

## CI-DEV CDM MRV STUDY:

FACILITATING CREDIT ISSUANCE BY IMPROVING  
THE MONITORING, REPORTING AND VERIFICATION  
PROCEDURES AND ISSUANCE RULES OF THE CDM



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# List of Abbreviations

<b>AMS</b>	Approved Methodology for Small Scale Projects
<b>AP</b>	Accreditation Panel
<b>CAR</b>	Climate Action Reserve
<b>CC</b>	Completeness Check
<b>CCER</b>	Chinese Certified Emission Reduction
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CFL</b>	Compact Fluorescent Lamp
<b>CME</b>	Coordinating Managing Entity
<b>CMP</b>	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
<b>CPA</b>	CDM Project Activity
<b>DNA</b>	Designated National Authority
<b>DOE</b>	Designated Operational Entity
<b>EB</b>	Executive Board
<b>ETS</b>	Emissions Trading Scheme
<b>EU</b>	European Union
<b>FCS</b>	Fair Carbon Standard
<b>fNRB</b>	Fraction of non-renewable biomass
<b>GEF</b>	Grid Emission Factor
<b>GPS</b>	Global Positioning System
<b>GS</b>	Gold Standard
<b>IRC</b>	Information and Reporting Check
<b>ISO</b>	International Organization for Standardization
<b>IT</b>	Information Technology
<b>JCM</b>	Japanese Joint Crediting Mechanism
<b>JI</b>	Joint Implementation
<b>JISC</b>	Joint Implementation Supervisory Committee
<b>LDC</b>	Least Developed Country
<b>LED</b>	Light Emitting Diode
<b>MP</b>	Methodology Panel
<b>MRG</b>	Monitoring and Reporting Guidelines
<b>MRV</b>	Monitoring, Reporting and Verification
<b>MW</b>	Mega Watts
<b>NDRC</b>	National Development and Reform Commission
<b>OO</b>	Objective Observer
<b>PAYG</b>	Pay As You Go
<b>PCP</b>	Project Cycle Procedure
<b>PDD</b>	Project Design Document
<b>PoA</b>	Programme of Activities
<b>PP</b>	Project Participant
<b>RK</b>	Republic of Kazakhstan
<b>SBL</b>	Standardized Baseline
<b>SD</b>	Sustainable Development
<b>SIDS</b>	Small Island Developing State
<b>SMS</b>	Short Message Service
<b>SSC WG</b>	Small Scale Working Group
<b>SUZ</b>	Special Underdeveloped Zone
<b>SWH</b>	Solar Water Heater
<b>TPDDTEC</b>	Technologies and Practices to Displace Decentralized Energy Consumption
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VCS</b>	Verified Carbon Standard
<b>VVS</b>	Validation and Verification Standard

# EXECUTIVE SUMMARY

**While many important advances have been made to remove operational hurdles in the Clean Development Mechanism (CDM), its stringent Monitoring, Reporting and Verification (MRV) requirements continue to pose challenges for CDM project developers.** Concerns most frequently voiced include high upfront costs, unclear guidance is creating barriers that put the issuance of credits at risk, inflexibility of the process, long time periods for issuance and little consideration for the specific circumstances of project developers in less developed countries. Against this backdrop the study identifies **relevant options to further streamline and simplify the MRV process** of the CDM, and to improve the predictability of the issuance process. Ensuring that emission reductions are accurately and/or conservatively quantified through stringent MRV procedures is the backbone of the CDM's credibility; any relaxation of requirements must therefore be carefully balanced to avoid eroding trust in the mechanism. The study's overall finding is that it is possible to further simplify the MRV process without compromising environmental integrity through a number of nuanced changes, such as a further differentiation between project categories, operational improvements and the use of innovative technologies.

**The study's focus lies on energy access projects in low-income countries** such as activities to promote electrification, clean thermal or mechanical power and energy efficiency programs, including many household scale technologies. This category of projects is the most challenged by MRV requirements, largely due to the small and often dispersed nature of units that are bundled under an energy access Programme of Activities (PoA). Specific challenges include a great demand on data collection and management, increased coordination effort due to the involvement of many parties, lack of MRV enabling environments in terms of data availability, regulations and infrastructure and high travel and logistical costs.

As the rules of the CDM are continuously evolving, the recommendations made in this report are time-dependent. To be relevant, the report addresses how the identified options fit within the ongoing reform agenda of the CDM Executive Board (EB). At the same time, it seeks to analyze simplification options in a systematic fashion and point to the general areas where improvements can be made. While individual guidance is in flux, conclusions relating to the general direction should be more robust.

The target audience of the study includes CDM stakeholders and governing bodies that can influence the rule-making, operationalize the guidance or support the development of tools for simplified MRV. The study identifies 15 relevant options for improving MRV. These are categorized as follows according to the level of the intervention with PoA specific improvements addressed separately:

1. **Simplifying methodologies (SM).** CDM methodologies lay the foundation for monitoring through specifying the parameters, scope and frequency of monitoring while being under the authority of the CDM-EB and its technical panels;
2. **Streamlining procedural (SP)** rules for monitoring, verification and issuance. The identified options address potential changes in the Project Cycle Procedure (PCP) and the Validation and Verification Standard (VVS) to enhance cost effectiveness and speed up processing time. They require changes to the existing ruling under the mandate of the CDM-EB or CMP guidance <sup>1</sup>.

<sup>1</sup>Conference of the Parties Serving as the Meeting of the Parties (CMP), which is the governing body of the Kyoto Protocol



3. **Optimizing operational processes (OP).** These can be achieved within the existing rules and regulations of the CDM. They include top-down options that seek to further standardize and digitize templates provided to project developers, and bottom-up options where project developers use innovative technologies for data collection and management.
4. **PoA specific simplifications (PoA),** to address the specific challenges of PoAs that are not relevant for stand-alone projects.

The approach adopted in the study is a combination of empirical research and analysis. Ideas for simplification options originate mostly from a review of the MRV practices of other carbon standards, stakeholder submissions to the CDM-EB and academic literature. To gauge the significance of the options structured interviews were carried out with over 40 stakeholders including CDM project developers, DOEs, consultants, government representatives, carbon credit buyers and representatives of other carbon standards. While the answers revealed some consistent priorities, shaped by the interviewee's affiliation, stakeholders also had many specific concerns related to individual technologies and methodologies. Further to the prioritization of options, the interviews delivered some, albeit not representative, information on the potential for cost and time savings of each option.

The options identified as an outcome of this analysis are summarized below. Many of the options are already adopted in some CDM methodologies or are a reality in other carbon standards and could be implemented by the CDM EB and requested by CMP decision. Options that were of particular interest to stakeholders and the research team include **SM1 Categorize accuracy requirements, OP1 Standardization and digitization of forms, OP2 Innovative data collection and management tools, PoA1 Unlimited number of CDM Project Activity (CPA) batches per monitoring period and PoA3 Sectoral monitoring approaches.**

## Simplifying methodologies (SM)

**SM1 Categorize accuracy requirements:** This simplification option proposes the introduction of a tiered approach to accuracy requirements for MRV, allowing lower levels of accuracy for certain categories of projects. Stratification could take place, for example, according to project size, type of technology, location or source of emissions. A tiered approach to accuracy requirements is already adopted in the European Union's Emissions Trading Scheme (EU ETS).

**SM2 Defining calibration requirements:** default adjustment rates for values that require calibration at regular frequencies could be proposed for countries or projects that are unable to meet calibration requirements due to costs, capacity and country specific constraints.

**SM3 Decision tree for dealing with data gaps:** this options suggests the provision of guidance or a decision support tool for how to deal with data gaps that occur during monitoring.

**SM4 Improving default factors:** this includes both the development of new default values and improving the accuracy of existing default factors. Options identified include the introduction of default values when performance or failure rates of specific technologies are required, expanding the list of default fraction of non-renewable biomass (fNRB) factors to more countries, developing location-specific off-grid emission factors for power generation and the operational hours of lighting, among others. The adoption of default lifetime emission reductions or shorter technology-specific crediting periods for household scale appliances with short operational lifetimes could also be considered.



**SM5 Lift superfluous monitoring requirements:** some methodologies include monitoring criteria that are cumbersome and could be revised without compromising the environmental integrity or accuracy of the approach. Examples include removing requirements to weigh animals and monitor feed ratios in AMS-III.D and relaxing monitoring for electricity consumption in composting facilities for ACM0022.

## Streamlining procedures (SP)

**SP1 Site visit exemptions:** for multi-site projects like PoAs it is permitted that Designated Operational Entity (DOE) site visits occur only to a representative sample of sites. For stand-alone projects, however, no concession is made regarding the need for site visits. Enabling a waiver of a site visit could be considered in cases where the required level of assurance could be achieved by other means.

**SP2 Verification by local expert:** allowing verification to be carried out by local experts could be enabled by developing a limited accreditation scheme under the CDM rules, developing an alternative accreditation scheme established by the host country or accepting other accreditations for CDM verifications, such as ISO 14065. The report identifies the limited accreditation scheme under the UNFCCC as the most appropriate option.

**SP3 Shorter timeline for completeness and information and reporting checks:** this option proposes reducing the total time needed for the checks by the United Nations Framework Convention on Climate Change (UNFCCC). As individual steps are already tightly budgeted this would mean either merging or skipping steps. This could include merging the completeness check (CC) and the Information and Reporting Checks (IRC) into a single step whilst allowing project participants and DOEs to respond quickly in case minor issues are raised regarding the completeness check.

**SP4 Post registration changes approved by the DOE:** this option would allow DOEs to approve all post-registration changes, rather than require prior approval from the CDM EB. The CDM EB would still be able to challenge a decision made by the DOE through a request for review procedure for verification reports. If DOEs were allowed to approve changes, the post-registration change process could be shortened by several months.

**SP5 Lower issuance fee:** at the current low Certified Emission Reduction (CER) price level the issuance fee covers a significant share of the CDM income of project activities. A lower issuance fee could reflect the CER price and be fixed at a certain percentage of the average CER price during the last calendar year or any other time period. The fee could be capped in case the CER price rises dramatically. While this option received considerable support from project developers during the stakeholder interviews the research team does not deem it a sustainable option.

## Optimization of operational processes (OP)

**OP1 Standardization and digitization of forms:** There is considerable scope for the further standardization and digitization of monitoring guidance by the UNFCCC secretariat, ranging from simple solutions (pre-approved Excel spreadsheets, sample size calculator, standardized survey templates) to fully digitized PDDs and results reporting frameworks. The most comprehensive solution would involve auto-completion of the Monitoring Report and allow DOEs to directly access and comment on the Monitoring Report online. Standardization and digitization has the potential to significantly reduce the risk of erroneous monitoring.

**OP2 Innovative data collection and management tools:** including online databases, mobile phone data collection and Pay-As-You-Go systems can substantially reduce the costs of monitoring while increasing accuracy. Such technologies offer a solution to the tradeoff between low cost/practicality of monitoring and environmental integrity. The use of these technologies has large potential for micro-scale technologies such as household biogas digesters, clean cookstoves and efficient/renewable lighting. While more sophisticated project developers already employ a variety of bottom-up systems, the opportunity lies in making systems more affordable and accessible.

## PoA specific simplifications (PoA)

**PoA1 Unlimited number of CPA batches per monitoring period:** this option would enable issuance per CPA, thereby removing interdependences which are created artificially by the set-up of the scheme wherein 'batches' of issuances are limited to 10 CPAs. This option would allow verification to move forward for all CPAs that are running smoothly, and have delays experienced only for those CPAs that are facing MRV difficulties.

**PoA2 Registry account for CPA implementers:** this would allow PoA owners to opt for direct issuance to the registry account of CPA Implementers.

**PoA3 Sectoral monitoring approaches:** the proposed option would allow the use of sectoral data and proxies for PoA monitoring. Instead of requiring individual Coordinating Managing Entities (CMEs) to acquire project-specific data, the host country government could obtain the data on a national level. Sectoral monitoring approaches could be especially useful in countries that host a number of CDM PoAs across similar sectors to avoid repeated work within all programmes.

# 1. Introduction

## 1.1. MRV CHALLENGES FOR ENERGY ACCESS PROJECTS

The Clean Development Mechanism (CDM) is the most successful and widely used market mechanisms to date; however, compliance with its monitoring and verification requirements remains a challenge for many CDM project developers. The CDM's Measurement, Reporting and Verification (MRV) procedure not only incurs significant transaction costs, which in a situation of depressed market prices easily become prohibitive, but also gives rise to major barriers to successful credit issuance. Among the concerns voiced are cumbersome and sometimes unclear requirements, inflexibility in the face of altered project design, high expenses relating to the employment of international specialized firms or technologies, long time periods for issuance of credits and too little consideration for the particular circumstances of developing countries. At the meta-level, stakeholders express that CDM methodologies are taking an ideal as opposed to practical approach to designing monitoring systems. Against this background the study seeks to identify relevant options to further streamline and simplify the MRV process of the CDM and improve the predictability and reliability of the issuance process. At the same time, the consequences of changing MRV requirements must be carefully evaluated in light of the MRV objective, which is to ensure sufficiently accurate quantification of emission reductions. Changing the processes and requirements of the MRV must not compromise environmental integrity or lead to an erosion of the credibility of the mechanism.

### Focus on low income country energy access

The study's primary focus is on projects that support access to energy in low-income countries<sup>2</sup>, which are the target projects of the World Bank's Carbon Initiative for Development (Ci-Dev). Increasing grid connectivity, implementing mini grids or rolling out off-grid power/heat supply solutions in rural and peri-urban areas is a developmental priority given the prevailing low electrification rates and high level of non-renewable biomass consumption in many low-income countries. According to the statistics of the World Energy Outlook (2014), globally over 1.3 billion people do not have access to electricity and 2.7 billion people are without clean cooking facilities, of which the overwhelming majority (97%) is located in sub-Saharan Africa and developing Asia<sup>3</sup>. The average electrification rate of sub-Saharan African countries reaches only 32% and even less (16%) in rural areas. Biomass is the primary source of energy as 80% of the population relies on traditional fuels such as fuelwood, charcoal and briquettes for their daily energy needs. Increasing energy access through clean energy resources is fundamental for development and comes with numerous co-benefits.

<sup>2</sup> These are defined as countries with a gross national income (GNI) per capita, calculated using the World Bank Atlas method, of USD 1,045 or less in 2013. Note that the classification of low-income economies differs from the reference to Least Developed Countries (LDCs) and Small Island Developing States (SIDS) made in the UN system.

<sup>3</sup> IEA: World Energy Outlook: Energy access database 2014, <http://www.worldenergyoutlook.org/resources/energydevelopment/energyaccessdatabase/>

While low-income countries contribute only marginally to total global greenhouse gas emissions due to their current low overall consumption of fossil fuels, there is nevertheless significant potential for a) reducing emissions from inefficient practices and b) supporting these countries to achieve a transformational shift away from future fossil fuel-intensive development.

In terms of achieving efficient practices, many national grids in low-income countries are far from clean, especially if high transmission losses and back-up off-grid diesel generators are taken into account. Another significant source of emissions is the unsustainable use of biomass caused by inefficient and polluting means for cooking and boiling of water. However, the greatest potential for these countries is in supporting actions that avoid future emissions by facilitating a transition towards low carbon development pathways. The CDM has attempted to provide this support by incorporating 'suppressed demand' and making an effort to address it within the methodologies. The concept acknowledges that actual energy service levels may not be a good proxy for future demand as demand can be suppressed due to a combination of high prices, low disposable income and a lack of infrastructure or natural resources.<sup>4</sup> In recognition of the principle CDM methodologies allow for scenarios 'where future anthropogenic emissions by sources are projected to rise above current levels due to specific circumstances of the host Party.'<sup>5</sup>

Project categories that receive particular attention in this study are those that promote electrification, deliver clean thermal or mechanical power, or increase energy efficiency in low-income countries. This includes infrastructural investments such as grid extensions, renewable energy projects and mini grids based on hydro, biomass, solar or wind as well as measures to reduce transmission losses or improve reliability of service. It also includes a host of off-grid, household scale devices and installations, examples of which include photovoltaic installations such as solar home systems, solar roofs and solar lanterns, household scale biogas digesters, solar water heaters, improved cook stoves and water purification devices. These project types are particularly challenged by the MRV requirements of the CDM in low-income countries for a plurality of reasons:

- The dispersed nature of these projects, often over large geographic distances, poses great demands on data collection and management;
- In general these activities are more likely to have several different parties involved in the design, implementation and operation of the projects which increases the monitoring coordination effort;
- Surveys for household projects are often a mix of quantitative and qualitative questions, which makes monitoring requirements less well defined;
- Low-income countries have less of an MRV enabling environment than more advanced economies in terms of data availability, national regulations on which to build, laboratories that can carry out analysis, etc.; and
- Due to their dispersed nature these project activities result in higher travel and logistical costs for Designated Operational Entities (DOEs) and other experts.

<sup>4</sup>Randall Spelding-Felcher: Suppressed demand in the clean development mechanism: conceptual and practical issues. Journal of Energy in Southern Africa, Vol 26 No 2, May 2015

<sup>5</sup>Decision 2/CMP.5. Further guidance relating to the clean development mechanism. FCCC/KP/CMP/2009/21/Add.1. United Nations Framework Convention on Climate Change.

While the study focuses on such projects, the analysis is however not limited to issues applying to low-income countries and energy access projects. Instead, it looks at a range of complexities and simplification options straddling both Programmes of Activities (PoAs) and single CDM projects. While some findings are category specific, many of the recommendations could benefit CDM projects across the board.

The purpose of the study is to provide concrete, action-oriented recommendations on how MRV and issuance procedures could be further improved, based on a systematic stock-taking and analysis. Such improvements are expected to support increased use of the CDM as a mechanism for scaling up mitigation activities in developing countries, particularly in less developed ones. While current demand of CDM credits continues to be low, such reform recommendations also target the ability of the CDM to be used in other contexts, for instance to deliver results-based climate finance.

## 1.2. RELATION TO ONGOING CDM REFORM

Since its conception the CDM has undergone continuous reform. The rules of the mechanism are constantly evolving based on decisions of the CDM Executive Board (CDM-EB) and annual guidance from Parties (CMP Guidance). Many recent reforms have been motivated by an objective similar to the one underlying this study, which is to benefit small and micro-scale projects in less developed regions of the world. The options for simplifying and streamlining the MRV identified herein should therefore be seen in the context of the overall reform efforts and build on a number of advances already achieved. Many recent reforms aim to improve the operations of the CDM and to make the mechanism more accessible to underrepresented countries and technologies. Some key concepts adopted in this context are:

- The introduction of PoAs catering especially (but not exclusively) to the needs of small and micro-scale technologies;
- The positive list that identifies technologies and project activity types that are deemed automatically additional if they meet the small scale thresholds (monitored periodically for graduation of technologies)<sup>6</sup>;
- Automatic additionality for micro-scale projects, defined as projects with less than 5 MW installed capacity or 20 GWh/y energy savings or 20kt CO<sub>2</sub>e/y emission reductions if they meet certain other conditions<sup>7</sup>. This privileged treatment will be maintained as long as the respective country is a LDC (Least Developed Country) / SIDS (Small Island Developing States) or if the project is located in a SUZ (Special Underdeveloped Zone). Only after losing this status automatic additionality does not apply anymore allowing the LDC for reliable long term planning of their development with the support of CDM, principally up to 100% renewable energy supply or up to the time they are lifted out of poverty. Additionally there is a provision that if the DNA has suggested the technology the maximum penetration rate is 3% in the respective country. For all other cases a regular review is done by the Methodology Panel of the UNFCCC.
- The PoA reforms initiated as an outcome of CMP 10, including the consideration of a simplified inclusion and registration procedure for micro-scale PoAs based on pre-approved standardized inclusion templates without validation by a DOE.

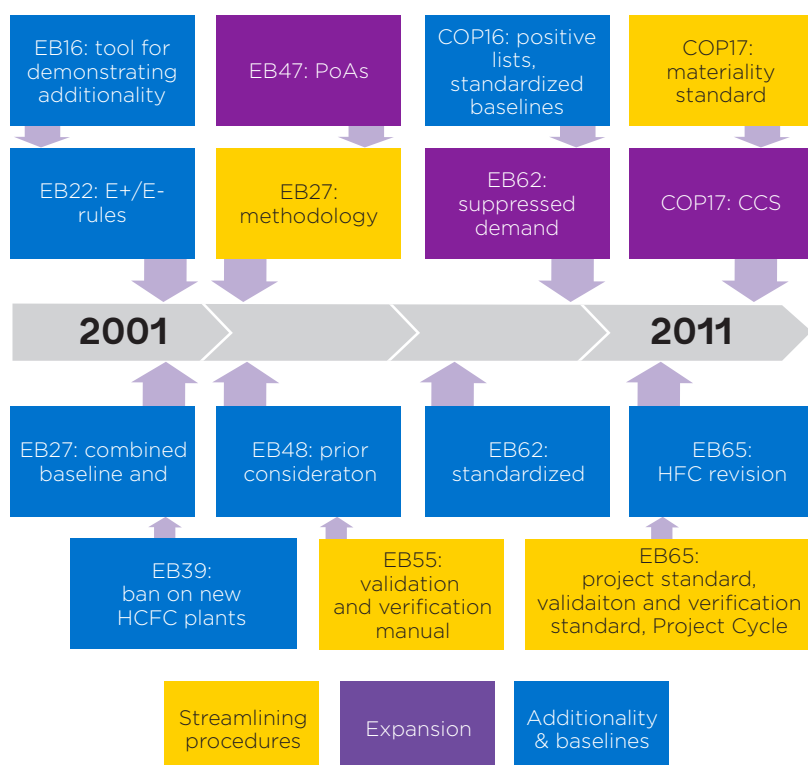
<sup>6</sup><https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-19-v1.pdf>

<sup>7</sup><https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-19-v1.pdf>

- Recognition of and guidelines for the consideration of suppressed demand in CDM methodologies<sup>8</sup>;
- The CDM Loan Scheme for countries with 10 or fewer registered CDM projects
- Procedures for the development of standardized baselines;
- The introduction of default factors, e.g. for the fraction of Non-renewable Biomass (fNRB) in AMS II.G for cookstoves, suppressed demand/minimum service levels in AMS I.L for rural electrification, default failure rates and usage hours for energy efficient lighting in AMS II.J, etc.;
- Operational simplifications for PoAs, including batched issuance for up to 10 Component Project Activities (CPAs), guidance on multi-country PoAs, sampling allowed for a group of CPAs or for the whole PoA, etc.; and
- Operational simplifications for all CDM projects, including validation of monitoring plan after registration, approval of minor post-registration changes by DOEs.

Over the years, many milestones have been achieved in streamlining procedures, clarifying or simplifying baselines and additionality requirements and expanding the coverage as shown in Figure 1.

**Figure 1: Milestones in CDM reform<sup>9</sup>**



The work on streamlining operations and removing transactional barriers for small and micro-scale projects is currently progressing. In its 2015 work program, the CDM-EB places high priority on further standardization of methodologies, streamlining of procedures and of the project cycle. Following a call for public inputs, CDM-EB 84 issued a concept note on the “Direction for Simplification and Streamlining of the CDM”. Among the priorities noted in the concept note is a consolidated and streamlined set of provisions for PoAs.

<sup>8</sup> [https://cdm.unfccc.int/Reference/Guidclarif/meth/meth\\_guid41.pdf](https://cdm.unfccc.int/Reference/Guidclarif/meth/meth_guid41.pdf)

<sup>9</sup> Adapted from UNFCCC presentation by Gajanana Hedge at Ci-Dev workshop in Kampala, May 2015

This study takes ongoing reform initiatives as a starting point and explores from a technical perspectives what additional simplification and streamlining actions should be taken to overcome remaining barriers. The report therefore considers areas where the CDM-EB reform agenda has not gone far enough and identifies new reform options that could greatly support improved energy access without compromising environmental integrity. All options identified are reviewed in terms of how far they are already supported by the current or historic reform agenda of the CDM. Often the CDM-EB reform agenda represents a compromise between diverging political interests, occasionally resulting in a less continuous implementation of concepts and reform ideas. The goal of the study is to provide CDM decision-makers at various levels with a technical and stakeholder-informed analysis of the further simplification potential.

