lowercase, sans-serif font. The letter 'o' is stylized as a dark blue circle with a white crescent shape on its right side, and a solid green circle is positioned inside the white crescent.

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Validation and verification: What do the auditors check?

September 23, 2008
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CD4CDM Third National Workshop
Port Louis, Mauritius

Validation objective, process, outcomes

What exactly do validators check?

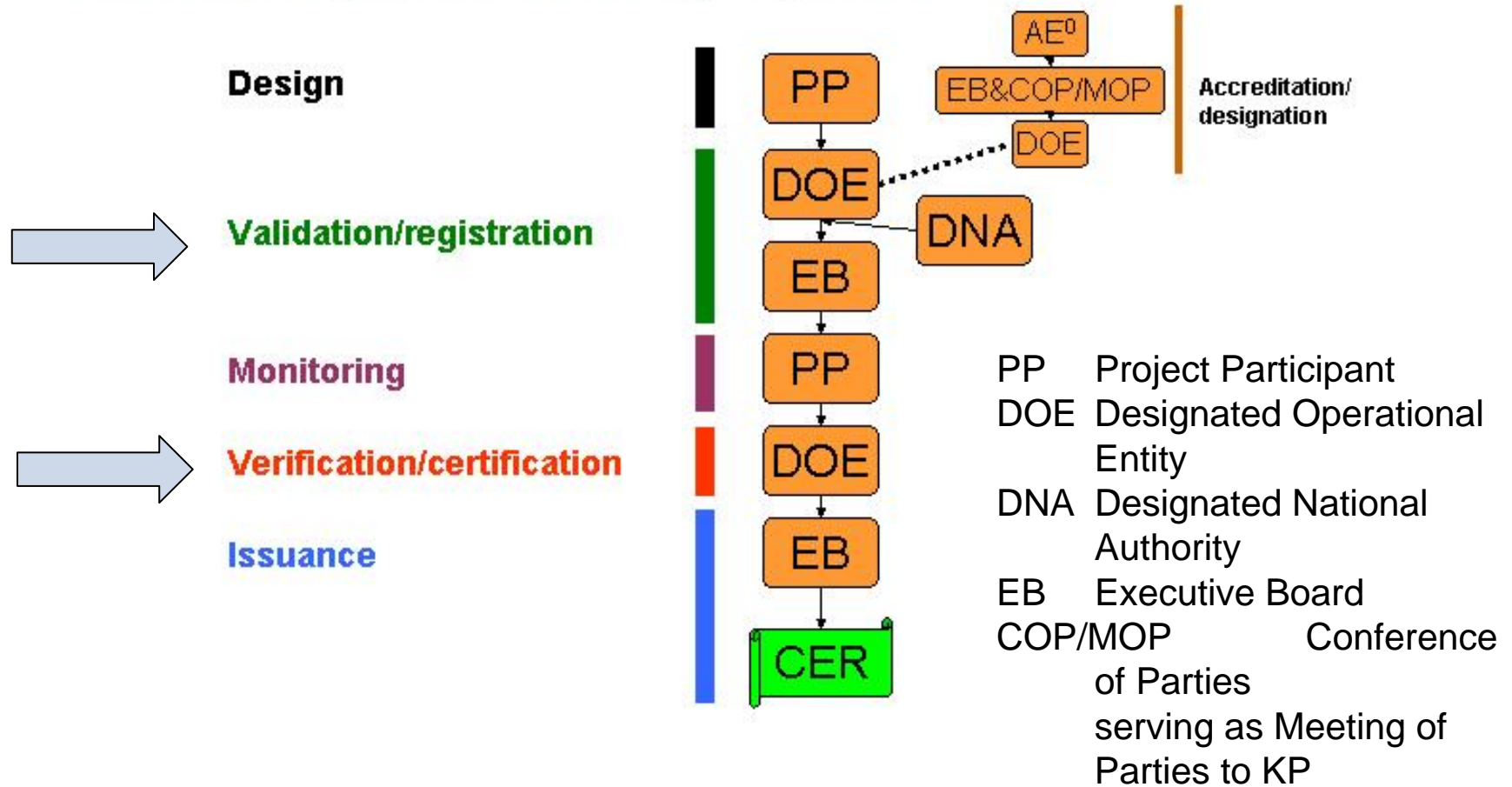
Lessons from validations: how to prepare