### 1.3. APPROACH

The analysis of this report relies on two types of information sources which have been reviewed and consulted in two consecutive stages.

First, a **literature review** has been undertaken to identify a number of priority options for MRV simplification and streamlining. Sources reviewed during this stage include UNFCCC documents with details on current CDM reform activities, comments made by stakeholders on various occasions - most notably stakeholder responses to the recent call for CDM simplification and streamlining by the CDM-EB - as well as simplification options discussed in publications and academic literature. In addition the MRV processes of other carbon standards were analyzed during this phase and compared with CDM procedures to learn from simplifications applied elsewhere. The review covered the following baseline-and-crediting standards: Joint Implementation (JI); the Gold Standard; the Verified Carbon Standard (VCS); offset protocols of the California Climate Action Reserve (CAR) and the Japanese Joint Crediting Mechanism (JCM); as well as cap-and-trade schemes such as the Chinese trading systems and the European Emission Trading Scheme (EU ETS). Results of this analysis are presented in Annex 3 (Outcome of UNFCCC call for inputs) and Annex 4 (Review of other Standards).

Second, **stakeholder consultations** were carried out on the basis of a shortlist of 17 options for MRV streamlining and simplification identified during the first stage. Over 40 stakeholders from a wide range of perspectives including project developers, DOEs, consultants, government representatives, carbon buyers and other carbon standards were interviewed by way of a questionnaire. Interviews were held mostly by phone in which stakeholders were asked to comment on and rank the identified options. Stakeholder interviews were also used to obtain information on case studies and quantitative information by asking them to provide estimates of time and cost savings and relevant examples for their preferred options. Lastly, stakeholder interviews served to identify additional options. Further to the interviews held, early results of the study were presented during the Third CDM Reform Working Group Meeting convened by Ci-Dev on 15 June 2015 in Bonn.

The final selection and analysis of options presented in chapter 2 of this report integrates the results of both steps. Chapter 3 summarizes and analyses the feedback received from stakeholders. The final Chapter 4 selects priority options and provides recommendations.



## 2. MRV simplification and streamlining options

### 2.1. STRUCTURE

The following chapter outlines the MRV simplification and streamlining options identified through a comprehensive literature review, stakeholder interviews and a review of approaches adopted in other carbon standards. Here, the most promising options identified are presented and discussed.

To structure the chapter, our research team has opted for an approach that links the options identified to the level of decision-making where an option could be implemented. We identify three levels of intervention where improvements in the MRV process could be made:

1. **Simplifying CDM methodologies:** these lay the foundation for monitoring through specifying the parameters, scope and frequency of monitoring. CDM methodologies are under the authority of the CDM-EB and its technical panels;
2. **Streamlining procedural rules** for monitoring, verification and issuance. This concerns the body of the regulation as defined in the modalities and procedures of the CDM and expanded through CMP guidance and CDM-EB decision-making;
3. **Optimizing operational processes** in how the procedural rules are applied. This can take place at the level of project developers when implementing monitoring requirements or at the level of the UNFCCC secretariat in the translation of the existing rules into practical guidance for project developers. Simplification can be achieved through improving user-friendliness and increasing clarity of the guidance.

As pointed out in the introduction, there are unique challenges associated with the MRV of PoAs that do not apply to stand-alone projects. While the above interventions are beneficial to all categories of CDM activities, some measures could be taken that ease MRV requirements particularly for PoAs. Such **PoA specific simplifications** are addressed in a sub-chapter of its own.

### 2.2. SIMPLIFICATION POTENTIAL IN METHODOLOGIES

Methodologies specify monitoring approaches, default factors, monitoring parameters, scope and frequency of the monitoring. Every CDM project has to conform to the requirements of an approved CDM baseline and monitoring methodology.

In order to identify simplification options within the CDM methodologies themselves, the most relevant methodologies were first selected based on either of the following criteria being fulfilled:

- Methodology is among the most commonly applied – put together the selected methodologies cover more than 85% of all projects that are registered or under validation;
- Methodology is applied in at least five PoAs that are registered or under validation; and
- Methodology is directly relevant for energy access projects (e.g. rural electrification, off-grid electrification through micro-mini grids, off-grid power and lighting, off-grid thermal applications, etc.).

Using the above criteria, 35 methodologies including two tools were identified. These cover more than 98% of the PoAs and 86% of stand-alone CDM projects in the pipeline, as well as all of the methodologies applicable to energy access projects. These methodologies are listed in Annex 1.

An analysis of the selected methodologies revealed a number of complexities, some of which are methodology-specific while others are more general. The analysis process for the methodologies listed in Annex 1 comprised reviewing the methodologies one by one in the context of monitoring criteria, monitoring parameters, frequency of monitoring, calibration of meters where necessary, accuracy, sampling and survey criteria and guidance, data gap instructions, application of default factors, user friendliness in regards to eligibility criteria, baseline determination, project monitoring and emission reductions calculations. Based on this analysis, six major complexity categories were identified (Figure 2).

**Figure 2: Overview of main methodological complexities identified, including the options proposed to address these**

<b>1. Non-differentiated accuracy requirements</b>	<ul style="list-style-type: none"> <li>Option SM1: Categorize accuracy requirements</li> <li>AMS-I.D., AMS-I.E. AMS-I.C., ACM0001, AMS-II.L., AMS-II.G., AMS-II.E., AMS-II.C., AMS-II.J., AMS-I.K., AMS-I.I., AM0025, AMS-III.BB., AMS-III.AW., AMS-II.A., AMS-I.L., AMS-I.A. and AMS-I.J.</li> </ul>
<b>2. Unclear calibration guidelines</b>	<ul style="list-style-type: none"> <li>Option SM2: Defining calibration requirements</li> <li>AMS-II.L., AMS-II.E., AMS-II.C., AMS-II.J., AMS-I.K., AM0025, AMS-III.BB., AMS-III.AW., AMS-II.A., AMS-I.L., AMS-I.A. and AMS-I.J.</li> </ul>
<b>3. Lacking guidance for data gaps</b>	<ul style="list-style-type: none"> <li>Option SM3: Decision tree for dealing with data gaps</li> <li>GEF tool (off grid), AMS-I.C. AMS-II.C., AMS-III.D., AMS-III.H., ACM0008, AMS-II.D., ACM0006, ACM0012, AMS-II.L., AMS-II.E., AMS-II.C., AMS-III.BB., AMS-III.AW., AMS-II.A., AMS-I.L., AMS-I.A., AMS-I.J. and AMS-I.D</li> </ul>
<b>4. Potential for improving default values</b>	<ul style="list-style-type: none"> <li>Option SM4: Improving default factors</li> <li>GEF tool (off grid), ACM0006, AMS-III.AR., AMS-I.F., AMS-III.H., AMS-III.R., AMS-II.C., AMS-I.K., AM0025 and AMS-I.J., AMS-II.J., AMS-II.L., AMS-I.K., AMS-I.I., and AMS-I.L.</li> </ul>
<b>5. Superfluous monitoring requirements</b>	<ul style="list-style-type: none"> <li>Option SM5: Lift superfluous monitoring requirements</li> <li>GEF tool (off grid), AMS-I.L., AMS-II.E., ACM0006, AMS-I.F., AMS-III.H., AMS-III.R., AMS-II.C., AMS-I.K., AM0025 and AMS-I.J.,</li> </ul>
<b>6. Lack of user friendliness</b>	<ul style="list-style-type: none"> <li>Covered and explained under section 2.4. "Optimization of operational processes"</li> <li>GEF tool (off grid), Sampling/survey guidelines, ACM0002, AMS-I.C. AMS-II.C., AMS-III.D., AMS-III.H., ACM0008, AMS-II.D., ACM0006, ACM0012, AMS-II.L., AMS-II.E., AMS-II.C., AM0025, AMS-III.BB., AMS-III.AW., AMS-II.A., AMS-I.L., AMS-I.A., AMS-I.J. and AMS-I.D.</li> </ul>

The above analysis has been used to identify opportunities for streamlining and simplification in CDM methodologies that should be prioritized. Below we outline the options identified, examples of how other standards have approached the issue, and how the proposed option could benefit the MRV process and the status of the option within the UNFCCC.

### 2.2.1. OPTION SM1: CATEGORIZE ACCURACY REQUIREMENTS

CDM methodologies lack differentiated accuracy requirements in MRV both for standalone projects and for PoAs. The only differentiation applied is with regards to project size in the sampling and survey standard, where different confidence intervals are permitted for sampling depending on whether the applied methodology is large or small scale.

To establish monitored parameters, the current accuracy principles in the CDM require the reduction of bias and uncertainties as far as is practical or cost-effective. Conservative assumptions, values and procedures should be applied to ensure that emission reductions by sources or greenhouse gas removals by sinks are not over-estimated<sup>10</sup>. There is no further description of how accuracy can be ensured; leaving this to the project developer and the DOE to determine. As a result, DOEs often only accept the application of standards they know from other countries in cases where there is no country-specific regulation. This has resulted in the most stringent accuracy standards being applied during monitoring to ensure conservativeness despite this level of accuracy not always being necessary.

This simplification option proposes the introduction of a tiered approach to the categorization of accuracy requirements. The accuracy requirements can be further customized with respect to:

- Scale of the technology/project (e.g. pico, micro, small scale technologies and project size)
- Specific technology types that are proven to have less accuracy fluctuations in regards to their performance (e.g. large industrial plants);
- Project location, specifically where sampling is resource intensive and may impose high transaction costs with little accuracy improvement (e.g. LDCs);
- Source of emissions, where the amount of emissions is too low to require a very high accuracy level (e.g. project or leakage emissions);

Differentiation based on size, location and technology type has already been taken into account in other areas such as simplified additionality under the small scale positive list<sup>11</sup> and the micro-scale additionality<sup>12</sup> guidelines; where projects below a certain size can be considered automatically additional. Expanding this approach to standalone projects and/or sampling and surveys requirements for PoAs could simplify MRV requirements for LDCs and small dispersed activities.

By defining a matrix that correlates such attributes with accuracy levels or permissible uncertainty, the monitoring costs could be lowered for project types where monitoring costs could otherwise be a barrier to project implementation. Specific accuracy requirements per category could be provided within methodology texts. This would mean that the capability of project developers to comply with the monitoring requirements, and costs compared to project size, are taken into consideration and accommodated by the regulators through the introduction of an approach that increases the conservativeness of emission calculations in tandem with increasing uncertainty of data.

<sup>10</sup> CDM Project Standard, Chapter 5.5

<sup>11</sup> Demonstration of additionality of small-scale project activities – Version 10.0

<sup>12</sup> Demonstrating additionality of microscale project activities – Version 6.0

The EU ETS, for example, provides a tiered concept for monitoring which takes the size of the installation into account when defining accuracy levels and sampling sizes (see Table 1). The EU ETS provides detailed descriptions of the acceptable uncertainty levels for measurement equipment based on the technical feasibility of gathering the respective data.

**Table 1: EU ETS description of acceptable uncertainty levels**

Activity/ source type	Parameter to which the uncertainty is applied	Tier 1	Tier 2	Tier 3	Tier 4
Commercial standard fuels	Amount of fuel [t] or [nm <sup>3</sup> ]	±7.5%	±5%	±2.5%	±1.5%
Other gaseous and liquid fuels	Amount of fuel [t] or [nm <sup>3</sup> ]	±7.5%	±5%	±2.5%	±1.5%
Solid fuels	Amount of fuel [t]	±7.5%	±5%	±2.5%	±1.5%
Flaring	Amount of flare gas [nm <sup>3</sup> ]	±17.5%	±12.5%	±7.5%	
Category A	< 50,000t /CO <sub>2</sub>	At least tier 1			
Category B	50,000 - 500,000t /CO <sub>2</sub>	Tier 4 / at least Tier 2 if Tier 4 technically not feasible			
Category C	> 500,000t /CO <sub>2</sub>	Tier 4 / at least Tier 3 if Tier 4 technically not feasible			

Besides technical feasibility the EU ETS allows for deviating from the intended tier level if monitoring incurs unreasonable costs to the project developer

A similar concept for the CDM could make monitoring more cost-effective. Large projects like wind, hydro and coalmine methane with significant emission reductions can afford high-tech equipment for monitoring, whereas small or micro-scale projects can not necessarily do so. It would therefore be more cost-effective to accept lower accuracy requirements for small/micro-scale projects without compromising environmental integrity by compensating their use with conservative approaches. The allowed uncertainty level could be higher for these projects. This concept could be applied not only depending on project size but also – or alternatively – depending on project location/national development level. LDCs, for example, can have less sophisticated quality assurance regimes than industrialized countries in their energy sector, and usually develop projects that are smaller in scale.

The CDM Project Standard and methodologies could be revised in a manner that defines accuracy requirements, established as maximum permissible uncertainties, in a tier concept similar to that applied by the EU ETS. Differentiation should be made at least by project size in accordance with the definitions of micro-, small- and large- scales. Project implementers would then be required to perform monitoring according the prescribed range of accuracy. If the accuracy required by the specific category applied is not maintained throughout a monitoring cycle because of project-specific circumstances – for example if a deviation occurs – then the resulting emission reductions could be adjusted downward reflecting the accuracy differences of the required tier versus the realized tier, and compensating for the accuracy loss. No further approval of such an accuracy deviation would be necessary, thus shortening the process timeline for requesting and approving such deviations. In most cases demonstrating compliance can be provided by simple means (e.g. reference to calibration certificates or to metrological control). The lowest tier could be based on estimations, and should be applicable to all aspects with minor impacts on the total emission reductions, comparable to the de-minimis concept of EU ETS<sup>13</sup>.

Table 2 presents an example of a matrix through which a project participant could select an accuracy requirement (Tier 1 – 4) depending on the type of data and the project size (micro to large scale). The uncertainty of data collection (meter uncertainty, confidence interval for sampling processes) is the main attribute to be determined for checking compliance with the accuracy requirement. Data with low impact on emission reductions could be defined as per the de-minimis concept to ensure environmental integrity.

**Table 2: An example accuracy requirement matrix for choosing tiers of permissible uncertainty within monitoring. This matrix is presented for the purpose of demonstration only**

TYPE	TIER 1	TIER 2	TIER 3	TIER 4
Permissible Uncertainty	30%	15%	5%	1.5%
<b>Large scale</b>				
Data under metrological control (e.g. recording of electricity)				X
Data with nationally applicable standards (e.g. direct emission monitoring)				X
Data without nationally applicable standards (e.g. sampling <sup>14</sup> and lab analysis)			X	
Data with low impact on ERs		X		
<b>Small scale</b>				
Data under metrological control (e.g. recording of electricity)				X

<sup>13</sup> De minimis source streams mean those that jointly emit less than 1kt fossil CO<sub>2</sub> or less per year or that contribute less than 2% (up to a maximum contribution of 20kt fossil CO<sub>2</sub>) of the total annual emissions of that installation, whichever is the highest in terms of absolute emissions.

<sup>14</sup> Accuracy for sampling and surveys can be translated to Confidence interval and Error size when calculating the sampling size

Data with nationally applicable standards (e.g. direct emission monitoring)			X	
Data without nationally applicable standards (e.g. sampling and lab analysis)		X		
Data with low impact on ERs	X			
<b>Micro scale</b>				
Data under metrological control (e.g. recording of electricity)			X	
Data with nationally applicable standards (e.g. direct emission monitoring)	X			
Data without nationally applicable standards (e.g. sampling and lab analysis)	X			
Data with low impact on ERs	X			

DOEs estimate this option could result in cost savings between of 10% and 30%; and save between 1 – 7 man days depending on the type of the project<sup>15</sup>.

A tier concept for adapted accuracy requirements is not yet under consideration by the UNFCCC, but the CDM Project Standard has developed some guidelines for projects deviating from their monitoring plan, such as default adjustments factors based on the deviation from the required accuracy level<sup>16</sup>.

## 2.2.2. OPTION SM2: DEFINING CALIBRATION REQUIREMENTS

The calibration requirements for the measurement/metering of parameters are often unclear in methodologies that require metering of specific quantifiable monitoring parameters (e.g. the amount of electricity generated and exported to the grid network in ACM0002). In cases where neither the selected methodology (or the selected standardized baseline) nor the CDM-EB's guidance specify any requirements for calibration frequency for measuring equipment, the CDM Project Standard requires project participants to ensure that the equipment is calibrated either in accordance with the local / national standards, or as per the manufacturer's specifications. If local/national standards or manufacturer's specifications are not available, international standards may be used.

The key issue in this situation is that at present the calibration of equipment is either delayed or not done at all, especially in countries that lack technical capacity and/or the availability of accredited laboratories to perform calibration services. In such cases, project developers either resort to permanent changes to the monitoring plan with reduced calibration frequency or propose alternative ways of estimating the value concerned. Such differences have quite significant cost implications.

<sup>15</sup> Based on interviews with 5 DOEs in the framework of this study.

<sup>16</sup> See CDM Project Standard, Annex 1 paragraph 4.

During the stakeholder interviews conducted for this study, stakeholders reported that for some project types, such as landfill in Africa or N<sub>2</sub>O project, external experts are needed since European standards have been required by the DOE for monitoring. Often these experts and their services for calibration and maintenance as per manufacturer's specifications are not available locally to the project, especially in LDCs. This results in high costs in terms of expert day rates and travel (depending on the location it can be USD 2,000 for travel and USD 1,000 per man day), or shipment of equipment to be calibrated in Europe. It was reported that sometimes requirements in the CDM are even higher than for European companies covered by the EU ETS (especially calibration frequency). Details of the existing unclear calibration guidelines/ requirements are summarized in Table 3.

**Table 3: Conflicts in guidelines and standards relating to calibration**

GUIDELINE/STANDARD	CALIBRATION STATEMENT(S)
Guidance related to calibration (monitoring) requirements <sup>17</sup>	The guidance was developed in response to a specific question and therefore only provides the following clarification: "The Board accepted the Meth Panel's recommendation that a zero check cannot be considered as a substitute for calibration of the measurement instrument".
CDM Project Standard <sup>18</sup>	No concrete customized guidance on calibration is provided but only the following text: "In cases where neither the monitoring methodology, nor the monitoring plan specifies any requirements for calibration frequency for measuring equipment, the DOE shall ensure that the equipment is calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer specification. If local/national standards or the manufacturer specification is not available, international standards may be used" (paragraph 65). This statement is very generic and does not provide detailed information on specific energy and/or substance metering techniques for specific methodologies or technologies. Furthermore, calibration is not needed for technologies that are designed to self (auto) calibrate. This has not been addressed in the existing texts.
Validation and Verification Standard <sup>19</sup>	An annex on calibration requires annual calibration for electric meters with specific error ranges.
ACM0002 – version 16.0 <sup>20</sup>	The methodology states that "All measurements should be conducted with calibrated measurement equipment according to relevant industry standards". This is neither clear nor sufficient because there can be multiple "relevant" standards that may not be consistent.

<sup>17</sup> Guidance related to calibration (monitoring) requirements – EB 24, paragraph 37.

<sup>18</sup> "Zero check" is a validation technique during which the meter is tested in a rest mode with zero flow of energy and/or solid/liquid substance with standard temperature and/or pressure to observe any possible error.

<sup>19</sup> CDM Project Standard – Version 9.0

<sup>20</sup> Validation and Verification Standard – Version 9.0



Default adjustment rates for values that require calibration at regular frequencies could be proposed for countries or projects that are unable to meet calibration requirements due to costs, capacity and country specific constraints. The default adjustment rates can be established on the basis of maximum permissible error allowed for the meter under consideration in accordance with the manufacturer's specifications and the number of years the meter missed the calibration<sup>21</sup>.

Such an approach would resolve issues such as those arising when neither national regulations nor manufacturer's specifications are available. In such situations, the availability of pre-approved defaults would be extremely helpful. According to the author's assessment, the development of such defaults could be undertaken by the CDM's Regional Collaboration Centers, which have access to regional information and regulations and are already supporting the development of standardized baselines. One interviewee indicated a potential cost reduction of 20% if calibration requirements would be less stringent.

The UNFCCC plans to look into the issue of calibration requirements.<sup>22</sup> The current work plan foresees to finalize the overall concept at CDM-EB 86 and implement changes in 2016. To date there is no precise description of which simplifications will be proposed to the CDM-EB.

### 2.2.3. Option SM3: Decision tree for dealing with data gaps

CDM methodologies lack clear guidance when it comes to how to deal with data gaps in monitoring. Under the current CDM Project Standard a project can either waive emission reductions during gap periods, or has to undergo a lengthy and costly process for approval of post registration changes. Approval by the CDM-EB is required before the DOE can submit an issuance request for the period covering the gap period.

Clearer guidance would be useful in cases of meter failures or data loss. This is especially relevant for LDCs where monitoring equipment and Information Technology (IT) systems may not work as reliably as in industrialized countries due to power shortages or other incidents that are out of the control of the project.

A possible solution could be to provide new guidance or a decision tree<sup>23</sup> for how to deal with data gaps in a conservative but constructive manner.

For example, the German authority for the EU ETS has developed a guidance document based on EU ETS regulation on this topic. The guidance includes a decision tree for dealing with data gaps depending on the supplementary data available. Depending on the quality of the supplementary data, a course of action is described for addressing the data gap. Figure 3 illustrates how supplementary data can be used to fill data gaps<sup>24</sup>.

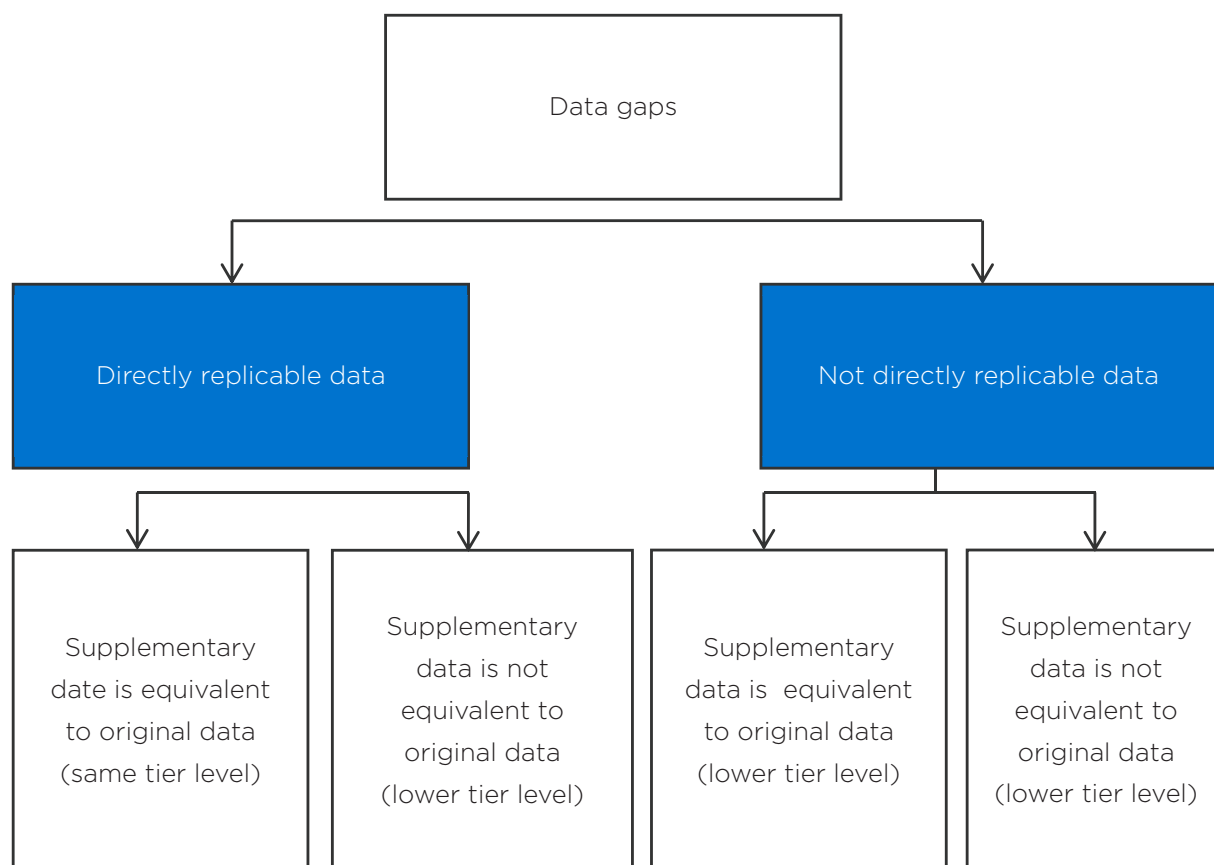
<sup>21</sup> See CDM-EB84-AA-A01: The World Bank Group

<sup>22</sup> See #18 of Appendix 1 of the "Concept note: Direction for simplification and streamlining of the CDM" (CDM-EB 84, annotations, Annex 1).