Small scale validation process

Initial verification

Periodic verification

CDM project activity cycle



UNFCCC



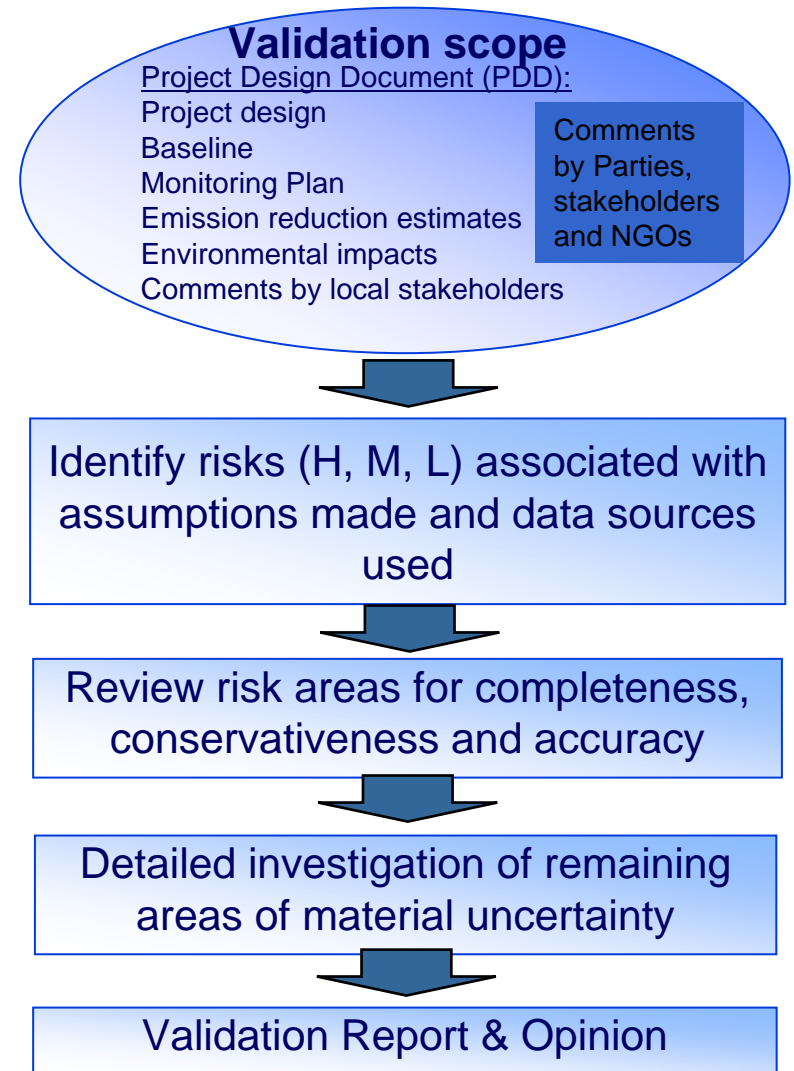
UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

CDM Validation Objective

- Accredited, independent party assesses project design
 - Baseline
 - Monitoring plan
 - Compliance with UNFCCC and host part criteria
- Provide assurance to stakeholders of the quality of the project and its ability to generate certified emission reductions (CERs)
- Based on KP, CDM M&P, Guidance from EB

Risk-Based Validation Approach

1. identify the key risks associated with assumptions/claims made and data sources used.
2. Review completeness, conservativeness and accuracy of the underlying evidence.
3. Investigate remaining areas of uncertainty
4. Provide the basis for the validation opinion