<sup>23</sup> A decision tree is a decision support tool that uses a tree-like graph or model of decisions and their possible consequences, including data gaps consequences and solutions, resource needs etc. It is one way to display an algorithm.

<sup>24</sup> Guidance Document for Monitoring Plans and Emission Reports (12/2014); German Emission Trading Authority. Available from [http://www.dehst.de/SharedDocs/Downloads/DE/Emissionsberichterstattung/stationaer/2013/Emissionsbericht\\_Leitfaden.pdf?\\_\\_blob=publicationFile](http://www.dehst.de/SharedDocs/Downloads/DE/Emissionsberichterstattung/stationaer/2013/Emissionsbericht_Leitfaden.pdf?__blob=publicationFile)

**Figure 3: Example of a decision tree for dealing with data gaps**



At the outset, project developers could decide which supplementary measurement equipment to install depending on the risk of meter failures and resulting data gaps. In the event of a data gap occurring, a project owner would assess the supplementary data available. If the supplementary data is equivalent to the original data in regards to accuracy, data can be used without correction. If this is not the case the loss in accuracy should be compensated for. Such an approach could significantly shorten the process as prior approval of methods to fill data gaps would no longer be necessary.

The CDM-EB is currently examining how to “Introduce higher flexibility in ex post adjustment of monitoring” and “Clarifying and streamlining the post-registration change approval process”<sup>25</sup>. The discussions of the CDM-EB were not yet finalized at the time of preparing this report.

#### **2.2.4. Option SM4: Improving default factors**

The use of default values is important because they replace monitoring parameters with fixed values and thus reduce MRV efforts and speed up carbon mitigation calculations and verification/issuance processes. The use of default values is not new to the CDM. The first and most frequently applied default factors have been those to calculate emissions from fossil fuel combustion and the use of grid electricity (e.g. fuel emission factors and fuels’ net calorific values). More recently the use of default values has also been applied to baseline and/or project parameters in micro-scale activities under PoAs.

<sup>25</sup> EB84, Paragraphs 6(a)(ii) and 6(c)(iii)

There is further untapped potential to expand the use of default values. In some cases, default values or approaches are overly conservative. The added value of the default value is therefore undermined by the low level of CERs that their use generates. As long as the environmental integrity can be safeguarded, realistic and still conservative defaults may be considered. Further use of default values could be considered in the following circumstances:

- a. Developing new default values:** Methodologies can be examined to identify further opportunities for the use of default factors during the baseline determination and/or the project monitoring. This could include:
- *Technology-performance default values:* Introduction of default values when performance or failure rates of specific technologies are required. These failure rates may be related directly to the applied technology in combination with country specific situations (e.g. persistent load shedding and power failures) or allowed to be copied from similar verified projects with the same technology and comparable life time (e.g. for CFLs or LEDs). One example is the failure rate of efficient lamps in AMS-II.J, where a default lifetime of 2 years can be assumed for each lamp distributed. Applying the default significantly reduces the number of parameters that need to be monitored.
  - *Expanding fNRB default values:* At the moment the fraction of non-renewable biomass (fNRB) is defined for different countries in the CDM-EB's information note on Default Values of Fraction of Non-Renewable Biomass for Least Developed Countries and Small Island Developing States<sup>26</sup> ; however, the default factor is not available yet for all the countries.
- b. Improve accuracy of default values:** In some methodologies the introduced default factors are applicable globally. This is not always appropriate; in such cases the default factors may be introduced based on the location of the projects. Making default values location-specific helps to avoid a situation where projects applying these values are penalized due to the values available being overly conservative for the context in which they are applied. For micro-scale household appliances such as efficient light bulbs, biogas digesters or efficient cookstoves, some of the parameters can be revised and/or fixed in order to reduce monitoring efforts without impacting environmental integrity. Identified options include:
- *Off-grid power generation:* The simplified approach for the inclusion of scattered off-grid generation units under the Grid Emission Factor (GEF) tool<sup>27</sup>: The current method introduces an emission factor of 0.8 tCO<sub>2</sub>/MWh, while diesel generators in LDCs are based on old technologies with higher emission factors (sometimes up to 1.7 tCO<sub>2</sub>/MWh)<sup>28</sup>. This is overly conservative especially for countries with low GEF and high number of scattered off-grid diesel generators all across the country. One possible alternative would be to define more accurate emission factors for off-grid power generation units. Similarly to the fNRB default list, such off-grid emission factor values could be based on country specific real data and recommended by the Designated National Authority (DNA) of each country to the EB.
  - *Operational hours for lighting:* This parameter could be defined according to each country's available daylight hours and become relative to latitude to allow project participants to use a value that more closely resembles real light availability for the emission reduction calculations e.g. in AMS-II.C

<sup>26</sup> Annex 22 to the report of the 67th meeting of the CDM Executive Board

<sup>27</sup> Tool to calculate emission factor for an electricity system – Version 4.0

<sup>28</sup> Standardized Baseline Assessment for Rural Off-Grid Electrification in Sub-Saharan Africa, UNDP, 2013

- *Biomass emission factor for woody biomass*: the CDM now requires that the emission factor for fossil fuel be used to account for emissions resulting from the use of woody biomass in projects.<sup>29</sup> This results in unrealistic and lower emission reductions since the emission factor for woody biomass is higher than that of fossil fuel (kerosene).

The introduction of more default factors and more realistic default factors is expected to result in significant savings in terms of costs and processing time for both baseline determination and project performance monitoring, specifically for micro-small scale projects and PoAs.

In the context of UNFCCC processes, the use of default values is continuously discussed for varieties of new and existing methodologies by the Secretariat in consultation with the Methodology Panel (MP) and the Small Scale Working Group (SSC WG). While the Secretariat's general goal is to move towards a more cost-effective and smoother MRV and issuance process, there is still opportunity for further expansion and/or refining of the existing default values in methodologies.

A wholly new and unexplored possibility for using default values would consist of the adoption of default life time emission reductions or shorter technology specific crediting periods. This could be an attractive option for household scale appliances with short operational lifetimes such as lamps or stoves. Project developers often face difficulties in monitoring the performance of distributed appliances, particularly in cases where data management is a challenge or project developers do not normally track customer data, for example if appliances are sold via retailers. Project developers could opt for a conservative lifetime emission reduction appropriate for the technology that considers the average lifetime of a product and ongoing usage rates, instead of accurate monitoring throughout the crediting period. This would have to be linked to certain conditions, including that the use rates and performance of the appliance do not vary significantly and unpredictably across households, regions and time. For example, a cook stove methodology could include conservative life-time emission reductions for cook stoves, and projects that have a model for fixing or replacing cook stoves could renew this "lifetime crediting period" by showing secondary repair or installation data of cook stove manufacturers. This would highlight the importance of a sustainable model and encourage the adoption of maintenance and replacement schemes.

## 2.2.5. OPTION SM5: LIFT SUPERFLUOUS MONITORING REQUIREMENTS

There are occasions where monitoring requirements are excessive and do not impact the emission reduction calculations. Some methodologies include monitoring criteria that are very cumbersome, and could be revised without compromising the environmental integrity or accuracy of the approach. Some examples include removing the following quality-control checks from methodologies:

- *AMS-III.D*: removing requirements to weigh animals and monitor feed ratios. These parameters do not effect emission reductions since these are instead calculated based on monitored methane gas collected and/or gainfully used;
- *ACM0022*: relaxing monitoring for electricity consumption for composting facilities, where these facilities have little energy consumption.
- *ACM0006*: monitoring requires that the weight and moisture content of biomass are established to determine the volume of biomass used. Rather than require precise

<sup>29</sup> The option to apply the emission factor for woody biomass is constrained by the fact that the CDM includes only emissions from afforestation/reforestation activities, rather than avoided deforestation.

measurements for this quality control check, an alternative could be to estimate the biomass volume used, and have this checked by the verifier. The EU ETS, for example, considers renewable biomass as carbon neutral and hence only requires an estimation of the amount of biomass combusted.

Superfluous monitoring requirements are also evident in other methodologies. For example, AMS-I.L., which considers rural electrification, requires that electricity usage be monitored for 100% of users, or a default value be applied. Monitoring every user in the project will lead to a very costly MRV effort, whilst the default value available is very conservative leading to low emission reductions. The monitoring requirements in AMS-I.L could be relaxed, such as allowing sampling to establish electricity usage or revising the default factor available.

## 2.3. STREAMLINING PROCEDURES

The options for streamlining procedures encompass those options that address potential changes in the rulings for verification and issuance, which are laid out in the Project Cycle Procedure (PCP) and the Validation and Verification Standard (VVS). These options address aspects that might be solved by more cost-effective or less time-consuming approaches. All options herein require either a re-wording of, or amendments to, the existing rulings under the mandate of the CDM-EB.

The presented options have the potential to reduce verification costs, while speedier procedures shorten the time needed from the beginning of verification until issuance.

### 2.3.1. OPTION SP1: SITE VISIT EXEMPTIONS

According to the recent procedural provisions within the VVS a site visit enabling the inspection of the implemented CDM activity by the DOE is an indispensable means of verification. For multi-site projects like PoAs it is permitted that the DOE visits a representative sample of sites and not all the sites. For stand-alone projects, however, no concession is made regarding the site visits (e.g. all sites must be visited regardless of the accessibility/level of security of sites) or the availability of other kinds of technical evidence that reduce the risk that the verifier fails to detect any material misstatement. Enabling a waiver of a site visit could be considered in cases where the required level of assurance could be achieved by other means. The EU ETS includes such a waiver (See Box 2).

#### Box 2: EU ETS ruling on the waiving of site visits

The EU ETS waives site visits under defined conditions such as:

- A low-complexity installation e.g. the only activity causing greenhouse gas emissions is a boiler fueled by natural gas,
- A corresponding risk analysis from the verifier confirming that despite waiving the site visit it will still be possible to issue a verification statement at a reasonable level of assurance,
- The availability of reliable, remotely accessible data of high quality e.g. from fiscal meters.

For smaller installations the compliance check for these criteria is made by the verifying body, and for larger installations approval by the authority is required. A site visit is considered mandatory in the first year a verifier is contracted by an operator and then can be waived a maximum of twice before a site visit becomes mandatory again. Site visits are also mandatory when technical changes have been made in the reporting year.

However, the waiving of site visits will only help to reduce MRV costs (i.e. travel expenses) if the costs of a more sophisticated monitoring system, and the time demand for further checks by the verifier, are relatively low or where the accessibility of a project's sites is particularly challenging, such as in crisis areas.

The option to grant site visit exemptions was discussed extensively during the development of VVS Version 1.0 at CDM-EB 44, where this was finally rejected by the regulatory body because of the risk the rule be miss-used. No further serious attempt to re-launch this discussion has been pursued since then. Meanwhile the further development of monitoring solutions and data transmission technologies should have reduced many of the risks the CDM-EB was considering at that point in time. Therefore a new attempt might be advisable.

### 2.3.2. OPTION SP2: VERIFICATION BY LOCAL EXPERT

The provision of verification services by local companies has the potential to lower verification costs and build capacity in CDM host countries. Such a system might be enabled by:

- Developing a limited accreditation scheme under the CDM rules, or
- Developing an alternative accreditation scheme established by the host country, or
- Accepting other accreditations for CDM verifications, such as ISO 14065.

#### Limited accreditation scheme under the CDM rules

Limited accreditation could for example encompass accreditation for local/regional entities (local DOEs), including for example a mentoring program by the CDM's Regional Collaboration Centers. While accreditation usually is limited to scopes the option proposed here is to limit accreditation to certain regions or countries while simplifying the accreditation process. The continued growth in the number of registered projects in countries and regions traditionally under-represented in the CDM would justify business development for verification services on a local level. The 'Guidance to the CDM' issued at CMP 10 in Lima requests the CDM-EB to "*analyze options to improve accreditation of operational entities in regions underrepresented in the clean development mechanism*" <sup>30</sup>. This might incentivize the CDM-EB to consider approaches like

#### Box 3: The Gold Standard - Validation and Verification in Conflict Zones

Project proponents have faced considerable challenges in contracting DOEs for the validation and verification of projects located in conflict zones or refugee camps. Gold Standard rules allow deviation from the normal project cycle for projects located in these areas. This allows project proponents to combine DOE validation or verification (based on a desk review) with on-site validation or verification conducted by an OO contracted by the project proponents.

The project proponent is required to identify and provide The Gold Standard with the names and contact details of three OOs who must be independent experts from local universities, NGOs, consultancies, etc. who can credibly carry out an appraisal of the project and are familiar with the project type.

The appointed OO is then provided with training from the Gold Standard on how to perform the validation/verification site visit, and reports directly to the Gold Standard during this process.

<sup>30</sup> UNFCCC (2015) Decision 4/CMP 10, Paragraph 19 (2 February 2015). Available from <http://unfccc.int/resource/docs/2014/cmp10/eng/09a01.pdf#15>



'limited accreditation'. As an example The Gold Standard allows site visits to take place by so-called Objective Observers (OO) to overcome barriers in conflict zones (see Box 3); and micro-scale projects (<10,000 tCO<sub>2</sub>e) can undergo internal verification by the regional representative of The Gold Standard Foundation.

## Alternative accreditation scheme established by the host country

The Joint Implementation (JI) Track 1 framework traditionally allowed host countries to define their own requirements and have verification carried out by local experts or government agencies instead of expensive international firms<sup>31</sup>.

Allowing national accreditation risks compromising the quality of the verification services provided unless investment is made in setting up the required capacity in countries to ensure the availability of competent auditors as well as the establishment of a transparent and adequate accreditation scheme. Therefore, providing supportive measures (capacity building activities) could help to move this option forward.

## Accepting other accreditations for CDM verifications

Since the release of the ISO14064 series in 2006 the use of alternative accreditation approaches have been considered and rejected by the CDM-EB and Accreditation Panel (AP) at several occasions<sup>32</sup> due to a perceived high potential for conflict of interest, and the inability to harmonize approaches in various accreditation schemes. The use of ISO 14065 certified auditors is for example accepted by the JCM.

Among the three options discussed, limited accreditation of local DOEs seems to be the most appropriate solution in terms of addressing the bottlenecks encountered while not giving up control of the accreditation process by the CDM-EB.<sup>33</sup> A recommendation made by the JISC on April 2014 that proposed aligning the JI and CDM accreditation systems through the establishment of a joint accreditation committee, under the authority and supervision of the JISC and CDM Executive Board could be further explored. The proposed joint accreditation system would make use of the similarities and potential synergies between the CDM and JI accreditation systems, but also take account of the differences in the respective modalities and procedures/guidelines of the two mechanisms.

<sup>31</sup> It is important to note that the JI review is merging the two tracks and the use of nationally vs internationally accredited verifiers is still under discussion

<sup>32</sup> See e.g. "Concept note on the revision of the "CDM accreditation standard for operational entities", Annex 8 to the annotated agenda of CDM-EB 72

<sup>33</sup> Read more: <http://climate-l.iisd.org/news/jisc-recommends-aligning-ji-and-cdm-accreditation-systems/>



### 2.3.3. OPTION SP3: SHORTER TIMELINES FOR COMPLETENESS AND INFORMATION AND REPORTING CHECKS

Once verification is completed the DOE has to upload the final monitoring and verification reports via a dedicated web interface to the UNFCCC secretariat in order to request the issuance of a corresponding amount of CERs to the project owner's account. Upon receiving a request for issuance the UNFCCC secretariat must first issue a review schedule. Then, they conduct a completeness check (CC), which covers mainly formal aspects of the submission to ensure all required documentation is available. Next, the information and reporting check (IRC) is initiated, which focuses on technical details, and transparency and consistency of the information and conclusions reported. In case any questions arise, the project participants and DOEs are required to respond within a short time frame of two days. Failure to do so means they have to re-enter this process from the start. Once these checks are passed, the review period (28 days for standard projects, 42 days for PoA) by the CDM-EB is triggered. This either results in issuance of CERs, or a further review is requested which would launch another process not discussed here.

Furthermore – the information on the status of the timelines for processing PoAs is not available online although this information is available for standalone CDM projects. Transparency would be enhanced if timelines were publically available for both PoAs and standalone projects.

This option proposes reducing the total time needed for the checks by the UNFCCC from three months to, for example, one month. As individual steps are already tightly budgeted this would mean either merging or skipping steps. More effectiveness could be reached by merging CC and IRC into a single step whilst allowing project participants and DOEs to respond quickly in case minor issues are raised regarding completeness. Also the time demanded for scheduling could be integrated into this step, which would then define a maximum duration for the time from uploading until the start of the review period.

In addition, the rationale for why PoAs have a longer review period is not clear. An adjustment at the same level would not create any unacceptable disadvantage or limitation for stakeholders.

While it may seem that the duration of the UNFCCC's review process has no cost impact, a longer process time:

- takes away flexibility in following and responding to changing market prices;
- increases risks for further delay due to the expiration of the validity date of versions of methodologies, forms or standards; and
- affects the attractiveness of the CDM.

The EU ETS runs some automatic checks at submission and performs further checks only when peculiarities occur along these automatic checks. Other offset standards such as the VCS have a shorter length for review to that employed by the UNFCCC secretariat with a leaner infrastructure.

Timelines in the CDM were set at a time when a large number of projects entered the issuance pipeline, which is not the case today. Therefore the shortening of the process, e.g. by merging CC and IRC, may well be feasible without requiring additional resources at the UNFCCC secretariat. The CDM-EB is already discussing this option, and it is expected to be included on the agenda of CDM-EB 86 in October 2015.

### 2.3.4. OPTION SP4: POST REGISTRATION CHANGES APPROVED BY THE DOE

Post registration changes are changes which occur after the registration of a CDM project activity that do not comply with the Project Design Document (PDD), such as altered monitoring approaches. These need to be approved by a DOE and in many cases also by the CDM-EB. Exemptions are granted for some cases that do not require prior approval by the CDM-EB, and can instead report any changes in the verification report and have these changes verified by a DOE during the verification. The result is that currently, if there is even a small risk that the nature of a change might be interpreted as one that requires prior approval, the DOE tends to involve the CDM-EB in order to avoid any additional and unpaid efforts to defend their accreditation caused by, for example, a spot check. Hence almost 40 % (status 2015) of all post registration changes seek for prior approval by the CDM-EB.

A change which permits DOEs to approve all post registration changes would greatly streamline the procedure. The CDM-EB would still be able to challenge a decision made by the DOE through the request for a review procedure for verification reports. If DOEs were given this responsibility the post-registration change process would be shortened by several months (e.g. it avoids the stages of CDM-EB submissions, completeness checks and delays when projects are not reviewed at a CDM-EB meeting)

The VCS applies a similar approach as the CDM, but with some essential differences. Within the VCS, deviations from project descriptions are permitted at verification. Where the deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, the deviation can be described and justified in the monitoring and verification reports. It is the verifying entity who must report and justify the conclusions regarding this compliance check.

The CDM-EB introduced the current post-registration design change procedures in 2012. Before that time a number of project activities had been put on hold as it was unclear how to proceed in case of deviations. Considering the fact that less than 2% of the post registration changes that required prior approval by the CDM-EB have been rejected it is worth considering allowing DOEs to approve changes. It is likely that these few cases would have been detected along the review process when requesting issuance. The associated risk is considered low compared to the gain in time and the increase of the attractiveness of the CDM.

### 2.3.5. OPTION SP5: LOWER ISSUANCE FEE

Post registration changes are changes which occur after the registration of a CDM project activity that do not comply with the Project Design Document (PDD), such as altered monitoring approaches. These need to be approved by a DOE and in many cases also by the CDM-EB. Exemptions are granted for some cases that do not require prior approval by the CDM-EB, and can instead report any changes in the verification report and have these changes verified by a DOE during the verification. The result is that currently, if there is even a small risk that the nature of a change might be interpreted as one that requires prior approval, the DOE tends to involve the CDM-EB in order to avoid any additional and unpaid efforts to defend their accreditation caused by, for example, a spot check. Hence almost 40 % (status 2015) of all post registration changes seek for prior approval by the CDM-EB.

Note: While this option received considerable interest from project developers interviewed for this report, it is not an option recommended by the research team.

Project developers are interested in lowering transaction costs as a result of the current low Certified Emission Reduction (CER) price level. Therefore it is perhaps not surprising that many interviewed project developers would like to see a reduction in the issuance fee which they point out consumes a significant share of the CDM income of project activities. Projects with no other income, or those that rely on significant contribution from CER sales revenues according to the demonstrated financial additionality, have lost their financial viability because of the market conditions. Consequently a project owner may consider either to close the operations of such a project or at least to avoid further costs by not processing any reporting and verification activities until CER prices may increase in future. PoA activities are especially vulnerable to this issue as they have high CER generation costs compared to most standard CDM activities.

**Box 4** provides the fee structure currently observed regarding administrative expenses for project activities and PoAs.

#### Box 4: Recent fee structure

The share of proceeds to cover administrative expenses for project activities and PoAs<sup>34</sup> is:

- a) USD 0.10/CER issued for the first 15,000 tCO<sub>2</sub>e for which issuance is requested in a given calendar year;
- b) USD 0.20/CER issued for any amount in excess of 15,000 tCO<sub>2</sub>e for which issuance is requested in a given calendar year;
- c) No share of proceeds shall be due for project activities and PoAs hosted in least developed countries. In the case of PoAs hosted not exclusively in least developed countries, the exemption from the share of proceeds applies to the issuance of CERs for the emission reductions occurring in component project activities (CPAs) hosted in least developed countries. The application of this exemption from the share of proceeds shall be based on the status of the country on the date of the publication of the request for issuance of CERs.

Interviews undertaken as part of this study revealed that given the current market price for CERs and issuance fees of USD 0.20/CER, most project developers prefer not to conduct verifications since the costs for verification and issuance result in negative impacts on the cash flow. In other words, the issuance fee is considered a deterrent to CDM project cycle completion. Those issuances that have taken place can be assumed to have been implemented because of:

<sup>34</sup> Paragraph 3 of Appendix 1 of the Project Cycle Procedure

- Contractual regulations between project owners and technology/installation owners or project owners and CER buyers, which require verification and issuance along agreed schedules;
- The consideration of risks regarding the occurrence of difficulties hindering a smooth verification in relation to the duration of monitoring periods;
- Technical aspects that define a clear end of monitoring intervals (e.g. production campaigns in nitric acid plants);
- The consideration of the opportunity of low verification prices at times when more auditors are available than required; and/or
- The ability to sell CERs at higher prices based on other attributes than the CDM registration (e.g. those with additional Gold Standard certification).