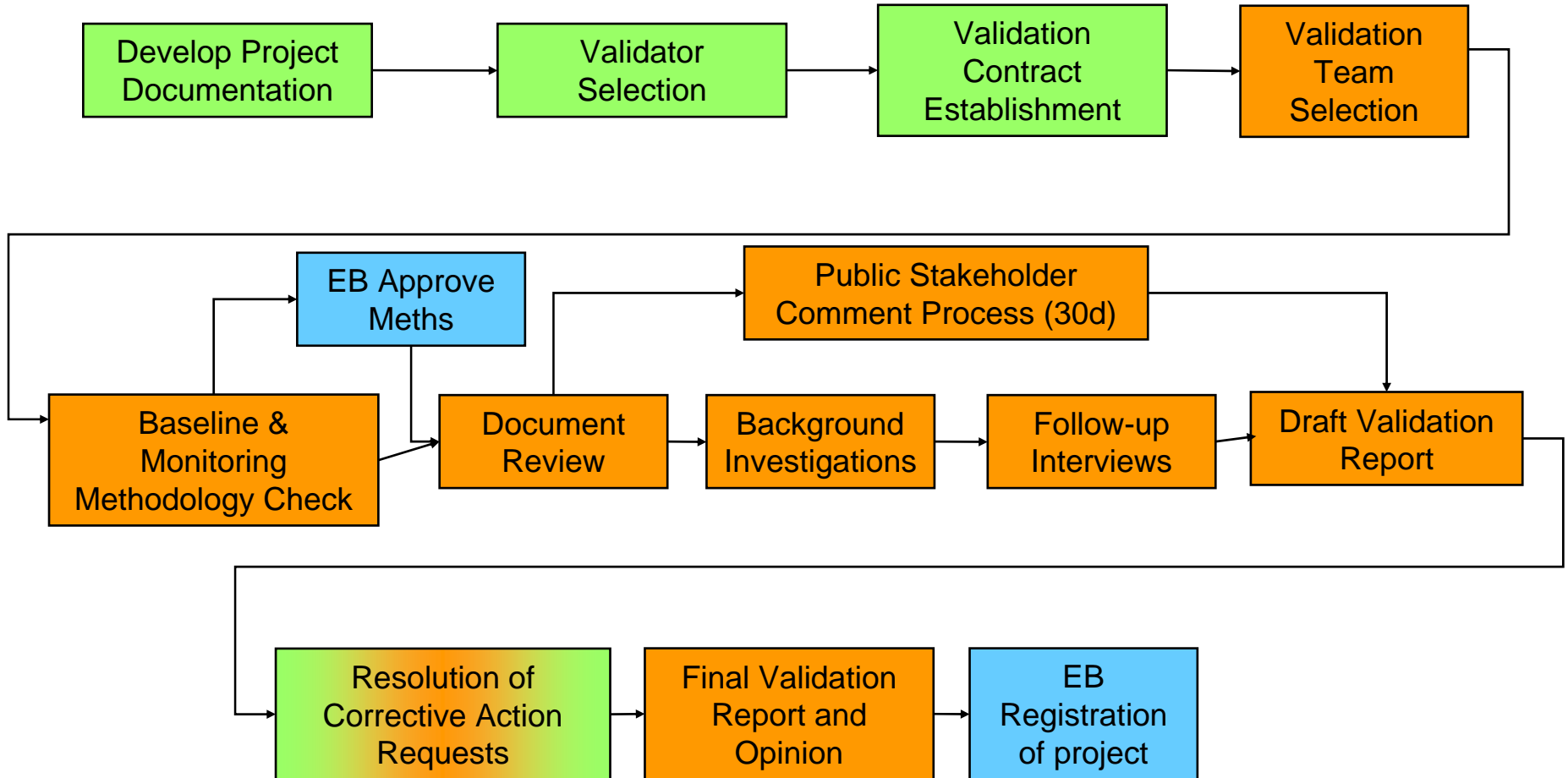
CDM Validation Criteria

- UNFCCC criteria: Kyoto Protocol Article 12 criteria, CDM M&P and the relevant decisions by the CDM EB, include, but are not limited to:
 - Participation Requirements
 - Project Design Document
 - Project Additionality
 - Sustainable Development and Approval by Parties Involved
 - Baseline Methodology and Project Baseline
 - Monitoring Methodology and Plan – Coverage of Emission Sources
 - Monitoring Practice and GHG Data Management
- Host Party criteria: National approval as proof that project meets country specific priorities

Means of Verification

- Document Review
 - Review of data and information in PDD, Annexes and referenced documents
 - Cross-checks between PDD and independent background investigations
- Follow-up Interviews with relevant stakeholders
 - On site
 - Via telephone
 - Via email
- Cross-check of information provided by interviewed personnel, i.e. by source check or other interviews
- Comparison with projects or technology that have similar characteristics
- Test of the correctness of critical formulas and calculations, including spreadsheets
- Comparison with similar projects in the host country
- Comparison between baseline and project factors to confirm comparability and consistency in the use of the monitoring plan

The Validation Process



Clarifications and Corrective Action Requests

- A **Corrective Action Request** (CAR) is issued where:
 - mistakes have been made in assumptions or the project documentation which directly will influence on project results;
 - the requirements deemed relevant for validation of a project with certain characteristics have not been met; or
 - there is a risk that the project would not be registered by the UNFCCC or that emission reductions cannot be verified and certified.
- A **Clarification Request** (CL) is issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.
- In practice get many CLs and fewer CARs, but it is the CARs that can kill the project if they are not addressed

Resolution of Corrective Action Requests

- Requests can be resolved or "closed out" by
 - modifying the project design (amendments to the monitoring plan, or adjustments of the selected project baseline and calculations)
 - rectifying and updating the project design documentation
- If this is *not* done in the final stages of the validation, it may cause the project not be recommended for registration
- Conversely, a validation with no (remaining) corrective action requests could still end up not producing the expected emission reductions, if the project is not implemented correctly
- All changes shall be approved by the project proponent before submitted to the validator, if a third party is assisting with the PDD

Final Validation Report

- Reflects the responses to corrective action and clarification requests, discussions and revisions of project documents.
- Gives the final conclusions regarding the projects conformance with relevant UNFCCC requirements
- Includes a **validation opinion**, which either forms the basis for registration of the project or which explains the reason for non-acceptance if the project
- Indicates the implications of any remaining corrective action requests not resolved during the validation, including how these may be resolved
 - Might have a CAR that is only resolved when project is implemented and is checked later

Validation Opinion

- This opinion includes:
 - Summary of validation methodology, process, and criteria
 - Statement on project components/issues not covered in the validation engagement
 - Summary of the validation conclusions
 - Statement on the likelihood of emission projections
 - Liability statement with regards to the validity of the validation opinion
- **Unqualified validation opinion:** project complies with all UNFCCC and host Party requirements, and all corrective action requests presented in the draft validation report were satisfactorily resolved.
- **Qualified validation opinion:** meets all UNFCCC and host Party requirements, but does not meet criteria given to provide for consistent project operations, monitoring and reporting.
 - Project developer must rectify prior to project commencement,
 - Initial verification or first periodic verification checks whether qualifications stated in the validation opinion have been sufficiently addressed
- **Denial of validation:** validator is unable to obtain sufficient and appropriate evidence which could confirm that UNFCCC or host Party requirement are met, or where evidence show that such requirements are not met.

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Participation requirements

- Host Party is eligible to host a CDM project activity:
 - The host Party has ratified the Kyoto Protocol
 - The host Party has designated a national authority (DNA) for the CDM
- Letter of Approval from the DNA serves as evidence that the host Party voluntarily participates in the project
- Projects do *not* have to specify the investor party to be validated
- If a buyer party is included, the validator checks whether the buyer party is in compliance with Kyoto Protocol requirements for national communications and keeping national GHG inventories.

Project Design Document (PDD)

- PDD should be complete and comprehensive enough to give an accurate picture of the project and baseline
- Must follow the structure and criteria given in the CDM-PDD template and be approved by the project proponent for its completeness before it is presented to the validator
- The Project Design Document (PDD) may be supported by additional documentation, such as:
 - Baseline study
 - Monitoring plan
- PDD must provide sufficient information of the technical features of the project, and other relevant information about the project.

Baseline methodology and project baseline

- Validator checks whether the baseline methodology is previously approved by the CDM Executive Board.
- If project uses a new baseline methodology, the new methodology must be submitted for approval by the CDM Executive Board.
- Key role of validator, and most difficult one, is to determine whether the project participants have applied the baseline methodology correctly and appropriately:
 - Accuracy and comprehensiveness of data
 - Reliability of data sources
 - Sufficient monitoring to ensure accurate estimates of emissions reductions

Additionality of a project activity

- Role of validator is to determine whether the project proponent has correctly applied the additionality testing contained in the approved methodology used by the project
- This will include checking the underlying data and assumptions used by the project participants to justify additionality (e.g. input costs and benefits used for calculating financial returns, applicability conditions of the methodology)
- Key issue here is how well the project participants have documented all of the assumptions and parameters

Sustainable development and stakeholder comments

- Verify that the host Party has confirmed that the project assists in achieving sustainable development
- Assess whether the social and environmental impacts of a project are sufficiently addressed
- *It is NOT the role of the validator to judge whether the project supports sustainable development in the host country. This is the role of the host country government, as represented by the DNA*
- Assess the appropriateness of the local stakeholder consultation process performed by the project proponent, including whether:
 - relevant local stakeholders have been consulted,
 - a summary of the comments received provided,
 - due account has been taken of any comments received.

Assessment of environmental impacts

- Check whether an Environmental Impact Assessment (EIA) is required by national legislation
- If so, verify that the EIA has been carried out in accordance with national requirements and been approved by the relevant national authority
- Where no legal requirements exist, the analysis of the environmental impacts of the project activity should be reviewed by the validator
 - coverage has not been formally decided
 - review that all relevant impacts have been identified and are properly taken into account in the project

Monitoring plan: coverage of emission sources

- Assess whether the monitoring plan
 - provides for the monitoring of the relevant project and baseline GHG emission indicators, *as specified in the methodology*
 - addresses all other factors that should be monitored over the project lifetime
- This includes an assessment of the proposed system boundary and whether it includes all significant sources of GHG emissions and all relevant GHG gases.
 - A test of materiality may be used to assess whether some GHG emissions may be omitted

Monitoring plan: practice and data management

- Check whether:
 - the proposed system for monitoring reflects good monitoring practice
 - the monitoring plan provides for complete, accurate and real measurements of achieved emission reductions
 - the monitoring plan provides for conservative monitoring of baseline, when applicable, taking into account data uncertainty.
- Assess the proposed GHG data management, control and reporting systems,
 - confirm that project quality control procedures and operations reflect best practices and enable verification of GHG emission reductions

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Lessons: Applicability of methodology

- Check that most recent version of methodology and, where applicable, additionality tool, has been used
- Applicability conditions must be documented, not just stated
 - E.g. no use of biomass for power generation in the country – government documents, energy balance, emails/letters from power generators
 - E.g. no requirement to capture and/or flare landfill gas – refer to acts and regulations governing landfills, conditions of operating licenses
 - E.g. project size below threshold – dated feasibility study, tender documents, technical specifications for project

Lessons from validation: document, document, document!