This assumption is also corroborated by the fact that only three issuances out of the 839 in 2014 were first issuances from registered CDM projects. Hence, in cases where verification and issuances are performed today, the ultimate objective may not be the generation of CDM income but rather a result of one of the causes listed above.

An option to counter low CER market prices could be to lower the issuance fee. The fee could for example reflect the CER price and be fixed at a certain percentage of the average CER price during the last calendar year or any other time period. The fee could be capped in case the CER price rises dramatically.

The rationale for this proposal, whilst understandable, is not sound. Issuance fees are also applicable in other carbon standards, as they are used to cover the administrative costs at the regulatory side, however it is to be noted that none of them are linked to market prices.

Despite this strong argumentation in the discussion with interviewees, it is irrational to confuse a market (i.e. the price for CERs) with a certification mechanism (the CDM). The market is driven by political ambition whereas the procedures for the CDM standard and other baseline and crediting standards are defined to cover administrative and regulation costs. Their function are and should remain separate.

## 2.4. OPTIMIZATION OF OPERATIONAL PROCESSES

The options for optimization of operational processes are defined as those that can be achieved within the existing rules and regulations of the CDM. These include top-down options that seek to further standardize and digitize templates used during the project's operation, and bottom-up options where project developers use innovative technologies for data collection and management.

### 2.4.1. OPTION OP1: STANDARDIZATION AND DIGITIZATION OF FORMS

There is considerable scope for the standardization and digitization of templates that are used during project monitoring, reporting and verification. The options available fit within different stages of the MRV process, as illustrated in **Figure 4**.

**Figure 4: Elements for standardization/ digitization options presented within the MRV chronology**



## **Digitized Project Design Documents (PDDs)**

Digitized PDDs can help to save time during project development, and can be linked to monitoring documents to simplify the MRV process. This is useful since it helps to reduce the risks of errors, ensures all required information is provided and saves time not only when completing the PDD, but also later when organizing and conducting the annual monitoring efforts.

Elements of the digitized PDDs could include the following:

- Auto-modification of the template based on choices made in the PDD through the use of drop-down menus/checkboxes. For example, if micro-scale additionality is chosen, the template will automatically update to request compliance with this approach.
- Directly linking to methodologies and/or standardized baselines to facilitate auto-modification of the template based on methodological choices made, and the application of pre-defined default values.
- Automatic generation of other templates based on the completed PDDs such as survey templates, a result's reporting framework and elements of the Monitoring Report.

The UNFCCC is currently working on the development of digitized forms. A joint effort involving the Secretariat, Methodologies Panel (MP) and the Smallscale Working Group (SSC WG) is currently underway to simplify/digitize the PDD forms and methodologies.<sup>35</sup> Ultimately, the digitized methodologies would rely on a preliminary system of checkboxes to guide the user through a flowchart of methodological options.

<sup>35</sup> Paragraph 3 of Appendix 1 of the Project Cycle Procedure

## Digitized sample size calculator

Determining the minimum sample size needed to monitor a programme or a parameter can be challenging, especially if an approach other than simple random sampling is selected. A digital template for calculating minimum sample size could be incorporated into the existing Sampling Guidelines.<sup>36</sup> This could be used by project developers during each monitoring year, and ensure that project developers meet the minimum requirements for confidence/precision satisfactorily.

## Standardized survey questionnaire templates

Currently, methodologies provide parameters to be monitored without providing very clear guidelines on how to establish the parameters. The guidelines for establishing leakage or the fraction of non-renewable biomass are both good examples: they can be defined using surveys but the questions to ask the target population to establish these parameters are unclear.

The Gold Standard, for example, provides baseline and project survey templates as an annex to their methodology for cookstoves<sup>37</sup> (see **Box 5**). CDM methodologies could consider doing something similar for those parameters that can be established via a standardized survey, such as those methodologies commonly applied in PoAs, such as AMS-II.G, AMS-I.D and AMS-I.C.

### Box 5: The Gold Standard's digitization

The Gold Standard is developing a comprehensive online tool for cookstove projects applying TPDDTEC<sup>38</sup>, AMS-II.G and their microscale cookstove methodology<sup>39</sup>. The tool will fully digitize the project documentation development, monitoring and issuance process for cookstove projects. This web-based interface will include:

- Maximization of default values, including host-country specific values based on surveys that other project developers have carried out (e.g. if a baseline survey have been completed previously by another project developer in the same host country, other projects can use these values).
- Online templates for survey questionnaires and recording results (including downloadable Microsoft Excel template for desktop data analysis).
- Auto-filling of monitoring reports based on input monitoring results from the above, allowing emission reductions to be automatically calculated for the monitoring period.

In the future, The Gold Standard aims to further develop the comprehensive web-based interface of this tool across the standard. The interface will use online templates for PDDs and verification reports. They expect this will shorten timelines by:

- No longer needing to upload multiple copies/versions of project documentation.
- Allowing The Gold Standard to make comments directly in the project documentation.
- Reducing errors/omissions from Project Developers.

<sup>36</sup> Guidelines for sampling and surveys for CDM project activities and programme of activities

<sup>37</sup> Simplified Methodology for Efficient Cookstoves, February 2013

<sup>38</sup> Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC)

<sup>39</sup> Simplified Methodology for Efficient Cookstoves, February 2013



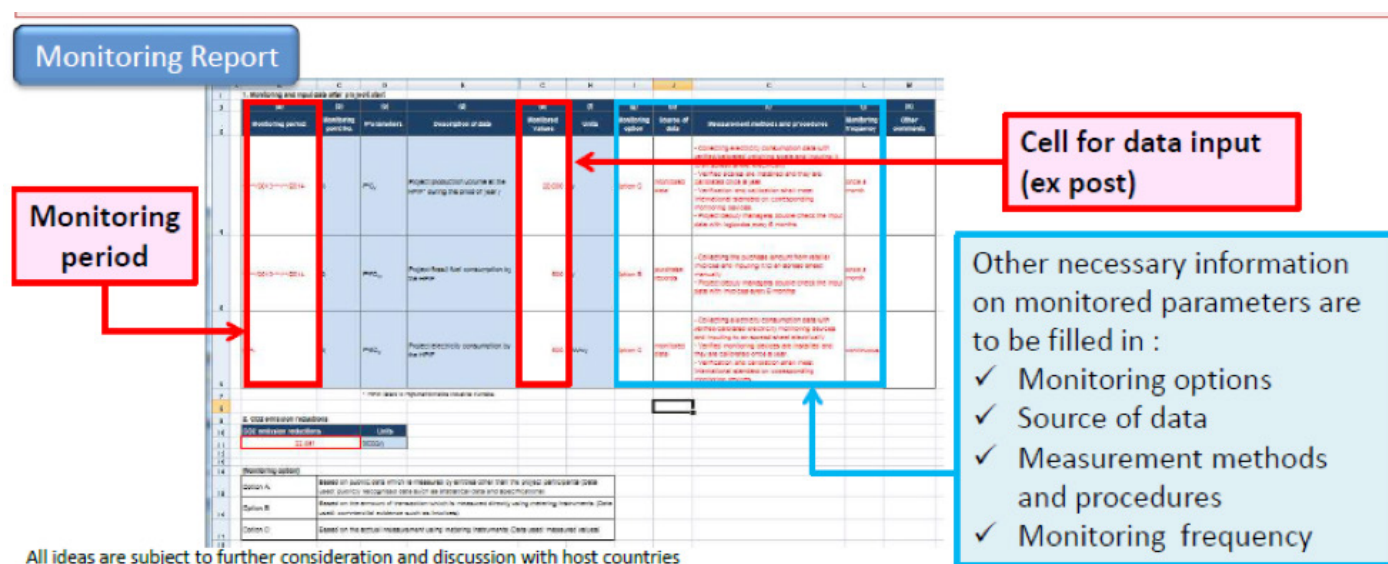
## Digitized results reporting framework

The benefits of digitizing a results reporting framework are many, including the ability to link to PDDs and the Monitoring Report if these are also digitized. Design elements could include:

- Linking to the Monitoring Report (also digitized), where monitoring results can be auto-completed;
- Automatically calculating compliance with sample-size requirements, especially where minimum sample sizes can only be established ex-post<sup>40</sup>;
- Automatically calculating the results of the monitored parameters, and the corresponding emission reductions for the respective monitoring period.

A similar approach is used in the EU ETS and JCM, where monitoring and reporting are based on pre-approved Microsoft Excel templates. The JCM takes this one step further by having the template spreadsheet act as the monitoring report itself, with no need to prepare a separate monitoring report (see **Figure 5**).

**Figure 5: Illustrating the elements of the JCM's pre-approved Microsoft Excel template for monitoring<sup>41</sup>**



## Digitized Monitoring Report

A digitized Monitoring Report can help to significantly reduce costs and time during each annual monitoring period, especially for PoAs that have a large number of CPAs. By digitizing the Monitoring Report, many elements can be automatically completed based on the outcomes of the monitoring effort, especially where this is used in conjunction with a standardized survey results template.

<sup>40</sup> Such as when establishing the minimum sample size for Kitchen Performance Tests for cookstove projects, where a 90/30 level of confidence/precision need to be met, but it is only possible to know this once results come in.

<sup>41</sup> IGES (2015) One Hundred Questions & Answers about MRV in Developing Countries, Version 2.1 (Post COP20), February 2015, page 102



## Digitization of verification

In addition, the verification process could be sped-up by allowing the DOE to comment directly within the online Monitoring Report, rather than producing a lengthy verification protocol. The DOE could also use all the above digitized forms for their validation checks.

### 2.4.2. OPTION OP2: INNOVATIVE DATA COLLECTION AND MANAGEMENT TOOLS

A variety of innovative data collection and management tools have been developed by project developers in recent years to simplify their management tasks. Such tools could significantly improve the efficiency of the data collection process, reduce the potential risk of data losses in the field and provide real-time access to data from multiple locations for analysis and reporting.

Below we present some bottom-up approaches already developed and employed by some developers. These are particularly relevant for micro-scale technologies such as household biogas digesters, clean cookstoves and efficient/renewable lighting.

The Secretariat, the MP and the SSC WG agreed at CDM-EB 82 to consider inclusion of electronic data collection and processing systems, and their provisions, into the new version of the sampling and surveys guidelines<sup>42</sup>. Specifically, a new chapter has been added to the guidelines focusing on recommended practices for conducting surveys and collecting data. This includes reference to data collection through “smartphones or tablet app modules connected to data clouds, data sensor, email or web-based platform or SMS, telephone, mailing etc”. Further details are provided for each of these options, including their applicability to both the project participant and permitted use by a DOE.

The draft revised standard/guidelines will be made publicly available for global stakeholder consultation. The inputs will be taken into account when preparing the final draft of the sampling standard/guidelines to be recommended to the Board at a future meeting.

## Integrated online programme database

Having a streamlined, well-functioning programme database is essential for projects involving a large number of small distributed technologies. Having an online database (rather than spreadsheet-based) allows the data to be accessed from multiple locations, backed-up to avoid data losses and can be used as a program management tool. For example, the database can be used to automatically assign technology users to survey teams for monitoring, or program data can be automatically completed in the monitoring report from the database.

## Mobile data collection

The standardization and digitization of survey questionnaire templates facilitates the use of mobile technologies (e.g. smart phones or tablets) for collection of monitoring data. This is beneficial since it reduces the risk of errors in data entry, allows real-time data back up and transfer into the project database and the collection of other project data such as Global Positioning System (GPS) coordinates and geo-tagged photographs.

<sup>42</sup> SSC WG meeting report 48, Annex 13, Chapter 9 “Guideline: Sampling and surveys for the CDM project activities and programme of activities”, Version 04.0 – Draft

Mobile systems can also be used to collect up-front user information to populate the program database, either by directly entering user data via a mobile phone through field officers, or encouraging users to submit their own details through SMS systems in exchange for another benefit (e.g. a discount code or guarantee). The SMS data collection approach is especially useful for devices sold through retailers, such as small solar lights.

## **Pay-As-You-Go systems**

Pay-As-You-Go (PAYG) systems allow the collection of real-time technology usage data such as the kWh of electricity consumed or the quantity of biogas produced (flow-meters). Since they directly measure the performance of individual technologies they can significantly reduce monitoring costs through negating the need for site visits to technology users during monitoring. PAYG systems directly establish whether a technology is in use, and how much it is used.

In addition, PAYG systems can be useful in making low-carbon technologies more accessible to low-income target groups that might not be able to afford an upfront lump-sum payment for a technology, but could pay off costs using a PAYG system (e.g. making small mobile payments through a system like Vodafone MPESA, or buying scratch cards with codes to re-enable operation of a solar light). CDM regulation could allow for the use of data from PAYG systems in place of conducting site visits. This could significantly reduce monitoring costs for the project developer.

## **2.5. POA SPECIFIC SIMPLIFICATIONS**

The following encompasses several simplifications which specifically address PoAs, as PoAs face many challenges in MRV that are not relevant for most stand-alone activities. This includes having to consider large volumes of data records, delivered from many metering points or from many individuals. Many PoA activities have to apply sampling methods and face monitoring costs per generated CER which are a multifold of the ones for standard CDM activities.

The proposed simplifications on the monitoring side can complement other major advances and recent reform initiatives directed at fast-tracking and streamlining PoAs. CMP.10 initiated a number of major reforms targeting PoAs, for example the consolidation of PoA related provisions in the Project Standard, the Validation and Verification Standard and the Project Cycle Procedure into a PoA Standard. In order to lower transaction costs for PoAs, CMP.10 furthermore requested the CDM-EB to consider adjusting and if appropriate implement a simplified inclusion and registration procedure for PoAs that would allow inclusion of micro-scale PoAs on the basis of a pre-approved standardized inclusion template without validation by a DOE. Inclusion could be undertaken by the CME, for example on the basis of a simple “yes/no” checklist, and be confirmed by a DOE later during the verification. While such reforms have been set in motion, implementation of the guidance is still ongoing.

## 2.5.1. OPTION POA1: UNLIMITED NUMBER OF CPA BATCHES PER MONITORING PERIOD

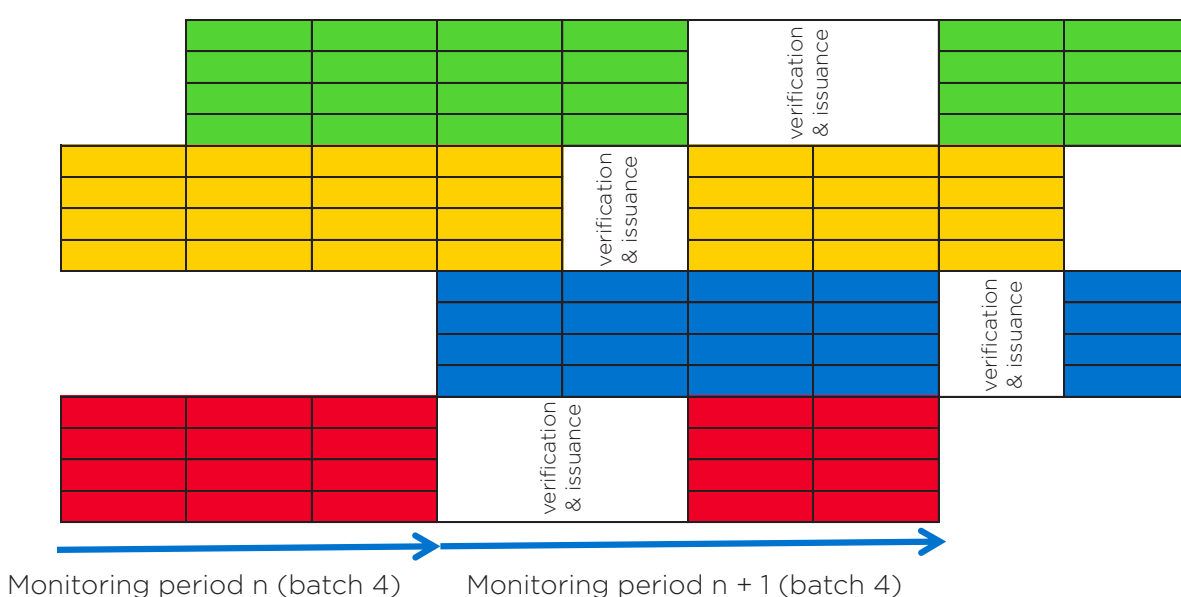
The following encompasses several simplifications which specifically address PoAs, as PoAs face many challenges in MRV that are not relevant for most stand-alone activities. This includes having to consider large volumes of data records, delivered from many metering points or from many individuals. Many PoA activities have to apply sampling methods and face monitoring costs per generated CER which are a multifold of the ones for standard CDM activities.

In the first set of PoA regulations it was required that all CPAs apply the same monitoring period and undergo verification together. The problem with this approach is that in the scenario that a single CPA has difficulties in monitoring and/or verification (e.g. requiring the approval of a post registration change) this CPA will delay the issuance process for the PoA as a whole.

Recognition of this issue resulted in a decision by the CDM-EB to allow for up to 10 individual batches (e.g. up to 10 different monitoring reports for the same monitoring period) within a PoA<sup>43</sup>. However, this means that PoAs with more than 10 CPAs will still have to group CPAs together during issuances. The suggestion here is to allow for unlimited batches of CPAs to request issuance with individual monitoring periods, which is the same as enabling issuance per CPA in the scenario where each CPA can be considered a 'batch'.

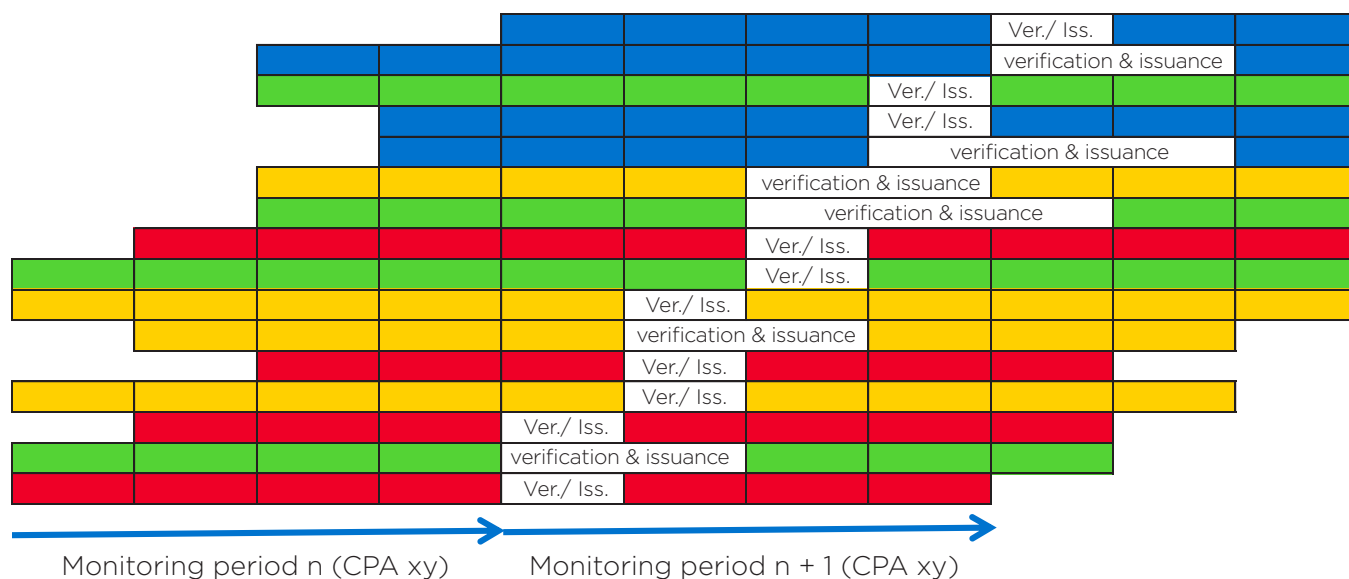
When the CDM-EB requested the UNFCCC Secretariat at CDM-EB 80 to assess any changes needed in the timelines for the completeness check and information and reporting check, they concluded that 10 batches were the maximum allowed to keep their work manageable. The option might therefore need to be implemented in combination with other solutions considered in this report, such as a new approach regarding timelines and checks by the Secretariat. **Error! Reference source not found.** 7 and 8 illustrate the differences of these variations.

**Figure 6: Illustrating how up to 10 batches of CPAs are now permitted to undergo batch verifications (Regulation since CDM-EB 81). Each row represents one CPA, with the colors illustrating a monitoring 'batch'.**



<sup>43</sup> An interim solution at CDM-EB 76 allowed two monitoring batches

**Figure 7: Suggested option to allow for unlimited number of CPA batches per monitoring period.**  
Each row represents one CPA.



Enabling issuance per CPA removes interdependences which are created artificially by the set-up of the scheme wherein 'batches' are limited to 10 CPAs. In batches, CPA owners may be forced to wait for issuance for their CPA due to MRV difficulties in only one CPA with which they are bundled. The presented option would allow verification to move forward for all CPAs that are running smoothly, and have delays experienced only for those CPAs that are facing MRV difficulties.

It would be the responsibility of the CME and the verifying DOE to ensure that no double-counting occurs and no additional work would be needed from the UNFCCC. It is expected that total efforts for the DOEs would remain the same, resulting in minor impacts on verification costs. The option therefore results in a least two important advantages:

- Ensuring a fast paced issuance process for CPAs that have had no monitoring/verification difficulties, including all the resulting benefits of such a faster process;
- Reducing risks between CPA Implementers that implement their projects independently, but face issuance delay risks by being artificially bundled with another CPA Implementer at the CDM procedural level through a monitoring 'batch'.

There has been no indication that there will be further discussion at the CDM-EB level regarding batched issuances for PoAs in the near future.

Some stakeholders consider even more radical changes than proposed above, including:

- Breaking down this concept to unit level (i.e. allowing issuance per project technology unit).
- Enabling verification and issuance of portions of a CPA to better align with CER buyer contracts. For example, in the scenario where a CER purchase agreement is secured for only 60% of CERs within a CPA, this option would allow the Project Participant to request issuance (and pay the respective issuance fees) for only 60% of the CERs in the respective monitoring period. The remaining 40% of CERs could be issued when needed.

When considering such options it should be noted that the amount of CERs issued is indirectly proportional to the relative transaction costs of credit issuance. At very small issuance quantities it would not be attractive to consider separate verification and issuances as the CPA will not be able to cover the associated costs.

### **2.5.2. OPTION POA2: REGISTRY ACCOUNTS FOR CPA IMPLEMENTERS**

The issuance of CERs resulting from a PoA is made to the PoA owner's registry account only. CPA implementer(s) are not directly issued CERs unless they are the same natural or legal entity as the PoA owner. It is suggested by this option that a PoA owner may opt for direct issuance to the registry accounts of their CPA implementers.

The distribution of CERs could in theory be managed by the PoA owner by distributing the received volume of CERs to individual accounts of the CPA owners. However, this approach is not currently possible within the CDM registry since a CPA Implementer would need to open a registry account via an Annex-I-country, and CPA implementers are frequently based in the project's host country. Having the PoA owner distribute the CERs also creates additional transaction costs for the CME.

To date there has been no discussion within the CDM-EB on this issue. It should be noted, that in the stakeholder survey this option received neither strong support nor negative comments.

### **2.5.3. OPTION POA3: SECTORAL MONITORING APPROACHES**

Sectoral monitoring is not a defined term and can be motivated by different considerations. In the research team's assessment there are at least two interpretations of what sectoral monitoring can entail, motivated by different needs: to ease the monitoring requirements for individual CMEs or in support of a government's sectoral crediting approach.