- Essential to document all assumptions with verifiable sources:
 - publicly available information, with website reference or actual document provided to DOE
 - For internal data, need scanned copies of dated original documents
 - E.g. coal consumption tracked back to weigh bridge readings or delivery notes
 - E.g. capital cost and operating cost – techno-economic feasibility study, quotes from technology suppliers, publicly available research studies, investment appraisal reports
- If project starts after registration, the data must all be most recent available

Lessons: projects that start before registration

- If project started before registration, baseline and additionality arguments must be based on information available at start of project
- “start of project” is earliest of “implementation, construction or real action” which in practice is investment decision committing funding or contracting
- All assumptions for financial analysis must be from prior to date of decision
- Internal documents must be dated and show what assumptions were used to make the decision

Lessons: approach to financial analysis – new EB guidance

- Financial analysis over life of project investment, which may be longer than the crediting period, and include residual value of assets at end of life
- IRR calculations should exclude financing costs, depreciation, and other non-cash items
- Can not use benchmark analysis if both the baseline and project require investment
- Sensitivity analysis for all variables contributing >20% to total projects and revenues, over “reasonable” range of variation
- All financial analysis in a spreadsheet that will be publicly available

Lessons: financial analysis parameters – new EB guidance

- “Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant”
- If project could be developed by another entity, must use publicly available data for benchmark return (e.g. commercial lending rates)
- ONLY if project could not be developed someone else, can use internal benchmark rates
 - Demonstrate this rate has been used for similar projects with similar risks
 - Board decision, with clear evidence
 - DOE will do thorough investigation of internal financial statements
- Risk premiums must be for specific project type

Lessons: monitoring plan

- For every variable that will be monitored, need detailed description of
 - Instrumentation: e.g. instrument used, accuracy, monitoring frequency, calibration schedule
 - Data collection process: e.g. who is responsible for each step, error handling, review of data for quality control, reporting
- Documentation: Technical specs of equipment, calibration certificates for instruments, accreditation of laboratories used for third party data (e.g. net calorific value)
- Training requirements of project implementation and monitoring staff

Lessons: Baseline scenarios

- Clear description of each scenario
- Barrier analysis must be substantiated by documentary evidence

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Small-Scale Project Categories

Type I: Renewable energy projects (Capacity < 15 MW):

- I.A Electricity generation by the user
- I.B Mechanical energy for the user
- I.C Thermal energy for the user
- I.D Renewable electricity generation for a grid

Type II: Energy efficiency improvement projects (Energy Savings <15 GWh/yr)

- II.A Supply side energy efficiency improvements - transmission and distribution
- II.B Supply side energy efficiency improvements - or generation
- II.C Demand-side energy efficiency programmes for specific technologies
- II.D Energy efficiency and fuel switching measures for industrial facilities
- II.E Energy efficiency and fuel switching measures for buildings
- II.F. Energy efficiency and fuel switching measures for agriculture*

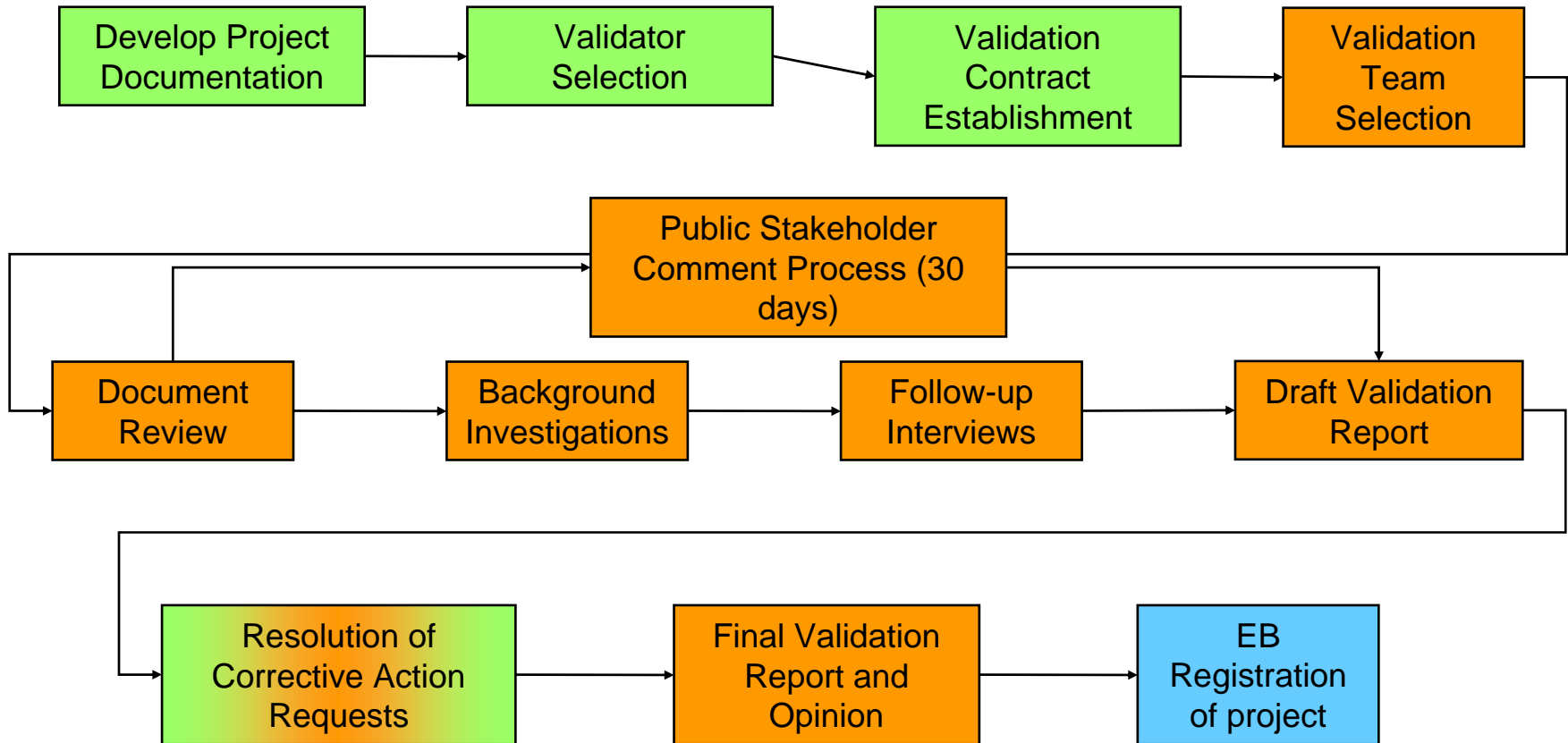
Type III: Other project activities (Direct Project Emissions < 15 ktCO₂e)

- III.A Agriculture
- III.B Switching fossil fuels
- III.C Emission reductions by low-greenhouse gas emitting vehicles
- III.D Methane recovery and avoidance.
- III.E. Avoidance of methane production from biomass decay through controlled combustion*

Differences between Small-Scale and other CDM Projects

- Different requirements related to the project design:
 - Simplified baseline and monitoring methodologies
 - Additionality based on qualitative assessment of barriers (e.g. Investment, technological barriers, barriers due to prevailing practice, other)
 - Project boundary is limited to the physical project activity.
 - Leakage generally not considered
 - Simplified PDD for Small-Scale CDM Project Activities
 - Documentation on environmental impacts is only necessary if required by the host Party
 - Can propose changes to the simplified baseline and monitoring methodologies by writing to EB
- Different requirements related to the validation:
 - Ensure that the project complies with SSC category
 - Use simplified small-scale validation protocol
 - Same DOE can do validation and verification

Validation Process for Small-Scale Projects



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Initial verification

- Verifier determines that
 - all operations are implemented and installed as planned,
 - all physical features of the project are in place.
 - confirm that the monitoring system is in place and fully functional.
- The project parties can, based on a cost-benefit analysis, choose whether an initial verification is carried out
 - as a separate activity prior to the project commencing its regular operations, or
 - as an integrated part of the first periodic verification.
- A separate initial verification prior to the project entering into regular operations is not a mandatory requirement.
- Performing an initial verification as part of the first periodic verification may result in reduced verification costs, but risk is that emission reductions generated in the period from project start to the first periodic verification may not be verified.