Starting point of the first interpretation is the desire to enhance efficiency of monitoring requirements for CMEs by allowing the use of regional or national data. Currently, CMEs may use national or regional statistical data in the determination of the baseline and for parameters that are fixed throughout the crediting period. Examples include fNRB values, data on fuel characteristics, or other parameters derived from standardized baselines such as grid emission factors. National or regional data can however not be used when it comes to monitoring project performance. This makes sense for those monitoring variables that are dependent on the CME's effort and are likely to differ from one programme to the next such as the number of units distributed. There are however variables that are independent from the CME's activities and likely to be similar across programmes, yet they have to be surveyed by every PoA. An example is the monitoring of the number of animals owned by households under AMS III.R – Methane recovery in agricultural activities at household and small farm level. An area where project developers often struggle to obtain data is the monitoring of leakage effects of their programmes, which could be another suitable parameter for sectoral monitoring. Extending monitoring campaigns from PoA specific to national or regional boundaries brings relevant efficiency improvements. Instead of limiting monitoring surveys to single PoAs or CPAs. Furthermore the resulting data might be applicable not only for a single kind of measure but also when using various technologies and/or methodologies. This could be accomplished in two ways:

1. A national or regional entity is carrying out monitoring campaigns and publishing the values for use by project developers;
2. A procedure that allows the national or regional vetting of monitored parameters established in one PoA so that it can be used by other PoAs with similar characteristics.

While host country DNAs and the UNFCCC Secretariat already publish default baseline values and emission factors they do not have procedures in place for publishing regularly monitored parameters. The distinction is fluid however as published default factors such as the grid emission factor also have to be updated in regular intervals. Implementation of this option requires the specification of monitoring parameters that could be established at national or regional scale.<sup>44</sup> While the CDM-EB could implement this option it would likely have to be set in motion through CMP guidance.

While this option could help to increase the amount of PoAs seeking registration, to date there has been no discussion within the CDM-EB on this issue. Similarly to option POA2, the stakeholder survey resulted in no strong reactions for or against this reform proposal.

A second possible interpretation of sectoral monitoring concerns monitoring the implications of sector-wide policies and measures. This is an interesting area considering the interest of many donors and multilateral development organizations in results-based instruments which link the disbursement of climate finance to monitoring the outcomes of their support. While the UNFCCC already recognizes results-based climate finance in the context of REDD+, there are no comparable concepts related to the energy access agenda. As governments in low-income countries are designing policies to increase energy access in their countries, developing efficiency standards, engaging in energy pricing reforms and are creating innovative instruments in support of private sector investments, donors are investigating how these measures could be supported through results-based finance. It is an interesting debate whether the CDM could evolve to become a standard for policy crediting. This is currently ruled out by Decision 7/CMP.1 (2005) which states that “a local/regional/national policy or standard cannot be considered as a clean development mechanism project activity but that project activities under a programme of activities can be registered as a single clean development mechanism project activity”. If policy crediting will be allowed in future under the CDM or the CDM evolves in the direction of the new market mechanism and include sectoral crediting, sectoral monitoring approaches will have to be developed that would look quite different from the project-based monitoring approaches. They would likely be based on simulation models that project the adoption of certain technologies in the “with” and the “without” scenario and rely on data that is regularly collected by governments, such as renewable energy capacity installed, households connected to the grid, energy delivered, etc. The endorsement of policy crediting is an issue that is bigger than the simplification and streamlining of current MRV procedures.

<sup>44</sup> In future data and statistics collected in the context of NAMAs or INDCs could play a role here.

## 3. Stakeholder feedback

### 3.1. SUMMARY OF RESPONSES

In June and July 2015 the project team conducted interviews based on a pre-defined questionnaire with selected stakeholders (see acknowledgement section). The questionnaire comprised three parts.

In **Part I** the interviewees were asked about their function and their experience in the CDM (number of projects and start time of working in the CDM).

In **Part II** 18 options for simplification were presented from which the participants were asked to determine five priority options and subsequently to rank them. These 18 options were derived from literature review, investigation of other standards, own experience and stakeholder feedback received by the UNFCCC from previous calls for input. Due to the evolving nature of the research and the fact that interviews were an important source of information, the 18 options are related but not identical to the options presented in the preceding chapter. Moreover, a small amount of interviews had been conducted before the start of the main survey to structure the questions and to ensure practicability. In addition, the participants had the chance to suggest further options in case any simplification option was missing from the survey. To evaluate the expected benefit of the simplification options the participants were asked to estimate the benefits of their priority options in terms of man-day savings and savings in processing time. Due to the huge heterogeneity of wages and currency rates globally the cost savings were not asked directly from interview partners as comparability of the results could not have been ensured.

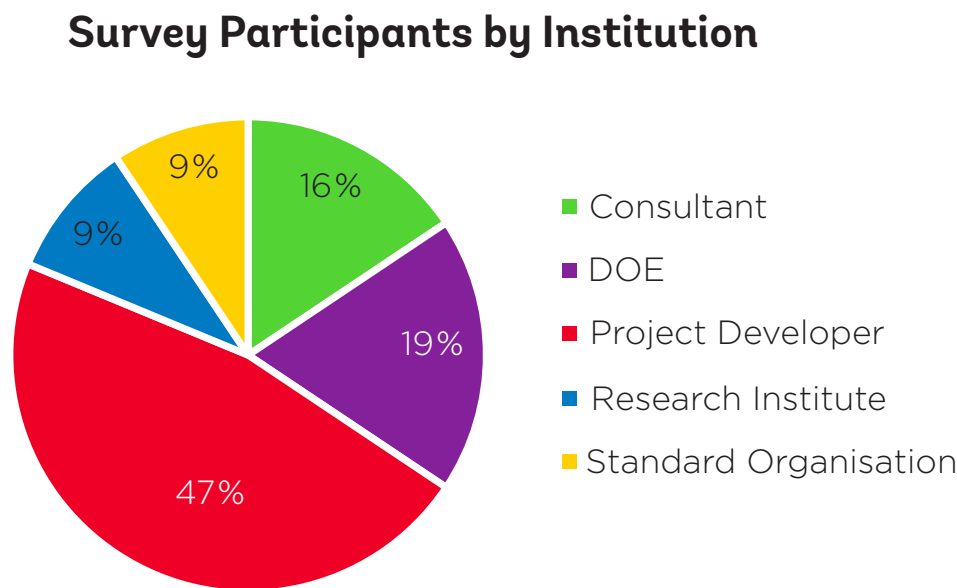
Finally, to get an idea of the benefits in relation to the current costs, **Part III** of the survey asked how many man-days DOEs and project developers calculate for different steps in the MRV cycle. Quantitative results of the survey are discussed in the next sub-chapter. All survey questions including the 18 options presented to stakeholders are presented in Annex 2.

In the statistical evaluation of the survey 39 responses have been considered. Because of the very heterogeneous structure of the interviewees not all questions have been answered by all interviewees due to lack of practical experience with costs. In particular, those interviewed from institutions like governmental authorities, development banks and DNAs have been very helpful in structuring the survey and providing inspiration for simplification options but had difficulties in estimating cost or time savings.

Almost 50% of the participants were project developers, while the second largest group was DOEs (See Figure 8). Consultants, research institutes and other standards organizations (e.g. Gold Standard, representatives of the Chinese domestic offset scheme) added value to the results. Very relevant input has been received from UNFCCC staff concerning the current direction of CDM reform and how some of the identified options are already being taken up by the CDM-EB or included in the Secretariat's work agenda.



Figure 8: Survey participants by Institution



While only 17% of the interviewees started their involvement with CDM after 2012, all others have longer term experience (See Figure 9). It is likely that those who started working in CDM after 2012 are those with less than 10 projects. Besides one DOE interviewed, all DOEs contributing to this survey have experience with more than 100 projects and have been active in the market before 2012. In the light of these statistics it can be concluded that extensive experience from the beginning of the CDM up to today is captured in the interview results and major players have been identified for participation in the interviews. Figure 10 provides a visual understanding of the level of expertise represented by the panel of selected interviewees.

Figure 9: Date when interviewee start CDM activity

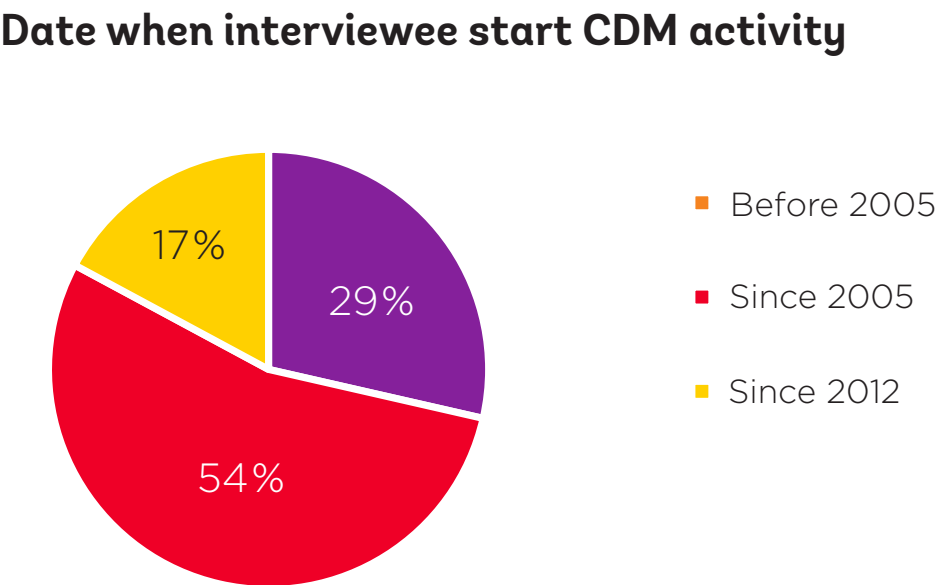
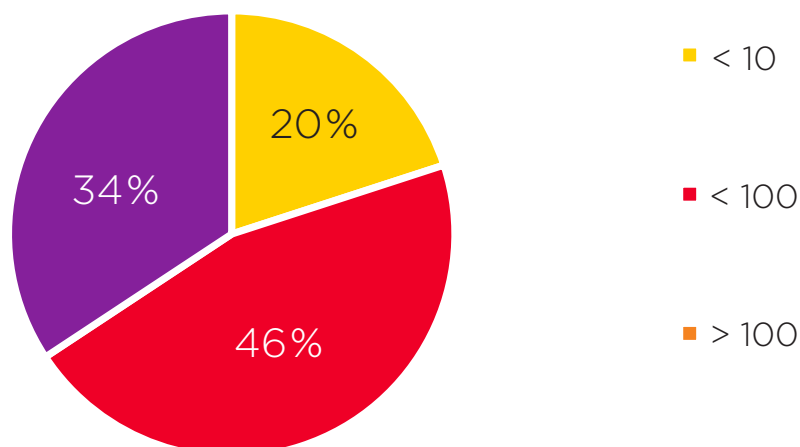


Figure 10: Number of CDM projects worked on by interviewees

## Number of CDM projects worked on by interviewees

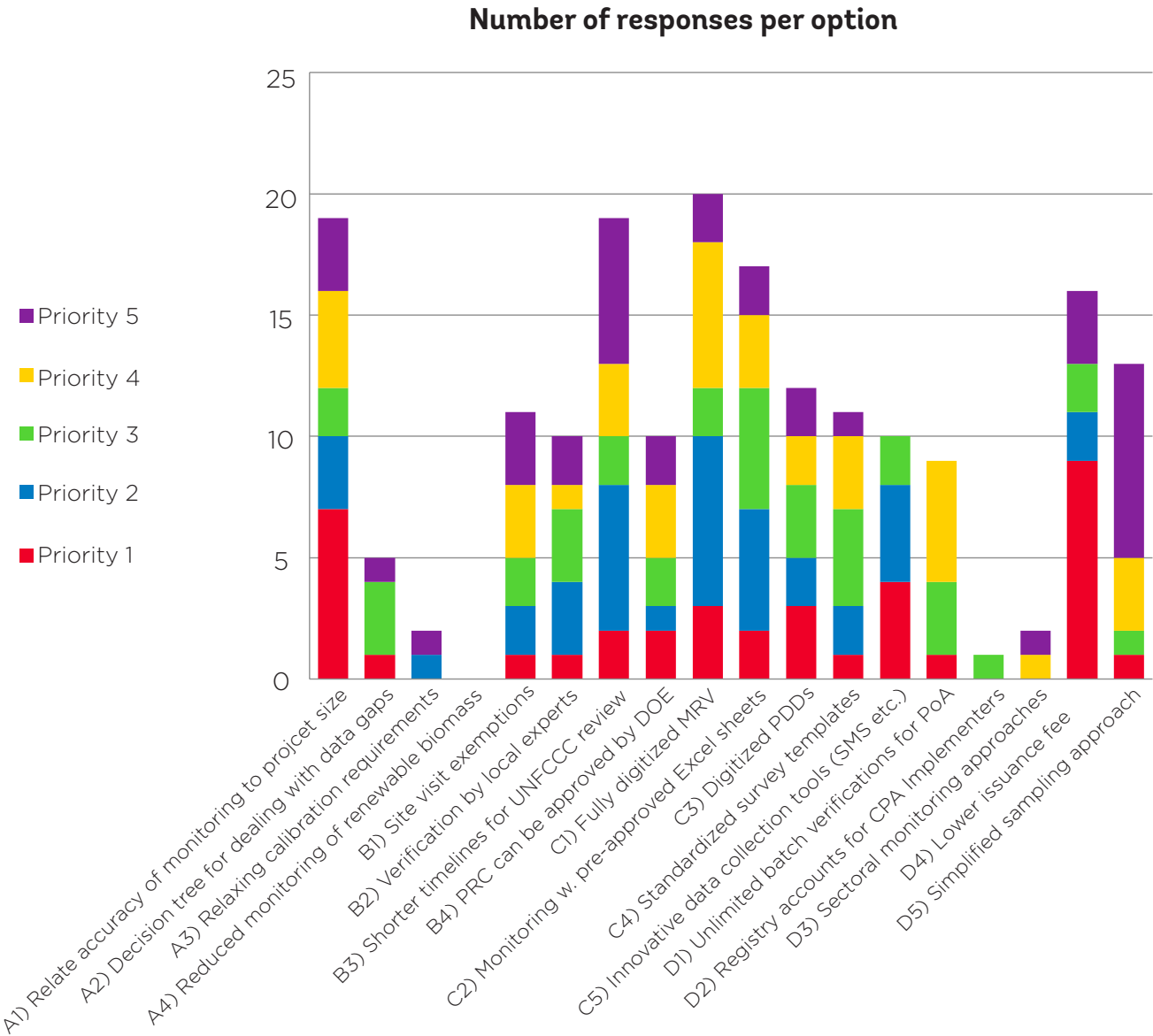


The five options prioritized by the most interviewees include (not necessarily listed in order of highest prioritization):

- 1 - Relate accuracy of monitoring to project size
- 2 - Fully digitized MRV
- 3 - Lower issuance fee
- 4 - Monitoring with pre-approved Excel sheets
- 5 - Shorter timelines for UNFCCC review

Figure 11 visualizes the complete ranking of the options.

Figure 11: Number of responses per option



This list of priority options has been achieved by weighing the responses according to their priority and summing them up. Options that had highest priority for the participant are weighed with 5, second highest with 4, third highest with 3 and fourth highest with 2, and fifth highest with 1. Lower priorities have not been requested in the survey.

If we differentiate the rankings between project developers and DOEs, slightly different results are found for each. The **project developers** (including consultants) interviewed prioritize the following (in order):

- 1 - Lower issuance fee
- 2 - Shorter timelines for UNFCCC review
- 3 - Monitoring with pre-approved Excel sheets
- 4 - Relate accuracy of monitoring to project size
- 5 - Verification by local experts

In contrast, the **DOEs** set their priorities as follows (in order):

- 1 - Relate accuracy of monitoring to project size
- 2 - Simplified sampling approach
- 3 - Fully digitized MRV
- 4 - Monitoring with pre-approved Excel sheets
- 5 - Site visit exemptions

For the other institutions participating in the interviews no ranking has been provided due to the small sample of these groups, but they are included in the ranking of all interviewees as per the page before.

During the interviews it became clear that many problems in the MRV cycle are technology and methodology dependent and cannot be generalized to all project types. There was a clear divergence between project developers aiming for greater simplification of the MRV process and governmental authorities / standards organizations preoccupied with maintaining environmental integrity. The latter group emphasized the priority for standardization and digitization before simplification and suggested to focus simplification to those countries and regions that are currently underrepresented in the CDM. The report authors recognized that the greater use and refinement of default values would be another important vehicle to further simplification but this option was not included in the questionnaire.

Moreover, it was clear that many of the presented options overlap and interact and should be considered in a common context rather than in isolation.

Besides the options identified during the research for the preparation of the survey, additional options have been suggested by the participants, including:

- **Easier communication between the project developer and the UNFCCC:** The survey participants still ask for more direct access to the reviewer at the UNFCCC. For some highly complex projects and methodologies, it should be possible and / or easier for the project developer to directly address the UN project reviewer in order to explain the subtleties and particularities of the projects and the corresponding emission reduction calculation without having to do so through the DOE.
- **Streamlining of guidance documents:** It is proposed to merge the PCP, PS and VVS into a single document that could be divided into different sections to address different issues. Proposed name: "Guidelines for CDM Activities". Text repetitions and redundancies would be eliminated to create a single reference document. Such a document can still offer specific information where necessary and applicable for different processes, e.g. for stand-alone CDM project activities and for PoAs/CPAs.
- **Fixed response times:** All clarification, revision and deviation requests to the CDM Board, Secretariat or Panels should be subject to a maximum response period of 60 calendar days.
- **Flexible monitoring periods:** Project participants should have the option to update and therefore extend or alter the monitoring period under verification after the publication of the Monitoring Report and prior to the conclusion of the Verification Report. This will allow project participants to adjust their issuance strategy in relation to market conditions.
- **Streamlining accreditation:** To revise, diminish, reduce and simplify the Accreditation Panel requirements on DOEs in order to grant more flexibility for DOEs to define their internal processes in a more efficient and less costly way, but without losing quality of validation and verification services to be provided. For example, the competence requirements for auditors or impartiality requirements could be defined by the DOE itself based on common standards (like ISO14065 or ISO14066).
- **Allow for one single generic CPA:** For PoAs, it is recommended to revise the referred documents and related paragraphs in order to allow project participants to have the

option to merge, group and/or simplify generic CPAs according to methodologies limitations or applicability restrictions, resulting in one single generic CPA containing all possible combinations, at least as long as it refers to the same methodology.

- **More transparent timelines for information and reporting checks for PoAs:** The current processing by the Secretariat of requests by PoAs, timelines and status, are not available online.
- **Enhanced requirements for quality management:** Obligation for all project participants not only DOEs to implement a structured management system in relation to data capture, internal audits and procedures for corrective actions. Despite a short term cost increase for project developers it is expected that in the long run this will make monitoring, reporting and verification more efficient and pay back. This suggestion probably only refers to large project developers and CMEs.
- **Incentive for a trade-off between uncertainty of measurements and application of a conservative discount:** If a discount or mark-up could be applicable as a function of uncertainty of measurements, monitoring costs could be reduced without compromising environmental integrity. This approach has been long discussed but has never been implemented in a systematic manner. Rather it has been partially implemented since it has been included only in some methodologies. The project developer could decide by himself if he wants to invest in monitoring/sampling or save costs and apply default factors instead, being aware that default factors have to be conservative and will reduce his revenue from the emission reductions. Nevertheless, it is often more cost-efficient to let some emission reductions unconsidered if their monitoring is costlier than the final benefits. .
- **Cross-usage of surveys:** One way to enhance monitoring efficiency is to combine carbon monitoring with other regular surveys by, for example, government officials or other professionals visiting companies/households. This efficiency should be encouraged and explored, and it will become increasingly relevant in the context of Nationally Appropriate Mitigation Actions (NAMAs). Surveys could be used for multiple purposes e.g. governmental statistics, tax related surveys or marketing. Therefore requirements regulating the design of surveys could be defined with consideration of multiple organization's interests. This would enable financing for surveys to be supported by multiple organizations and facilitate a more rapid acceleration of data collection and default factor generation. Donors would need to encourage MDBs to collaborate in this way by rewarding activities where synergies in surveys are fully utilized. If such a database or data bank can be created, future projects may not need to include significant original (and expensive) content within their surveys.
- **Flexible issuance:** Allow project participants to pay the issuance fees only equivalent to the number of CERs they would like to have issued, rather than needing to pay the issuance fee for all the CERs in a monitoring report. This is especially relevant in the current, low price market, and for large PoAs where the issuance fees are very large. Also, since buyers now purchase in small batches, it allows project participants to pay the issuance fees only for the batch for which they have secured a buyer.
- **New verification approach:** Use of the UNFCCC existing capacity instead of the DOEs or pay DOEs via a Fund. Increase verification capacity by allowing ISO14065 auditors to verify.

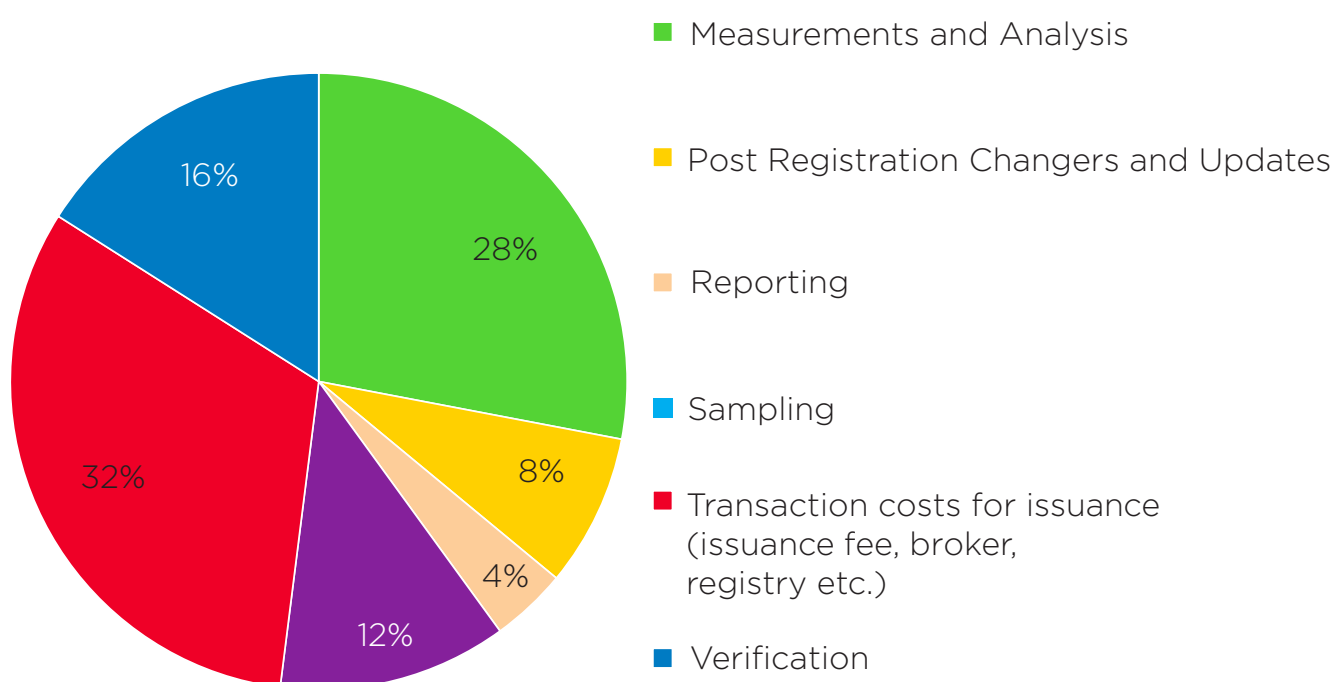
### 3.2. MRV COST STRUCTURES

In the survey, interviewees were asked which part of the MRV cycle is the most cost sensitive. The response (See Figure 12) depends on the personal experience of the interviewee but the transaction costs for issuance (issuance fee, broker, registry etc.) have been mentioned by most of the participants (32%). This is not surprising as the issuance fee is currently responsible for about 50% of the overall costs for one verification cycle. Of course, if the CER price would recover to price levels reached in the past, the relevance of the issuance fee will vanish again, as it will be only a small portion of the costs (US\$ 0.20/t).