Initial verification: objective

- Verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions
- There are several purposes of the initial verification process:
 - ensure that the project has been implemented as planned,
 - ensure that the monitoring system is in place and project is ready to generate and record GHG emission reductions;
 - assess adjustments and amendments to the monitoring plan that may have become necessary during the detailed design and construction of the project
- to provide assurance of generation of high quality emission reductions and clear the way for project commissioning

Initial verification: scope

- The initial verification should typically address the following aspects:
- **Remaining issues and qualifications from validation/ determination:** Especially for projects which are not yet registered at CDM-EB or JI-SB, there might be some outstanding issues which have been identified in the validation report
- **Project implementation:** To assess the appropriate implementation is the core of the initial verification.
- **External data sources:** Especially for data of baseline emissions there might be the necessity to include external data sources.
- **Environmental and social indicators:** A Monitoring Plan may comprise the determination of environmental and/or social indicators which could be necessary to evaluate the success of the project activity.
- **Management and operational system:** In order to ensure a successful operation of a project and the credibility and verifiability of the emission reductions achieved, the project should have a well defined management and operational system.

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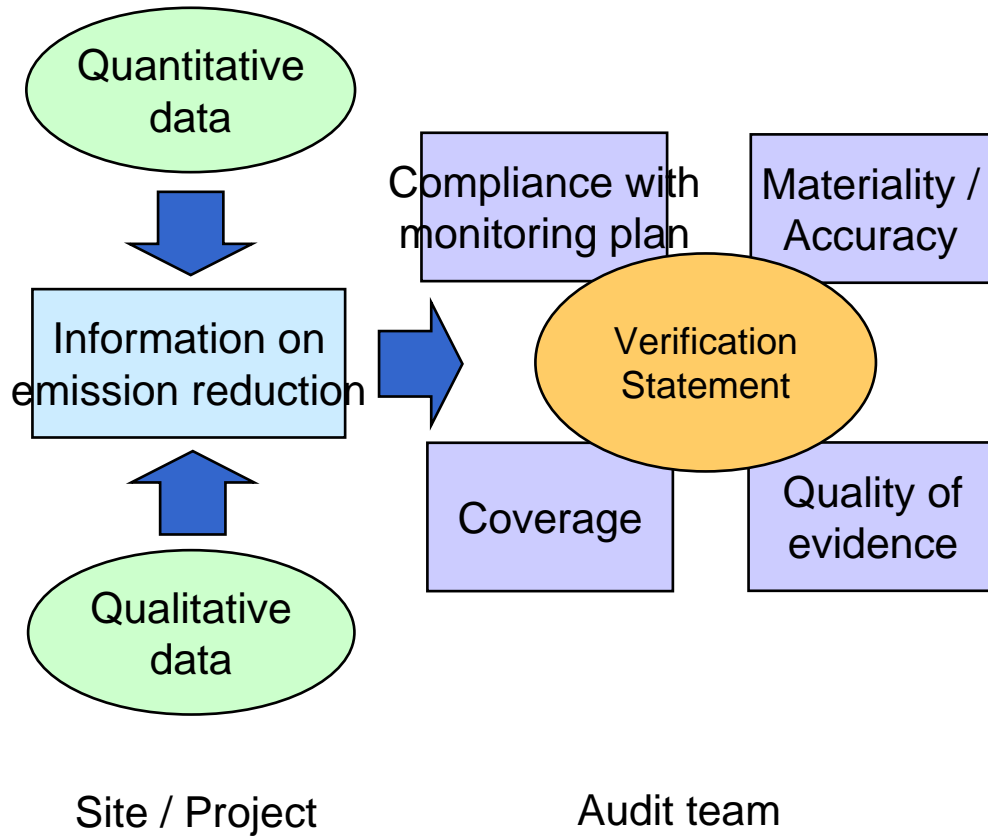
Periodic verification

Periodic verification

- Verification is the periodic independent review and *ex post* determination by the Designated Operational Entity / Independent Entity of the monitored reductions in GHG emissions during the defined verification period.
- The objective of the periodic verification is:
 - to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan,
 - to evaluate the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is “free” of material misstatements,
 - the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records.
- If no prior initial verification has been carried out, the objective of the first periodic verification also includes the objectives of the initial verification.

Thank you!

Verification principles



Steps in validation

Baseline and Monitoring Methodology Check

- Check whether the baseline and monitoring methodologies employed by the project are previously approved
- If new methodology,
 - check whether documents are complete, i.e. the draft CDM-PDD with sections A to E as well as NMM and NMB.
 - Forward to EB without further analysis
- See previous slide on Methodology Approval Process

Document Review

- Documentation is complete and comprehensive and follows the structure and criteria given in the [UNFCCC CDM-PDD](#) template
- Choice of baseline and monitoring methodologies is justified and appropriate for the specific project
- Assumptions for the baseline are conservative and appropriate
- Description of the baseline development has considered technological, political, socio-demographic, environmental and legal trends of relevance to the project
- Additionality of the project is sufficiently demonstrated in the PDD
- All aspects related to direct and indirect emissions, including leakage, are captured in the project design documentation and potentially claimed emission reductions
- Calculation of GHG emission reductions is appropriate and uses conservative assumptions for estimating emission reductions
- Local stakeholder consultation has been carried out and comments are taken into account in the project design
- Technical features of the project, as well as other information about the project has been sufficiently addressed.
- Monitoring plan clearly identifies the frequency of, responsibility and authority for monitoring, measurement and data recording activities and sufficiently describes quality control/ quality assurance/ management control procedures