The second most-mentioned costs were the monitoring expenses which cover costs for measurements, analysis, reporting and sampling. Interestingly, the DOE costs and post registration changes have been considered the biggest challenge by only a minority of the participants.

**Figure 12: Steps in the MRV cycle considered most costly**

#### Which step in the MRV cycle is the most costly?



A closer look at the costs and potential savings from improving MRV processes produces a more differentiated picture. In Table 4, the man-days are listed that have been reported for each process step. It has to be mentioned that the median (not average) has been taken from all responses to eliminate unrealistic peak values resulting from very specific projects. The standard deviation (in brackets in the table) is quite large, which may reflect the relatively small sample size and the unique experiences of each interviewee.



**Table 4: Reported man-days for each process step**

Procedural steps	Man days	Man days (verifier)
Monitoring	14 (+/- 13)	
Reporting	7.5 (+/- 8)	
Verification		15 (+/- 10)
Post registration change	5 (+/- 9)	5 (+/- 7)
Issuance	1.5	

The man-days reported here are for large scale projects in the field of renewable energy that comprise the majority of all projects. For small scale projects however, verification takes five days less on average. The verification of the first CPA of a PoA takes seven days (on average). These figures represent the results from all interviewees in the survey. It is interesting to note that the DOEs report three man-days more than the median of all interviewees in order to accomplish a project verification (but yield the same standard deviation).

The responses for expected man-day savings and process time reductions are very subjective and depend on interviewees' individual experiences. Many participants were not able to quantify the savings and just indicated that there must be savings. Figure 13 and Figure 15 summarize expectations of the stakeholders without reflection on whether these expectations are realistic or not and without including qualitative responses. The survey can only give a broad overview of the resulting reductions. A more detailed assessment of the savings of man-days and process time has been conducted in chapter two specifically for each option.

**Figure 13: Range of cost savings estimates**

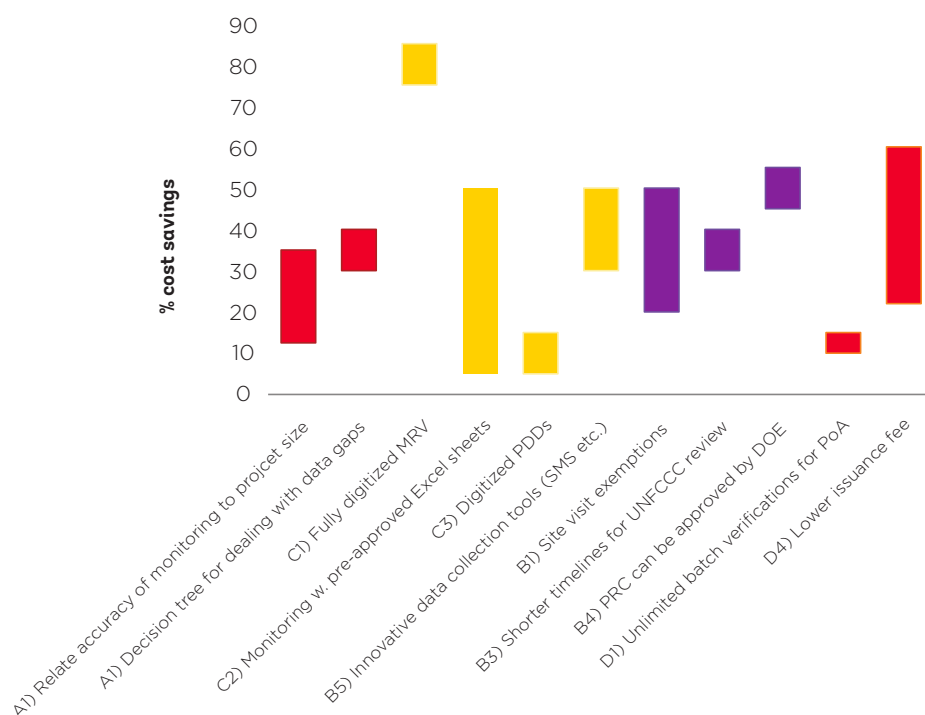


Figure 14: Median man-day savings per option

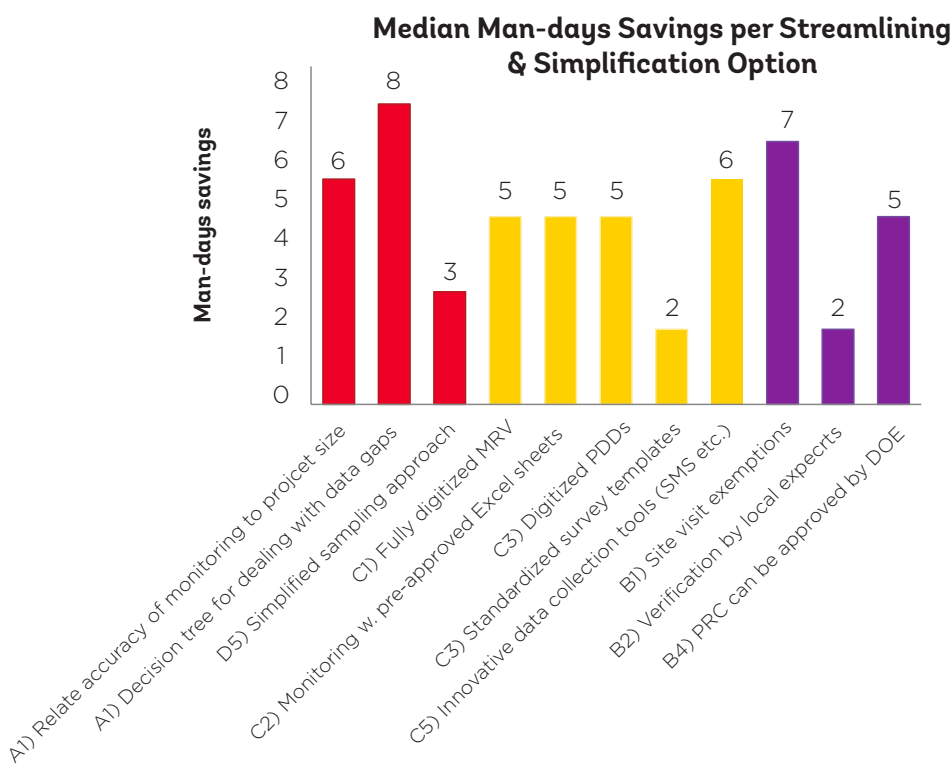
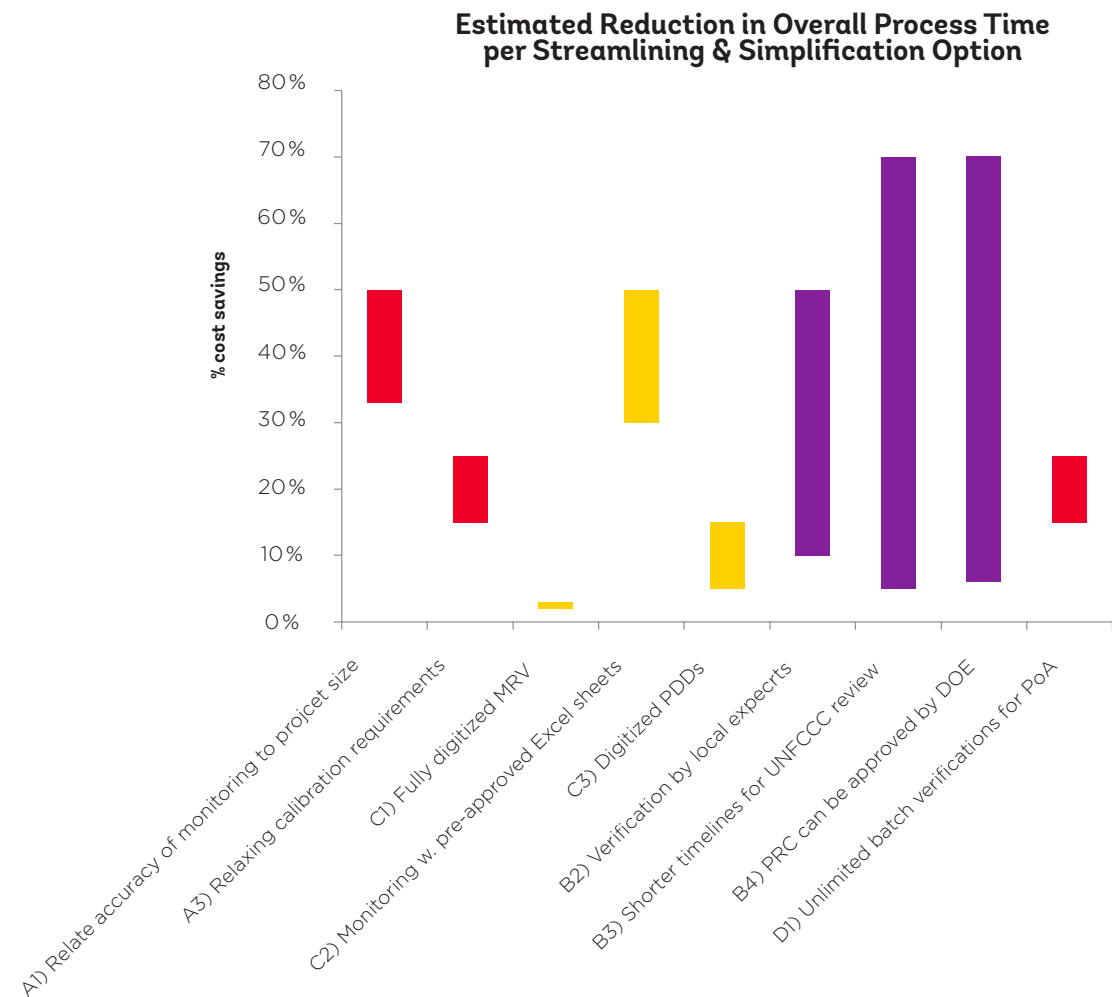


Figure 15: Estimated reduction in overall process time



### 3.3. SELECTION OF PRIORITY OPTIONS

Priority options are selected based on their popularity among stakeholders as well as their potential for cost savings gathered from the surveys. As the survey cannot be considered representative, the qualified judgment of the research team complements this method. There is a bias in stakeholder responses towards options that are already under discussion and with which stakeholders are well familiar. As a result, this report not only describes options as prioritized by the interviewees but also an option that the research team considers to be a possible and relevant future development in relation to PoAs regarding the use of advanced monitoring technologies.

The matrix found in Table 5 summarizes the prioritization of the survey results and subsequent ranking (as described in Figure 11 and analysis, and man-day savings in Figure 14). The explanation of the codes<sup>45</sup> can be found in Annex 2 or Figure 13 and Figure 15 above.

**Table 5: Ranking of priority options**

TIME SAVING (MAN-DAYS)	RANKING (WEIGHTED AMOUNT OF RESPONSES)		
	Low [<20]	Medium [20-40]	High [<40]
Low [<2]	A3		
	A4	B2	<b>B3</b>
	D2	C4	<b>B4</b>
	D3		
Medium [3-5]		B4	<b>C1</b>
		C3	<b>C2</b>
		D5	
High [<6]		<b>B1</b>	
	<b>A2</b>	<b>C5</b>	<b>A1</b>
		<b>D1</b>	

<sup>45</sup> Note that the shortcuts were introduced in the questionnaire but due to the evolving nature of options have not been retained in the final presentation of options in chapter 2.

From this matrix, the bottom and right hand side sections (colored) are to be considered. From these options (in bold), the report authors have identified the following ones to be of the highest priority:

## **A1 = Categorize accuracy requirements**

This option should be focused on the most, as it resulted in the highest savings potential and was ranked the highest priority.

## **C1 = Digitization**

Digitization is highly prioritized by the stakeholders and although man-day savings are only “medium”, the overall cost savings seem to be high as this option will work on all steps of the MRV cycle, including: monitoring (e.g. direct transfer of data from the monitoring equipment into the reporting tool), reporting (no more free text and descriptions but predefined forms with automatic calculations) and verification (no separate verification report but direct confirmation of data online).

## **C5 = Innovative data collection tools**

This option has a high priority as well and seems to offer significant cost savings potential. Moreover, this option allows for simplifications that do not necessarily require changes in the existing regulations. Hence, it has been prioritized by the research team.

## **D1 = Batched issuance**

This option did not receive the highest score as it only affects PoA developers, but the potential for cost savings is tremendous considering the implications on liquidity of a PoA if one CPA is held up by other CPAs that are moving at a slower pace.

## **D4 = Lower issuance fee**

Although project developers endorsed a reduction of the issuance fee, the research team does not think it is a sustainable solution for overcoming MRV and issuance barriers as it would only facilitate additional verifications and issuances under specific conditions. These specific conditions include a sufficiently high CER price level to cover the costs of verification and issuance plus a relevant contribution to the project's other costs, but low enough so that the issuance fee makes a difference to the project developer's profit margins. For the vast majority of registered projects, current CER price levels are too low for a lowered issuance fee to make a substantial difference in those margins. As a result, this option will likely not lead to increased issuances.

In addition, the current rate already differentiates by the size of project activities. It worked well and without strong criticism during periods of higher market prices. It is also understood that administrative costs of the UNFCCC secretariat need to be recovered and linking this to the success of project activities appears fair and reasonable. Finally, the lowering of the issuance fee is not a specific topic for the target projects of the study as LDCs are already exempted from the payment of issuance fees.

## 4. Recommendations

The outcomes of this study have identified 15 options for simplifying MRV processes in CDM projects across four broad categories. These are summarized in the table below and categorized into three levels of priority: high-priority (green), medium-priority (yellow) and low-priority (red). The priority level for each options is selected based on a combination of factors including overall relevance (i.e. highly applicable option vs. niche option), budget cutting potential and ease of implementation.

**Table 6: Summary of simplification options identified**

CATEGORY	SIMPLIFICATION OPTION (AND PRIORITY LEVEL)
Simplifying methodologies (SM)	<ul style="list-style-type: none"> <li>● SM1 Categorize accuracy requirements</li> <li>● SM2 Defining calibration requirements</li> <li>● SM3 Decision tree for dealing with data gaps</li> <li>● SM4 Improving default factors</li> <li>● SM5 Lift superfluous monitoring requirements</li> </ul>
Streamlining procedures (SP)	<ul style="list-style-type: none"> <li>● SP1 Site visit exemptions</li> <li>● SP2 Verification by local expert</li> <li>● SP3 Shorter timeline for completeness and information and reporting checks</li> <li>● SP4 Post registration changes approved by the DOE</li> <li>● SP5 Lower issuance fee</li> </ul>
Optimization of operational processes (OP)	<ul style="list-style-type: none"> <li>● OP1 Standardization and digitization of forms</li> <li>● OP2 Innovative data collection and management tools</li> </ul>
PoA specific simplifications (PoA)	<ul style="list-style-type: none"> <li>● PoA1 Unlimited number of CPA batches per monitoring period</li> <li>● PoA2 Registry account for CPA implementers</li> <li>● PoA3 Sectoral monitoring approaches</li> </ul>

Given the breadth of the topic and large number of options discussed in Chapter 2, this report concludes by recommending four priority options for focused attention by the CDM stakeholders and decision-makers. While the study does not seek to narrow the focus only to those priority options selected and highlighted here – many relevant options have been identified in the course of the study and many more were suggested by stakeholders – it nevertheless concludes with some key recommendations related to the selected options. The overarching question is how options deemed most relevant for overcoming barriers in the MRV process could be further promoted. Due to the different nature of barriers and simplification options there is no one-size-fits-all approach but each simplification option has to be addressed through appropriate channels. The option-specific recommendations are as follows, in no order of preference:

- **SM1: Categorize accuracy requirements (tiered approach)**

Stratifying accuracy requirements based on the capacities of project developers and taking into consideration project size as well as location is among the top priorities of many stakeholders. This brings particular benefits to the target category of energy access projects in low-income countries. As this is not currently part of the Secretariat's or CDM-EB's work program it would have to be introduced by way of CMP Guidance or put on the table by a CDM-EB member. Section 2.2.1 provides an example of how such a differentiation may work, leaning on a similar approach already adopted in the EU ETS.

- **OP1: Standardization and digitization of forms for monitoring**

As discussed in section 2.4.1., there are various possibilities for standardizing and digitizing aspects of the MRV framework. Currently the Secretariat is already pursuing the digitization of three CDM methodologies. Digitization is clearly a priority, as it was a top-ranking option from all stakeholder responses. Nevertheless, the cost savings or risk reducing benefits are not the same for all aspects of digitization. Priority should be given to those options that present the greatest opportunity to reduce annual MRV costs. These include digitized results templates and Monitoring Reports. Other options – such as digitizing the PDD and providing survey questionnaire templates – are still relevant, but have less savings potential in terms of cost and time, which led to lower stakeholder endorsement during the interviews. Therefore, the following options could be prioritized:

- Development of a digitized results reporting framework for the raw data collected during monitoring that could include automatic calculation of all monitored parameters and linking to the Monitoring Report (if this is also digitized).
- Development of a digitized Monitoring Report that maximizes auto-completion.
- Digitization of verification, which allows the DOE to comment directly in the Monitoring Report.
- Digitizing the sampling guidance which project developers find difficult to comprehend and apply.

- **OP2: Innovative data collection and management tools**

The development and use of innovative data collection tools is an emerging approach that currently is employed only in more advanced organizations with the means to adopt these technologies. However, there are benefits to standardizing approaches to bring the costs of development down for every individual organization. Priority should be given to making innovative data collection tools more accessible through the following approaches:

- Providing capacity building or financial support to allow more project developers to access and make use of the innovative data collection technologies that already exist. This could include assisting with the payment of technology license fees, upgrading existing systems to the needs of specific projects and covering training costs for the teams that will use the new systems.

- Supporting further research and development of data collection tools. This could include further improvement of existing tools or developing new systems altogether.

- **PoA1 to PoA3: Streamlining MRV procedures for PoAs**

Although not prioritized by the stakeholders interviewed in the survey, it is worthwhile to look into more details into the options that may facilitate the implementation of PoAs. Low-income countries have a far greater share in the number of PoAs registered globally than in stand-alone CDM projects as the category is of particular relevance to small and micro-scale energy access technologies. In the short term, the first priority should be to allow for an unlimited number of batches requesting issuance during a monitoring period<sup>46</sup> or to enable issuance requests directly at CPA level (PoA1). This could be considered under the mandate of the CDM-EB or be promoted through CMP guidance.

The issue can also be promoted in the ongoing review of the modalities and procedures of the CDM through the creation of a separate category for PoAs that would allow PoAs to evolve independently from the project cycle of single CDM projects. The original restriction that all CPAs had to request issuance at the same time appears to have arisen as a result of applying the project cycle logic of single CDM projects indiscriminately to PoAs.

Another important simplification of the PoA project cycle has recently been to enable automatic registration of projects that qualify as automatically additional (using a standardized project design document -check list); and then allow for an ex-post (simultaneous) verification and certification of a CDM project activity with an assessment by the DOE of a project's compliance with the requirements of the registered standardized project design document (check list) and of the monitored emission reductions. While this simplification already represents approved guidance from the CMP it is currently still pending implementation by the CDM-EB.

In the long-term, the methodologies and procedures for monitoring, verification and issuance should be further adapted to cater to the specific needs of PoAs, particularly for household-scale devices and installations. The use of and potential for sophisticated technological solutions should be taken into consideration when further developing the procedures. Specifically the use of remote data collection and management could give rise to new monitoring methodologies and means of verification. Similarly, the potential held by sectoral monitoring approaches should be further explored.

This potential should be demonstrated by way of pilot projects under the existing framework. By applying such systems and requesting the verifying DOE to focus on remote testing it should be possible to implement some activities, which will successfully demonstrate the opportunities.

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<sup>46</sup> Currently there are technical restrictions preventing the CDM registry from handling unlimited batches but the UNFCCC secretariat is already working on an update of the software and seeking to remove the restrictions already in 2015.



## 5. Annexes

### 5.1. ANNEX 1: METHODOLOGIES SELECTED FOR ANALYSIS

**Table 7: Methodologies selected for analysis** <sup>47</sup>

Sectors and respective methodologies	Number of projects applying methodology <sup>48</sup>	Number of PoAs applying methodology	Relevance for Energy Access
<b>Renewables</b>			
AMS-I.J. "Solar water heating systems (SWH) --- Version 1.0"	0	8	Yes
AMS-I.A. "Electricity generation by the user --- Version 16.0"	50	6	Yes
ACM0002 "Grid-connected electricity generation from renewable sources --- Version 16.0"	3918	56	Yes
AMS-I.D. "Grid connected renewable electricity generation --- Version 18.0"	2942	82	Yes
AMS-I.C. "Thermal energy production with or without electricity --- Version 20.0"	625	43	Yes
AMS-I.F. "Renewable electricity generation for captive use and mini-grid --- Version 3.0"	77	22	Yes
<b>Energy distribution</b>			
AMS-I.L. "Electrification of rural communities using renewable energy --- Version 3.0"	0	5	Yes
AMS-II.A. "Supply side energy efficiency improvements - transmission and distribution --- Version 10.0"	4	3	Yes
AMS-III.AW. "Electrification of rural communities by grid extension --- Version 1.0"	1	0	Yes
AMS-III.BB. "Electrification of communities through grid extension or construction of new mini-grids --- Version 2.0"	0	1	Yes
<b>Methane avoidance (solid)</b>			
ACM0022 "Alternative waste treatment processes --- Version 2.0"	137 <sup>49</sup>	Error! Bookmark not defined.	No
AMS-III.D. "Methane recovery in animal manure management systems --- Version 19.0"	294	21	Yes

<sup>47</sup> UNEP DTU CDM/JI Pipeline Analysis and Database, last visited: 6 July 2015

<sup>48</sup> Including all registered projects and projects under validation.

<sup>49</sup> Including the projects that applied AM0025 (replaced by ACM0022).