Background Investigation

- To supplement documentation validator have to identify other sources to verify assumptions
 - identify issues that are potentially of relevance to the project.
 - particularly important if the project is sector that has not hosted a project of this character before
- Background study should evaluate the political and legal, environmental, socio-demographic and technological policies, circumstances and trends
- Host country visit is encouraged for projects where host country or sector-specific information is not obtained through prior validation of projects.
- The background study shall enable a risk-based validation
- Examples of background material (environmental legislation, previous MOUs between the project proponent and the host Party, Sustainable development priorities in the host country, Macro-economic trends in the host country, grid dispatch patterns and network coverage)

Follow-up Interviews

- Follow-up interviews with host country project stakeholders and project developers useful to discuss and validate issues related to project baseline and additionality.
- Discussions with the DNA may be necessary
- Follow-up interviews (face-to-face or telephone) are essential if insufficient evidence via other means of verification.
- Desk review only may be used as a cost-effective way for validation of a project when the project context is well known and the project's additionality is proven by similar projects in the same environment.
- Validation by desk review only will usually require that similar projects have been validated and previously achieved registration with the UNFCCC

Stakeholder Consultation Process

- The validator make PDD publicly available to comment on the validation requirements within 30 days. Comments also made publicly available
- The invitation for comments shall be open and transparent in a way that allows to receive comments from regional stakeholders
- Validator must show how account of comments was taken – but not required to dialogue but may request clarifications
- Put comments and how issues addressed in appendix to validation report

Draft Validation Report

1 Introduction

- 1.1 Objective
- 1.2 Scope
- 1.3 GHG Project Description

2 Methodology

- 2.1 Review of Documents
- 2.2 Follow-up Interviews
- 2.3 Resolution of Outstanding Issues

3 Preliminary Validation Findings

- 3.1 Project Design
- 3.2 Baseline
- 3.3 Monitoring Plan
- 3.4 Calculation of GHG Emissions
- 3.5 Environmental Impacts
- 3.6 Comments by Local Stakeholders

4 Comments by Parties, Stakeholders and NGOs

5 References

Appendix 1: Validation Protocol

Validation Protocol

- A generic protocol for validation facilitates cost-effective and comprehensive validation of CDM projects.
 - documented backbone of a transparent validation process.
- The protocol may also be used during the validation process to assist the validator to keep track of:
 - issues to be further verified/ checked,
 - issues to be clarified by the project parties,
 - issues to be corrected by the project parties
- Keep the original comments in the draft validation protocol as well as the final comments made after subsequent discussions with the project proponent.

Validation Protocol (1)

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Activities

REQUIRE- MENT	Reference	CONCLUSION	Cross Reference to Checklist (Table 2)
The requirements the project must meet.	Reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements.	To ensure a transparent process, this refers to the relevant checklist questions in Table 2 to show how the specific requirement is validated.

Validation Protocol (2)

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV	COMMENTS	Draft Conclusions	Final Conclusions
<p>Requirements in Table 1 are linked to specific checklist questions the project shall meet.</p> <p>The checklist is organised in different sections, following the CDM-PDD structure. Each section is then further sub-divided. The lowest level constitutes a checklist question</p>	<p>Reference to documents.</p>	<p>The means of verification explains how conformance with the checklist question is investigated, i.e. through document review (DR) or interview (I).</p>	<p>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. and to explain the conclusions reached.</p>	<p>This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) or a Clarification Request (CL) Whenever a CAR or CL is issued, table 3 shall be used to describe how the findings have been resolved and concluded.</p>	<p>The final conclusion of the validation shall be documented as either OK , CAR or CL. This is based on the resolution of outstanding issues as elaborated in Table 3.</p>

Table 3 Resolution of Corrective Action and Clarification Requests

<p>Draft report clarifications and corrective action requests by validation team</p>	<p>Ref. to checklist question in table 2</p>	<p>Summary of project owner response</p>	<p>Validation team conclusion</p>
<p>If the conclusions from the draft validation are either a Corrective Action Request or a Clarification Request, these shall be listed in this section.</p>	<p>Reference to the checklist question number in Table 2 where the CAR or CL is explained.</p>	<p>The responses given from the project proponent or other project participants during the communications with the validation team shall be summarised in this section.</p>	<p>This section shall summarise the Validation Team responses and final conclusions. The conclusions shall also be included in Table 2, in the section called “Conclusions Final”.</p>



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