AMS-III.R. "Methane recovery in agricultural activities at household/ small farm level --- Version 3.0"	18	12	Yes
AMS-III.F. "Avoidance of methane emissions through composting --- Version 11.0"	103	13	No
<b>Methane avoidance (liquid)</b>			
AMS-III.H. "Methane recovery in wastewater treatment --- Version 17.0"	354	18	Yes
<b>Landfill</b>			
ACM0001 "Flaring or use of landfill gas --- Version 15.0"	299	11	No
<b>Biomass power and energy efficiency</b>			
ACM0006 "Consolidated methodology for electricity and heat generation from biomass --- Version 12.1.0"	353	2	No
AMS-I.E. "Switch from non-renewable biomass for thermal applications by the user --- Version 6.0"	28	21	Yes
AMS-II.G. "Energy efficiency measures in thermal applications of non-renewable biomass --- Version 6.0"	45	58	Yes
<b>Energy efficiency (household)</b>			
AMS-I.I. "Biogas/biomass thermal applications for households/small users --- Version 4.0"	0	7	Yes
AMS-II.J. "Demand-side activities for efficient lighting technologies --- Version 6.0"	52	25	Yes
AMS-II.C. "Demand-side energy efficiency activities for specific technologies --- Version 14.0"	34	25	Yes
AMS-III.AR.: "Substituting fossil fuel based lighting with LED/CFL lighting systems --- version 5.0"	4	15	Yes
AMS-I.K. "Solar cookers for households --- Version 1.0"	0	0	Yes
Energy efficiency (own generation)			
ACM0012 "Waste energy recovery --- Version 5.0"	397	1	No
ACM0004 Consolidated methodology for waste gas and/or heat for power generation --- Version 2.0 (now replaced by ACM0012 "Waste energy recovery --- Version 5.0")	168	0	No

<b>Energy efficiency (industry)</b>			
AMS-II.D. "Energy efficiency and fuel switching measures for industrial facilities --- Version 13.0"	197	10	No
<b>Energy efficiency (service)</b>			
AMS-III.AV. "Low greenhouse gas emitting safe drinking water production systems --- version 5.0"	1	12	Yes
AMS-II.J. "Demand-side activities for efficient lighting technologies (deemed savings) --- Version 6.0"	52	25	Yes
AMS-II.E. "Energy efficiency and fuel switching measures for buildings --- Version 10.0"	44	5	Yes
AMS-II.C. "Demand-side energy efficiency activities for specific technologies --- Version 14.0"	34	25	Yes
AMS-II.L. "Demand-side activities for efficient outdoor and street lighting technologies --- Version 2.0"	2	1	Yes
<b>Tools / guidelines</b>			
"Tool to calculate the emission factor of an electricity system --- Version 4.0"	-	-	Yes
"Guidelines for Sampling and surveys for CDM project activities and programmes of activities - Version 3.0"	-	-	Yes
<b>Total</b>	<b>10372</b>	<b>543</b>	

## 5.2. ANNEX 2: QUESTIONNAIRE

Compliance with the monitoring and verification requirements of the Clean Development Mechanism (CDM) remains one of the foremost challenges for CDM project implementers and a key source for error and ultimately loss of issued credits. Monitoring of CDM projects also incurs significant costs. This is particularly the case for small and microscale technologies that are distributed at household level and are registered under the umbrella of a Programme of Activity (PoA). PoAs often require the gathering of data from hundreds or even thousands of data points. Particularly in least developed countries, CDM project implementers often lack the data and capacity on the ground to meet the stringent requirements. While the CDM Executive Board has significantly simplified the rules pertaining to the registration of such projects through, inter alia, standardized baselines and automatic additionality for microscale projects, monitoring concepts have not radically improved. This continues to hamper issuance of Certified Emission Reductions (CERs) to PoAs registered in the poorest regions of the world. Cumbersome procedures and operations ultimately act as a deterrent for adopting the CDM as a tool in other contexts, for example in result-based climate finance. Against this background, we have analyzed opportunities for simplifying and streamlining monitoring and verification procedures while safeguarding environmental integrity. We would like to share the detected options with you and get your feedback if these options are relevant for you and / or if other options can be added. The result of this survey will flow into a broader study which seeks to inform stakeholders and decision-makers in the UNFCCC process. While interview partners will be acknowledged in the study, answers provided to the questionnaire will not be published and remain anonymous.

The following options have been identified:

### A. Options for simplification in methodologies:

- 1) Relate accuracy of monitoring to project size and/or geography. Examples: The EU ETS provides a tier concept for monitoring which takes into consideration project size in defining accuracy levels and sampling sizes. This means that the capability of project developers to comply with the monitoring requirements and costs compared to project size is considered. In CDM there is limited differentiation of MRV requirements for small and large scale projects but benefits and costs are not systematically put into relation.
- 2) Decision tree for dealing with data gaps. Example: German EU ETS guidance defines procedures how to calculate parameters when data is missing, providing conservative markup factors depending on supplementary data available (on the agenda of CDM-EB 85).
- 3) Relaxing calibration requirements. CDM requires a calibration cycle according to manufacturer's specification and at least every 3 years. Requirements of the EU ETS Monitoring and Reporting Guidelines (MRG) are based on more lenient national legislation. JCM allows use of manufacturer's specification only or calibration cycles based on ISO guidelines (5 years).
- 4) Reduced monitoring of renewable biomass. ACM0006 and other biomass methodologies require complete weighing of the amount of biomass that is used for electricity generation. The EU ETS considers renewable biomass as carbon neutral and hence only requires reporting but no verification of the amount of biomass combusted.

## **B. Procedural streamlining:**

- 1) Site visit exemptions. Example: EU ETS waives site visits for small scale projects under defined conditions.
- 2) Verification by local experts. Examples: JI Track 1 framework allows host countries to define their own requirements and have verification carried out by local experts or government agencies instead of expensive international firms (considered and rejected by CDM-EB due to impartiality risk). The JCM accepts CDM DOEs as well as entities accredited under ISO 14065. Under the Gold Standard, microscale projects (<10,000 tCO<sub>2</sub>e) can undergo internal verification by the Gold Standard organization and projects in conflict areas may use local Objective Observers.
- 3) Shorter timelines for completeness check, information and reporting check. The total time for the review from the UNFCCC may be reduced from currently about 3 months (Scheduling, CC, IRC and Review steps) to e.g. 1 month (on the agenda for CDM-EB 86). As individual steps are already tightly budgeted this would mean to either merge or skip steps.
- 4) All post registration changes can be approved by the DOE. Instead of UNFCCC approval, the DOE may approve changes (not only minor ones as currently the case). Only during the review period the PRC will be checked ex post by the UNFCCC.

## **C. Operational simplifications: Standardization and digitization of forms:**

- 1) Fully digitized MRV (web based interface for DOEs and project developers as in the German EU ETS where both can fill in information in standardized templates and electronically sign).
- 2) Monitoring based on preapproved Excel spreadsheets as in the EU ETS and the JCM.
- 3) Digitized PDDs to avoid irrelevant information, which otherwise would have to be verified (ongoing work of Secretariat for 3 methodologies).
- 4) Standardized survey templates to guide project developers which questions to ask for establishing parameters. Example: the Gold Standard “Simplified Methodology for Efficient Cookstoves” provides standardized survey templates for establishing leakage.
- 5) Use of advanced technology to support data collection and management including direct metering in off-grid technologies (flow meters, pay-as-you-use systems), smart phone apps, SMS surveys and cloud based technology.

## **D. PoA specific simplifications:**

- 1) Fast issuance to CPAs in batch verifications: allow for those CPAs who have passed a successful verification process in a batch verification process to request for issuance instead of waiting for the whole batch of CPAs to be final with their verification process (CDM-EB 81 allowed batch issuance for 10 issuances).
- 2) Registry accounts for CPA Implementers: allow for issuance of CERs directly to single CPA implementers instead of the CME.

- 3) Sectoral monitoring approaches: allow PoAs to monitor simple parameters commonly used in energy access, such as percentage of rural connections to the grid or number of off-grid devices installed.
- 4) Lower issuance fee. Instead of a fixed fee, the issuance fee could reflect the CER price and be indexed at a certain percentage of the average CER price during the last calendar year or any other time period. The fee could be capped in case the price is sky rocketing again. This option needs not be limited to PoA which is probably the most vulnerable project type.
- 5) Simplified sampling approach. Many stakeholders asked for a simpler and less sophisticated sampling method that can easily be implemented especially in LDC.

Finally, a copy of the questionnaire submitted to our panel of interviewees can be found below:

- 1. Company Name**
- 2. Name**
- 3. Position**
- 4. eMail**
- 5. Phone**
- 6. Date of interview**
- 7. Place**
- 8. Name of interviewer**

Part I: Questions about the interviewee

**9. What is your function in the CDM project cycle**

(Mark only one oval)

- ☐ DOE
- ☐ Project Developer
- ☐ DNA
- ☐ Authority (other than DNA)
- ☐ Consultant
- ☐ Standard organization
- ☐ Other:



**10. Since when are you active in CDM?**

Mark only one oval

- ☐ Since 2012
- ☐ Since 2005
- ☐ Before 2005

**11. How many CDM projects did you care for?**

(In your specific function)

Mark only one oval

- ☐ < 10
- ☐ < 100
- ☐ > 100

**12. Besides CDM what kind of Standards are you familiar with? \***

Check all that apply

- ☐ Gold Standard
- ☐ Verified Carbon Standard
- ☐ European Emission Trading
- ☐ None
- ☐ Other:

**Part II: Improvements of the MRV and Issuance Rules**

In the following part we would like to get your opinion regarding the identified options.

**13. Please rank your 5 favorite simplification and streamlining options below:**

Focus on the 5 most important for you and let the others open.

Mark only one oval per row.

	1 highest Priority	2 second Highest	3	4	5 lower Priority
A1) Relate accuracy of Monitoring to project size	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A2) Decision tree for dealing with data gaps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A3) Relaxing calibration requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A4) Reduced monitoring of renewable biomass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B1) Site visit exemptions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B2) Verification by local experts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B3) Shorter timelines for UNFCCC review	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B4) PRC can be approved by DOE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C1) Fully digitized MRV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C2) Monitoring with preapproved Excel sheets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C3) Digitized PDDs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C4) Standardized survey templates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C5) Innovative data collection tools (SMS etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D1) Unlimited batch verifications for PoA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D2) Registry accounts for CPA Implementers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D3) Sectoral monitoring approaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D4) Lower issuance fee	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D5) Simplified sampling approach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**14. Do you have any comments regarding the above options?**

Please use reference like A1, B3 ... to link the comment to the option.

**15. Please explain for your highest priority option what kind of barriers you have experienced.**

**16. Your highest priority option would save which percentage in costs?**

(from overall costs for one verification cycle)

**17. What benefits do you expect for your 3 main options in terms of overcoming barriers?**

Start with the number of the chosen option and continue with the benefits for each option separately!

**18. What benefits do you expect for your 3 main options in terms of man day savings?**

Start with the number of the chosen option and continue with the man days (real paid business days) for each option separately!

**19. What benefits do you expect for your 3 main options in terms of shortening the process time line?**

Start with the number of the chosen option and continue with the percentage or number of days the timeline may be reduced for each option separately!

**20. Besides the options identified can you think of other options for streamlining and simplification of the CDM MRV process?**

**21. Besides the options identified what kind of improvement you further suggest to reduce transaction costs?**

### **Part III: Costs of CDM and Cost Savings**

In the following and last part of the survey we want to find out what are the costs to develop a CDM project, respectively what would be the potential cost savings.

**22. Which steps in the MRV and issuance process are the most costly?**

Mark only one oval.

- ☐ Measurement and analysis
- ☐ Sampling
- ☐ Reporting
- ☐ Verification
- ☐ Post Registration Changes and Updates
- ☐ Transaction costs for issuance (issuance fee, broker, registry, etc.)
- ☐ Other:

**23. Please estimate the percentage of this step:**

**24. How many man days are considered to conduct a standard verification for a DOE (renewable energy project large scale)?**

(Only real working time not waiting time)

**25. How many man days are considered to conduct a standard verification for a DOE (renewable energy project small scale)?**

(Only real working time not waiting time)

**26. How many man days are considered to conduct a standard verification for a DOE (renewable energy PoA per CPA)?**

(Only real working time not waiting time)

**27. How many man days are considered to verify post registration changes for a DOE?**

**28. How many man days are considered for the developer to monitor a renewable energy project large scale per year?**

(Only real working time not waiting time)

**29. How many man days are considered for the developer to write a monitoring report for a renewable energy project large scale?**

**30. How many man days are considered for the developer to request post registration changes?**

(Only real working time not waiting time)

**31. How many man days are considered to forward the issued credits from the CDM registry into the national account of a buyer?**

(only real working time not waiting time)

### 5.3. ANNEX 3: OUTCOME OF UNFCCC CALL FOR INPUTS

Recent proposals from stakeholders to the UNFCCC regarding simplification and streamlining have been systematically checked and are summarized in the following sub-chapters. This input has been submitted by the Project Developer Forum, the World Bank, The African DNA Forum, the PoA Working Group and several individual stakeholders. Parts of the input is well-known since many years, other suggestions are innovative and new.

The most relevant proposals are summarized in Table 8.

**Table 8: MRV simplification options detected from Call for Input of UNFCCC** <sup>50</sup>

Project stage	Simplification option
Validation & registration	<b>Ability to use one single generic CPA per methodology in a PoA:</b> project participants are allowed to merge, group and/or simplify CPAs, resulting in one single generic CPA containing all possible methodological options, as long as it refers to the same methodology. In the case of the methodology ACM0002 (version 16.0), the referred methodology already clearly describes the applicability conditions, baseline scenarios, formulas and equations to be used for determining baseline emissions, project emissions, leakages and emission reductions for each specific case, as well as defining those parameters that need to be fixed ex-ante at validation and monitored ex-post during the verification, among other particularities. Therefore, it is reasonable to revise, simplify and waive such restrictions originated by the current applicable rules for generic CPAs. Hence, in order to reduce costs and enhance on efficiency for PoAs, the possibility to use one single generic CPA per methodology should be established.
	<b>Simplification of procedures for projects using standardized baselines:</b> the project cycle procedures for small-scale CDM project activities using standardized baselines could be simplified to enable automatic registration of projects that qualify as automatically additional and use of a standardized project design document (check list). Compliance would be assessed during a combined (simultaneous) verification, where compliance with the requirements of the registered standardized project design document (check list) and of the monitored emission reductions would be assessed.
	<b>Simplification of the project cycle procedures for micro-scale PoA</b> allow verification of a registered PoA to combine (simultaneous) ex post assessment of a CPA's compliance with the eligibility requirements of the registered PoA and of the monitored emission reductions. This means that the inclusion review step would be skipped.
	<b>CPA inclusion on the basis of a pre-approved standardized inclusion template</b> of CDM component project activity (CPAs) directly by the coordinating and managing entity (CME) without prior validation through a doe.
	Allow for <b>unlimited monitoring and issuances</b> for CPAs within a monitoring period (CDM-EB 80 has allowed for up to 10 issuances)
Verification & issuance	<b>Replacing field surveys by other methods in PoAs:</b> field surveys at monitoring stage should be left optional (or only partially required) in case of far distant appliances/users and/or unsafe areas, where phone/SMS monitoring procedures could replace the field visit.

<sup>50</sup> Call for input on simplification and streamlining of the CDM (26 February to 28 March 2015), available from [http://cdm.unfccc.int/public\\_inputs/2015/cfi\\_simp/index.html](http://cdm.unfccc.int/public_inputs/2015/cfi_simp/index.html); COMMISSION REGULATION (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council 1; MRR Article 15(3) / The Monitoring and Reporting Regulation – General guidance for installations MRR Guidance document No. 1, Version of 16 July 2012.ç

Verification & issuance	<p><b>PoA verification</b> - Exemptions for on-site visits: on-site visits exemptions at validation stage and at recurrent verification stages should be clarified and simplified depending on status of a project, safety issues and means of remote validation / verification of critical parameters.</p>
	<p><b>Reduced post-registration approval necessity:</b> minor changes that do not affect baseline emissions, project emissions and/or emission reductions up to 3% should be neglected (i.e. If the installed capacity verified in a power generation unit of a power plant is not higher or lower than 3%, this should not result in a request for changes in the PDD). This issue should be simply identified and reported in the verification report without requesting an approval by the CDM-EB.</p>
	<p><b>Simpler approval of deviations:</b> DOEs should be able, during verification, to approve changes to the monitoring plan that do not have any impact on the validation decision (i.e. do not impact the baseline, the additionality determination, etc.), considering that the practical implementation of monitoring requirements may not be fully anticipated by project proponents at the time of registration.</p>
	<p><b>Allow the use of the latest methodology version during verification:</b> any simplifications or changes introduced in advanced versions of the methodology should be allowed to be used by the projects that used earlier versions without any need for prior approval of the CDM-EB as long as these changes are validated by the doe and submitted as part of the issuance request.</p>
	<p><b>Increased transparency during issuance for PoAs:</b> more transparency in the PoA registration and verification process would allow for a better planning and information of investors. Scheduling should be shown on the UNFCCC webpage.</p>
	<p><b>Reduce timelines of the request for review period and scheduling time lines.</b></p>
	<p>Reduced and differentiated registration and issuance fees: registration and issuance fees for all kind of projects in LDCs should be waived. For all other countries registration and issuance fees (administration share of proceeds) should be reduced, at least for a transitional period until 2020 as follows:</p> <ul style="list-style-type: none"> <li>• For small scale projects a general fee of US\$ 0.05 (five US\$ cents) should apply.</li> <li>• For large scale projects a general fee of US\$ 0.10 (ten US\$ cents) should apply.</li> <li>• The registration fee should be capped at US\$ 30,000.</li> <li>• The issuance fee should be a unique fee, regardless of the volume being above or below 15,000 CERs.</li> </ul> <p>The issuance fee should not be applicable or required to be paid for the %2 of the CERs for the adaptation fund of the UNFCCC.</p>
	<p><b>No issuance fees for CERs used by non-Annex I countries:</b> no issuance fees should be sought for issuance of CERs where project participants indicate that CERs will be used to facilitate mitigation in non-Annex I countries (administration share of proceeds). This can promote the use of the CDM to facilitate domestic mitigation, as well as South-South cooperation. Therefore, only CERs to be used for compliance by UNFCCC Annex I countries shall be subject to the administration share of proceeds fee. The effective destination of CERs can be controlled by the UNFCCC based on the procedures of forwarding CERs from the pending account of the CDM registry to a holding account in the respective national registry. In response to this incentive it is expected that non-Annex I countries that are interested to use the CDM as domestic flexibility mechanism will put the adequate registry infrastructure in place. The proposed measures will allow project participants to continue the use of the CDM to support and document their early actions based on the CDM's unique capability to ensure proper MRV. Moreover non-Annex I countries will be attracted to use the CDM as a domestic flexibility tool, thus ensuring global comparability of their mitigation results. Moreover, the increased usage of the CDM will lead to increased revenues and financial sustainability of the CDM-EB and its infrastructure, despite lower fees.</p>
	<p>Allow for the option <b>to issue CERs directly to CPA implementers</b> instead of the CME.</p>
	<p>Allow for the retroactive crediting of CERs generated from the project start date until the project achieves registration (similar to the Gold Standard approach).</p>
	<p>For multi-country PoAs, a request for review of a request for issuance raised by a host party shall only affect CPAs in the party's own territory.</p>



Verification & issuance	<p><b>Timelines for post-registration design changes and deviations:</b> All clarification, revision and deviation requests to the CDM board, secretariat or panels should be subject to a maximum response period of 60 calendar days. In case of additional information or clarification required by the CDM-EB or the Secretariat, according requests shall be issued within maximum 30 calendar days after the date of the original request submitted by the project participant. Once such a request was received by the project participant, he shall deliver the additional information or clarification within 15 calendar days (up to day 45 of the process), which allocates 15 days (up to the 60th day) to the CDM-EB, the Secretariat or panels to prepare and submit a final response.</p>
	<p><b>Eliminating the Completeness Check and Information</b> and Reporting Check phases or replacing them by a single “pre-assessment” phase, but which shall be incorporated in the already existing “request for issuance” period. Therefore, the whole request for issuance process, including the suggested “pre-assessment” phase, should not take more than 28 days after its commencement.</p>
	<p>DOEs should be able, during verification, to approve changes to the monitoring plan that do not have any impact on the validation decision (i.e. do not impact the baseline, the additionality determination, etc.), considering that the practical implementation of monitoring requirements may not be fully anticipated by project proponents at the time of registration.</p>
	<p>Review stages at the Secretariat (CC, IRC and summary note, taking today around 8 weeks) should <b>be condensed into a single process</b> to be performed in a much shorter period than today, e.g. a period of no more than 4 weeks. Projects assessed to be incomplete shall not have to resubmit and start the process from the beginning, if the response is delivered in a short period, for example, one week.</p>
	<p><b>Further application of materiality principles in the CDM, including validation and post-registration changes.</b></p>

## 5.4. ANNEX 4: SIMPLIFIED MRV APPROACHES WITHIN OTHER STANDARDS

A review of the novel monitoring, reporting and verification approaches from other carbon standards can help to identify options for simplification under the CDM. Here we provide an overview of options identified from other carbon standards including the Chinese Emission Trading Scheme (ETS) Scheme, California Cap-and-Trade Program, Japanese Crediting Mechanism, The Gold Standard, Verified Carbon Standard, Fair Carbon Standard, EU ETS and the Kazakh ETS.

### 5.4.1. Chinese Emission Trading Scheme

The offset scheme (See Table 9) is regulated by the provincial National Development and Reform Commissions (NDRC), who registers the projects and issues credits, so-called Chinese Certified Emission Reductions (CCER).

Due to the fact that the Chinese scheme is based on the CDM the differences between the two schemes are minimal. The major simplification can be derived from the smooth approval of post registration changes. No prior approval is needed but the changes will be assessed and addressed during the following verification. This creates significant time savings in the verification and monitoring process.

**Table 9: Chinese ETS and offset scheme MRV simplification options**

Project stage	Simplification option
Verification & issuance	<b>Post registration changes:</b> all post registration changes, such as deviation from monitoring plan, corrections, permanent change to the monitoring plan, project design change, etc. Can be validated during verification stage and submitted together with the issuance request. No prior approval is needed <sup>51</sup> .
	<b>Ex-post corrections possible, regulations on liability:</b> for any loss due to under issuance or over issuance of CERs caused by the DOE, compensation will be made through negotiation or arbitration <sup>52</sup> .

### 5.4.2. California Cap-and-Trade Programme

The Californian Cap-and-Trade scheme is unique in that it seeks offsets from credits generated from projects located only in the United States, United States Territories, Canada or Mexico. Whilst the terminology adopted throughout the scheme is quite different to that of the CDM, the basic procedures do not offer many simplification options.

The main interesting options (summarized in Table 10) include:

- No need to hire a third-party to validate a project prior to registration;
- Reduced frequency of conducting verifications for certain project types;
- Issuance of credits following ‘less intensive verifications’, which do not require a site visit.

**Table 10: Californian cap-and-trade MRV simplification options**

Project stage	Simplification option
Validation & registration	<b>No third party registration:</b> for ‘registration’ (termed ‘listing’) of a project with the Californian scheme, the need to hire an accredited third party is waived. Instead, either the California air resources board or the offset project registry reviews the project information for completeness.
Verification & issuance	<b>Frequency of conducting verifications</b> for some projects are reduced: <ul style="list-style-type: none"> <li>• For projects generating &lt;25,000 tCO<sub>2</sub>e, verification can take place only once every two years. If a project shows only a total of 20,000 tCO<sub>2</sub>e reductions, the project developer may wait for another year to perform verification. Valid even if the second year achieves &gt;25,000 tCO<sub>2</sub>e reductions.</li> <li>• For sequestration projects, verification may be conducted only once every 6 years.</li> <li>• For reforestation projects, the second verification may be deferred for up to 12 years. Thereafter, verification may be conducted at least once every 6 years.</li> </ul>
	<b>“Less intensive verifications”</b> are permitted for forest projects, which only require data checks and document reviews based on sampling. A site visit is not required. Credits may be issued in the interim years between full verification services. If more credits are issued in the interim years than should have been, they will be deducted from the total issued in the year of the full verification. If less than should have been, more credits will be issued in the year of the true up.

<sup>51</sup> Page 28-30 of CHINA VVS, <http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2984.pdf>

<sup>52</sup> Page 6 of CHINA VVS

<sup>53</sup> California Air Resources Board, Article 5: California cap on greenhouse gas emissions and market-based compliance mechanisms to allow for the use of compliance instruments issues by linked jurisdictions, Article 95975, paragraphs (f) and (g)

<sup>54</sup> California Air Resources Board (2012) Chapter 6: What are the requirements for offset credits and how are they issued?, Table 6.2, p. 22, p. 37; and Regulation 95977 paragraph (b)

<sup>55</sup> California Air Resources Board (2012) Chapter 6: What are the requirements for offset credits and how are they issued?, Table 6.2, p. 22; and Regulation Article 95977, paragraph (c)

<sup>56</sup> California Air Resources Board (2012) Chapter 6: What are the requirements for offset credits and how are they issued?, Table 6.2, p. 22; and Regulation Article 95977, paragraph (c)

<sup>57</sup> California Air Resources Board (2012) Chapter 6: What are the requirements for offset credits and how are they issued? Page 38

### 5.4.3. Japanese Crediting Mechanism

The Japanese Crediting Mechanism has, to date, only four registered projects. The Japanese government has developed this standard as an alternative to the CDM, which is seen as too cumbersome and bureaucratic in the view of the Japanese authorities. This makes the Japanese scheme particularly interesting for analysis. The main simplifications relating to MRV that can be derived from the Japanese Crediting Mechanism are the following (see also Table 11):

- Verification and validation can be done at the same time.
- The time for completeness checks etc. is significantly shorter.
- Monitoring parameters are bilaterally agreed based on a spreadsheet.
- Use of project specific methodologies.

**Table 11: Japanese Crediting Mechanism simplification options**

Project stage	Simplification option
Validation & registration	<b>Simultaneous validation &amp; verification<sup>58</sup>:</b> validation and verification can be conducted either simultaneously or separately.
	<b>No demonstration of additionality<sup>59</sup>:</b> there is no such requirement for demonstration of additionality.
	Simple procedure for registration but timeline is not fixed <b>Step1:</b> Completeness Check conducted within 7 calendar days upon receiving the request for registration; <b>Step2:</b> review of submission of request for registration, no fixed timeline.
	<b>Grace period for resubmission due to small mistakes<sup>60</sup>:</b> for small mistakes during Completeness Check, the project participant has 7 days' grace period for resubmission instead of getting result of incompleteness.
	Monitoring parameters are bilaterally agreed based on a spreadsheet, and use of project specific methodologies.
Verification & issuance	Validation and verification of the project may be conducted by the same third party <sup>61</sup> .

<sup>58</sup> Reference: JCM PCP [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_03/JCM\\_ID\\_PCP\\_ver02.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_03/JCM_ID_PCP_ver02.0.pdf)

<sup>59</sup> Reference JCM Guidelines for VV [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_06/JCM\\_ID\\_GL\\_VV\\_ver01.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_06/JCM_ID_GL_VV_ver01.0.pdf)

<sup>60</sup> Reference JCM PCP [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_03/JCM\\_ID\\_PCP\\_ver02.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_03/JCM_ID_PCP_ver02.0.pdf)

<sup>61</sup> Reference JCM Guidelines for VV [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_06/JCM\\_ID\\_GL\\_VV\\_ver01.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_06/JCM_ID_GL_VV_ver01.0.pdf)

#### 5.4.4. The Gold Standard

The voluntary Gold Standard is typically more cumbersome than the CDM due to the need to monitor sustainable development criteria in addition to carbon data, and to demonstratively involve stakeholders throughout project development and implementation. However, despite having a typically long timeline from project inception through to registration and issuance, the standard does offer a number of simplification options when compared to the CDM. Most notably (and summarized in Table 12):

- Internal validation for micro-scale projects to reduce transaction costs (i.e. the Gold Standard validates a project, rather than hiring an accredited third party to do so)
- DOE site visit exemptions during validation/verification for projects located in conflict zones
- Ex-post validation of the monitoring plan, which allows validation of the monitoring plan to take place at the first verification.

**Table 12: Gold Standard MRV simplification options**

Project stage	Simplification option
Project Development	<b>Contribution to sustainable development:</b> The GS provides guidelines and a template for monitoring the contribution of activities to sustainable development in the host country.
Validation & registration	<b>GS internal validation<sup>62</sup>:</b> micro-scale programmes/projects (i.e. <10,000 tCO <sub>2</sub> e reductions per year) are eligible for internal validation, in which the PP contracts the GS to validate the project, rather than a DOE. Costs involved are ranging between \$5,000 and \$22,500 depending on the scale of the project/programme. It is intended to reduce transaction costs for micro-scale projects.
	<b>Time constraint on responses:</b> requests for clarification or corrective action requests that have not been addressed within one year will result in the project being deleted from the GS registry.
	<b>Simultaneous validation &amp; verification:</b> for retroactive projects (i.e. Those that have already started implementation) the GS allows for a single DOE to both validate and verify a project activity in one site visit. However, two separate validation/verification protocols need to be produced, and issuance can only be requested once the project is registered.
Validation & registration	<b>Survey questions for certain technologies:</b> the GS provide additional guidelines for how to establish monitored parameters, including questions to ask e.g. for household water treatment technologies <sup>63</sup> , or the simplified methodology for efficient cookstoves <sup>64</sup> (a monitoring questionnaire is included in the annex).
	<b>Standard sample size<sup>65</sup>:</b> methodologies present a very straightforward approach to calculating sample size, as follows: <ul style="list-style-type: none"> <li>• Population size &lt;300 = minimum 30 samples, or population size (whichever is smaller)</li> <li>• Population size 300 to 1,000 = minimum sample of 10% of group size</li> <li>• Population size &gt; 1,000 = minimum 100 samples</li> </ul>
	<b>Telephone surveys:</b> the GS allows the establishment of some parameters via telephone surveys, rather than physically travelling to each user. For examples, the technologies and practices to displace decentralized thermal energy consumption methodology allows for the establishment of the usage rate of a technology. The majority of interviews in a usage survey must be conducted in person and include observation of the technology in question, whilst the remainder may be conducted via telephone by the same interviewers on the condition that the in-person interviews are first concluded and the typical circumstances well understood by the telephone interviewers. <sup>66</sup>

<sup>62</sup> Reference: JCM PCP [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_03/JCM\\_ID\\_PCP\\_ver02.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_03/JCM_ID_PCP_ver02.0.pdf)

<sup>63</sup> Reference JCM Guidelines for VV [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_06/JCM\\_ID\\_GL\\_VV\\_ver01.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_06/JCM_ID_GL_VV_ver01.0.pdf)

<sup>64</sup> Reference JCM PCP [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_03/JCM\\_ID\\_PCP\\_ver02.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_03/JCM_ID_PCP_ver02.0.pdf)

<sup>65</sup> Reference JCM Guidelines for VV [https://www.jcm.go.jp/rules\\_and\\_guidelines/id/file\\_06/JCM\\_ID\\_GL\\_VV\\_ver01.0.pdf](https://www.jcm.go.jp/rules_and_guidelines/id/file_06/JCM_ID_GL_VV_ver01.0.pdf)

**Table 12: Gold Standard MRV simplification options**

Project stage	Simplification option
Validation & registration	<b>GS internal verification:</b> micro-scale programmes/projects (i.e. <10,000 tCO <sub>2</sub> e reductions per year) are eligible for internal verification, in which the PP contracts the GS to verify the project, rather than a DOE. This involves costs ranging between \$1,500 and \$2,500 depending on the scale of the project/programme. It is intended to reduce transaction costs for micro-scale projects.
	<b>Verification DOE site visit exemption<sup>67</sup>:</b> small-scale projects registered under the GS version 2.2 can benefit from the flexibility of not conducting a site visit during each verification apart from the minimum required verifications (once in every three years). In order to avail this exemption from carrying out the site visit, appropriate justification for not carrying out site visit should be provided by the project developer, and a positive opinion on that justification is required from the doe. In these justifications, the DOE and PP should clarify that how various monitoring parameters would be verified in the absence of the DOE site visit. The final decision on allowing the exemption from site visit would rest with the GS. A DOE site visit is always required for verification of large-scale projects.
	<b>Site visit in conflict zones<sup>68</sup>:</b> the GS allows the hiring of an Objective Observer (OO) (typically a local with experience in the technology sector) to carry out the validation/verification site visit in conflict zones. The PP must demonstrate 3 DOEs have declined conducting a site visit. The OO is trained by the GS on how to conduct the site visit. Whilst it allows projects to be registered in dangerous
	<b>Ex-post validation of monitoring plan<sup>69</sup>:</b> allows validation of monitoring plan a) at registration, b) any time before first request for issuance or c) at the first request for issuance. The sustainable development (SD) monitoring plan in the GS passport is not included in this rule. This will save upfront costs during project development, but is not likely to result in significant savings in time overall since project participants would need to hire a DOE before organizing/planning monitoring, have them verify the monitoring plan and only then conduct the actual monitoring in order to reduce the risk that the monitoring would need to be repeated.
	<b>Retroactive credit issuance<sup>70</sup>:</b> the GS allows projects to receive carbon credits for emission reduction activities carried out up to two years prior to the date of registration. Helps projects to earn more credits for real activities.

#### 5.4.5. Verified Carbon Standard

The Verified Carbon Standard (VCS) provides the following primary simplification options (See **Table 13**):

- Allows projects to submit a request for both registration and issuance simultaneously, allowing the issuance of carbon credits to take place sooner, and for any monitoring issues to be addressed early on in the project cycle, rather than after the registration of a programme when modifying documentation is more administrative.
- Deviations from the Project Design Documents, where necessary, are permitted after registration.

<sup>66</sup> GS Version 2.2 Requirements paragraph VIII.e.3. Available at [http://www.goldstandard.org/wp-content/uploads/2014/12/GSv2.2\\_Requirements.pdf](http://www.goldstandard.org/wp-content/uploads/2014/12/GSv2.2_Requirements.pdf)

<sup>67</sup> GS Version 2.2 Requirements, paragraph VIII.g.9 Site visit. Available at [http://www.goldstandard.org/wp-content/uploads/2014/12/GSv2.2\\_Requirements.pdf](http://www.goldstandard.org/wp-content/uploads/2014/12/GSv2.2_Requirements.pdf). And 09 October 2014: Clarification on Gold Standard rules for DOE site visit requirements during verifications. Available at <http://www.goldstandard.org/energy/rules-requirements>

<sup>68</sup> Annex X – Rules of Validation and Verification in Conflict Zones. Available at [http://www.goldstandard.org/wp-content/uploads/2012/05/v2.2\\_ANNEX-X.pdf](http://www.goldstandard.org/wp-content/uploads/2012/05/v2.2_ANNEX-X.pdf)

<sup>69</sup> 22 January 2015: Rule update for ex-post validation of Monitoring Plan, The Gold Standard. Available at [http://www.goldstandard.org/wp-content/uploads/2011/09/Rule-Update\\_-Expost-Monitoring.pdf](http://www.goldstandard.org/wp-content/uploads/2011/09/Rule-Update_-Expost-Monitoring.pdf)

<sup>70</sup> GS Toolkit Version 2.2, Retroactive crediting, p. 21. Available at [http://www.goldstandard.org/wp-content/uploads/2014/12/GSv2.2\\_Toolkit.pdf](http://www.goldstandard.org/wp-content/uploads/2014/12/GSv2.2_Toolkit.pdf)

**Table 13: VCS MRV simplification options**

Project stage	Simplification option
Project Development	<b>No requirement for unique identification of individual units:</b> (e.g. serial numbers <sup>71</sup> : instead, at least one geodetic coordinate shall be provided together with sufficient additional geographic information (with respect to the location of the instances) to enable sampling by the DOE <sup>72</sup>
	<b>Project-specific additionality<sup>73</sup>:</b> methodologies use a standardized method to determine additionality. This uses a project-specific approach for the determination of additionality, presented within a respective methodology. These methods specify performance benchmark metrics for determining additionality. Projects that meet or exceed a pre-determined level of the metric may be deemed as additional. Individual projects need only meet the conditions and apply the pre-defined criteria set out in the standardized method, obviating the need for each project to determine additionality and/or the crediting baseline via project-specific approaches. Rather than each project undertaking project-specific barriers and common practice analysis, projects are compared against clearly specified conditions and parameters pre-defined in the methodology. <sup>74</sup>
Verification & issuance	<b>Simultaneous registration &amp; issuance:</b> projects may submit a request for both registration and issuance simultaneously. <sup>75</sup>
	<b>Same DOE may perform validation &amp; verification:</b> validation and the first verification of a project may be undertaken by the same DOE <sup>76</sup> . This can speed up the first issuance. However, subsequent verification shall be undertaken by a different DOE.
	<b>Deviations from project description</b> are permitted at verification. Where the deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, the deviation can be described and justified in the monitoring report. <sup>77</sup>

#### 5.4.6. Fair Carbon Standard

The Fair Carbon Standard (FCS) is the result of collaboration between the Gold Standard and the Fairtrade Standard. The standard has not yet been finalized, but two preliminary consultation document rounds on the design of the standard have been publically circulated. It appears that for the carbon aspects of the FCS, the existing Gold Standard procedures will be followed. Due to the combining of the Fairtrade and Gold Standard methodologies, the documentation offers little scope for simplification. Instead, monitoring and evaluation requirements appear to be more complicated.

The only possible MRV simplification option identified is indirect: the FCS is exploring options for setting a Fairtrade Minimum Price for carbon credits. This would involve setting a minimum carbon price for different project types to act as a “safety net” for projects. It is not the final price of the credit, but a minimum price. This relates to MRV indirectly since it will reduce the risk of providing up-front finance to cover monitoring costs before any finance from the sale of carbon credits has been received.

<sup>71</sup> VCS Standard Version 3, Section 3.4.6 *Eligibility Criteria*

<sup>72</sup> VCS Standard Version 3, Section 3.10.1

<sup>73</sup> VCS Standard Version 3, Section 4.1.9, 4.1.11 *Standardized Methods*; VCS Guidance for Standardized Methods, V 3.3

<sup>74</sup> VCS Validation and Verification Manual, Section 3.2.2.3 *Standardized Method*

<sup>75</sup> VCS Registration and Issuance Process: VCS Version 3.6, Section 4.2.4, 25 March 2015

<sup>76</sup> VCS Registration and Issuance Process: VCS Version 3.6, Sections 4.1.2, 4.3.3, 25 March 2015

<sup>77</sup> VCS Standard, Version 3, Section 3.6.



## 5.4.7. EU ETS

The EU ETS is probably the most mature trading scheme globally. Of course, a trading scheme cannot be used as a blueprint for an offset scheme like the CDM. Nevertheless, requirements and approaches for MRV may be transferred from a trading scheme to an offset scheme. The main simplifications (Table 14) that can be derived from this comparison are the following:

- Tier concept for monitoring allows different monitoring requirements depending on the project size.
- For changes/deviations in the monitoring prior approval is not required, with the changes instead assessed during the verification process.
- Ability to propose fall back methods defined by the project developer if the prescribed monitoring method would imply unreasonable costs.
- Detailed templates for the monitoring and verification are available. In Germany these templates are even digitized allowing for a simple and standardized verification approach.

**Table 14: European Emission Trading Scheme MRV simplification options**

Project stage	Simplification option
Validation & registration	<b>Prior approval is limited to certain changes<sup>78</sup>:</b> and is only needed if significant modifications to the monitoring plan of an installation is needed due to: (a) changes of the category of the installation; (b) changes regarding whether the installation is considered an installation with low emissions; (c) changes to emission sources; (d) a change from calculation-based to measurement-based methodologies, or vice versa, used to determine emissions; (e) a change in the tier level applied; (f) the introduction of new source streams; (g) a change in the categorization of source streams - between major, minor or de-minimise source streams; (h) a change of the default value for a calculation factor, where the value is to be laid down in the monitoring plan; (i) the introduction of new procedures related to sampling, analysis or calibration, where the changes of those procedures have a direct impact on the accuracy of emissions data; (j) the implementation or adaption of a quantification methodology for emissions from leakage at storage sites.
Verification & issuance	<b>A general monitoring standard can replace monitoring methodologies:</b> there are monitoring standards that are generally defined per activity instead of methodologies. It could be considered if a monitoring standard for CDM does make sense instead of methodology specific monitoring methodologies.
	<b>Tier concept allows for differentiated monitoring requirements:</b> allows different monitoring requirements depending on the project size. The capability of project developers to comply with monitoring requirements could be taken into account instead of requiring the same standard for all participants.
	<b>Introduction of fallback methods in case the prescribed monitoring approach is not feasible:</b> for defined situations the EU ETS allows deviation from the prescribed monitoring approach if the same accuracy can be delivered with an alternative approach and if the prescribed approach would result in unreasonable monitoring costs.
	<b>For dealing with deviations (data gaps) a decision tree has been developed (German guidelines):</b> depending on the quality of the substituting data a mark-up / or deductions have to be applied in the range of the standard deviation. If the verifier approves deviating approaches incorrectly it will be corrected ex-post by the authority and there can be severe consequences for the accreditation of the verifier. In the light of easier post-registration changes being the most frequently requested simplification by other stakeholders there could be an interesting option for transfer of regulation.
	<b>Digitized reporting and verification:</b> at EU level, a spreadsheet template is provided (and even a web interface in Germany), that allows for digitized reporting and verification. Most of the data can be confirmed via tick boxes, while deviations have to be described in text areas.

<sup>78</sup> Article 15(3)



### 5.4.8. Kazakh ETS and offset scheme

The Kazakh standard is in very preliminary stages, and only draft documents are available for analysis<sup>79</sup>. The offset scheme and the trading scheme are based on and refer to ISO14064-1-3 and ISO14065. The greenhouse gas programme specifies some additional requirements regarding eligible project types for offsetting and regarding the sectors that are included in the trading scheme.

The main simplification that can be derived from the Kazakh schemes is the verification by ISO14065 accredited verifiers. The accreditation procedure with the UNFCCC is quite time consuming and expensive. For that reason it can be expected that opening the market to ISO14065 accredited verifiers will reduce verification costs and increase the number of available auditors. It is out of the scope of this study to assess the reliability and quality of the ISO accreditation.

Table 15 provides with a summary of potential simplification options observed on the current state of development of the Kazakh ETS.

**Table 15: Kazakh MRV simplification options**

Project stage	Simplification option
Project development	<p><b>Start monitoring and verification right after implementation:</b> normally the project developer has to submit a project idea note to the competent authority before the start of the project. For the following priority project types and for small-scale projects no pre-approval by the competent authority is required:</p> <ol style="list-style-type: none"> <li>1) wind energy utilization project;</li> <li>2) solar energy utilization project;</li> <li>3) recovery and construction of small-size hydro-electric power plants;</li> <li>4) biogas utilization projects;</li> <li>5) conversion of coal heat power plants to gas;</li> <li>6) landfill methane (changed from gas) recovery;</li> <li>7) conversion of public transport to gas and electricity;</li> <li>8) associated gas recovery at oil fields;</li> <li>9) methane and coke gas recovery at coal mines;</li> </ol>
Validation & registration	<p><b>Simple documentation:</b> in the Kazakh trading scheme validation means checking compliance of the installation passport (including monitoring plan); justifications of projects and programs to reduce emissions and increase the absorption of greenhouse gases; applications for certificates for greenhouse gas emissions; as well as other documents related to the regulation of greenhouse gas emissions carried out by an independent accredited organization in accordance with the legal requirements of the RK, the international treaties signed by the RK, and the RK standards</p>
Verification & issuance	<p><b>Increase number of verifiers and reduce accreditation barriers:</b> reference is made to ISO14065 verifiers instead of doe's.</p> <p><b>Prescription of verification timelines:</b> the minimum time budget for the verification is prescribed by the authorities:</p> <ul style="list-style-type: none"> <li>7 man days for thermal power plants &lt; 100 kt</li> <li>17 man days for thermal power plants &gt; 100 kt</li> <li>45 man days for complex units</li> </ul> <p><b>Adjusted materiality levels:</b> two materiality levels for small and major sources (5% and 2%)</p> <p><b>Simple appeals process:</b> disputes between operator and verifier shall be settled by the competent authority. Their decision is binding.</p>

<sup>78</sup> Note that only Russian-language documentation is currently available. Our analysis is based on translated copies of these documents that have been made available by the Kazakh authorities, as well as computerized translations. Sources: Decree of the Government of the RK "Rules for monitoring and control of greenhouse gas inventory" dated May 26, 2012 840, "Rules for the accreditation of independent organizations carrying out verification, validation and confirmation of reports on greenhouse gas inventory" No 895 dated June 30, 2012, Art. 158-4 of the Environmental Code of the RK, as well as the orders of the MoEWR.

### 5.4.9. Joint Implementation

Joint Implementation (JI) is divided in two different tracks. Track 1 allows the host country unilaterally to define criteria for the determination of JI projects at its own discretion. Track 2, on the other hand, is regulated by the Joint Implementation Supervisory Committee (JISC). In general, the procedures and rules that the JISC defined for Track 2 echo the rules and procedures of the CDM.

JI Track 1, by contrast, in allowing the national governments to shape the rules and procedures to determine project eligibility, quantifying the emission reductions, monitoring, reporting and verification themselves, gives the countries the flexibility to tailor 'their' JI upon their specific needs and potential.

The MRV approaches adopted by the UNFCCC's Joint Implementation framework largely follow those adopted under the CDM. However, two unique approaches could be of interest:

- Host country validation/verification (termed 'determination'): host countries are able to define their own requirements for the validation and verification of projects located in their country. This means, for example, that a country may not require an independent third party to verify the emission reductions and this could instead be performed by a local expert or government agency, rather than expensive international firms. Depending on the requirements of the host country, this could help to reduce MRV costs incurred by the project developer.
- Methodology approval at validation: a new methodology can be proposed as part of the project design documentation submitted at validation, with no prior methodology approval required. Whilst this can obviously reduce the time needed up until registration, it also allows a project developer to propose novel MRV approaches that suit the unique design of their project or programme. In the long-term, this could help them to improve the efficiency of their MRV in terms of both time needed and costs incurred.

JI also differs from the CDM as regards issues of ERUs. In contrast to CDM, ERUs are issued directly by the host country as they are backed by national AAUs. In practice, this has however rather proven as a downside of the mechanism as host country governments have proven less reliable in the actual issuance of credits than the CDM-EB.

## 5.5. ANNEX 5: LITERATURE REVIEW

**Table 16: list of reviewed literature**

Title	Organization	Authors	Year
Analysing the status quo of CDM projects Status and prospects	NewClimate Institute, Ecofys	Carsten Warnecke, Thomas Day and Noémie Klein	2015
Accounting for Carbon Monitoring, Reporting and Verifying Emissions in the Climate Economy Trendsetter for projects: the Clean Development Mechanism (Chapter 11), MRV at offset project scale (Part III)	CDC Climat, Cambridge University Press	Igor Shishlov	2015
Suppressed demand in the clean development mechanism: conceptual and practical issues	Carbon Limits AS; Journal of Energy in Southern Africa, Vol 26 No 2	Randall Spelding-Felcher	2015
Can CDM monitoring requirements be reduced while maintaining environmental integrity? Climate Policy	International Climate Policies Department, Ecofys Germany GmbH	Carsten Warnecke	2014
Review of monitoring uncertainty requirements in the CDM	CDC Climat Research	Igor Shishlov and Valentin Bellassen	2014
MRV Manual for CDM Programme of Activities; Navigating the monitoring, reporting and verification pitfalls of programmatic CDM project activities	KfW, DNV	Edwin Aalders, Michael Lehmann, Høvik, Norway	2013
Measuring, Reporting, Verifying; A Primer on MRV for Nationally Appropriate Mitigation Actions	UNEP DTU Partnership, DNV, UNDP, UNEP	Søren Lütken, Edwin Aalders, Bente Pretlove, Noel Peters, Karen Holm Olsen	2012
Design of the post2012-climate regime: Sectoral approaches for greenhouse gas mitigation (FKZ41 3710 134)	Umweltbundesamt	Björn Dransfeld, Axel Michaelowa, Martin Cames, Sean Healy	2011
Solving the MRV challenge for new market-based mechanisms: What can past experience teach us?	Öko-Institut e.V., Perspectives GmbH, Institut für Politikwissenschaft (IPZ)	Paula Castro (IPZ), Daisuke Hayashi (IPZ), Martin Stadelmann (IPZ), Axel Michaelowa (IPZ), Martin Cames (Öko-Institut), Sean Healy (Öko-Institut)	2011