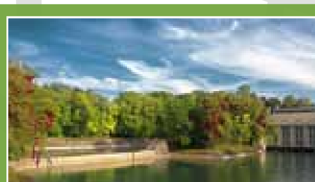
Carbon Finance
AT THE WORLD BANK

CDM Reform:

Improving the efficiency and outreach of the Clean Development Mechanism through standardization





Alexandrina Platonova-Oquab, Felicity Spors, Harikumar Gadde,
Julie Godin, Klaus Oppermann and Martina Bosi

Contents

Tables

Figures

Acronyms and Abbreviations

ACR	American Carbon Registry
CAR	Climate Action Reserve
CDCF	Community Development Carbon Fund
CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
CER	Certified Emission Reduction
CFL	Compact fluorescent lamp
CME	Coordinating/managing entity
CMP	Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol
COP	Conference of the Parties of the United Nations Framework Convention on Climate Change
CPA	CDM Programme Activity
CPA DD	CDM Programme Activity Design Document
DNA	Designated National Authority
DOE	Designated Operational Entity
EIA	Environment Impact Assessment
EPRI	Electric Power Research Institute
EU ETS	European Union Emissions Trading Scheme
E+/E- policies	Policies which give a comparative advantage to more (E+) or to less (E-) emissions intensive technologies or fuels
GGAS	New South Wales' Greenhouse Gas Reduction Scheme
GHG	Greenhouse Gas
GSC	Global Stakeholder Consultation
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IEA	International Energy Agency
IETA	International Emissions Trading Association
IGES	Institute of Global Environmental Strategies
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LDC	Least Developed Country
LoA	Letter of Approval
MV	Monitoring and verification
ODA	Official Development Assistance
pCDM	Programmatic CDM
PDD	Project Design Document
PDF	Project Developer Forum
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VVS	Validation and Verification Standard
WB	World Bank

Foreword

This study is the first outcome of a new work program on regulatory aspects of the Clean Development Mechanism (CDM) started by the World Bank in May 2011 at the Carbon Expo in Barcelona. The guiding principle of this work has been to approach the complex and broad topic of CDM regulation in a strictly technical and step-wise manner, based on real world project experience and a broad consultation with practitioners of the CDM.

This document is the first module in a series, focusing on the topic of standardization of project registration and procedures for both stand-alone activities, using standardized baselines, and Programmes of Activities (PoAs) addressing micro-scale emission reductions.

The standardization of CDM procedures has always been an element of the evolving CDM regulation. However, the relevance of standardization has grown beyond incremental improvements of the CDM. It has become one of the core areas in developing the mechanism. The reasons are threefold:

- First, standardization of CDM methodological approaches can contribute to overcoming certain limitations of the CDM in terms of regional and sectoral outreach as well as objectivity in project assessment and approval;
- Second, standardization — if extended to CDM procedures — can improve the efficiency of the mechanism and reduce regulatory risks, transaction costs and time requirements; and
- Third, standardization facilitates a more programmatic and systemic implementation of the CDM in developing countries, which could allow the mechanism to grow beyond its current project-by-project scope.

Against this background, standardization gained momentum in the recent regulatory development of the CDM. At the 6th session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP 6) that took place in 2010, in Cancun, Mexico, major progress was made in establishing the concept of standardized baselines. Now it is time to develop the concept further.

This study outlines various options to extend standardization to CDM procedures and the CDM project cycle itself and assess how this could improve the efficiency of the mechanism as well as facilitate more programmatic and systemic approaches.

This work benefited from intensive consultations with representatives from developing countries' Designated National Authorities, representatives from Annex I countries, practitioners and experts of the CDM during two workshops held in 2011.

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Executive summary

The CDM has proven to be a successful mechanism with achievements above initial expectations in terms of the number and diversity of mitigation projects it has stimulated while supporting sustainable development priorities of host countries and its contribution to helping meet greenhouse gas (GHG) emissions targets cost-effectively. Developed through a bottom-up approach, it is still a work in progress in the process of the continuous evolution of regulations. Over time, many improvements to CDM regulation have been achieved. Some were particularly important, such as the decision to introduce programmatic carbon crediting into the CDM at the 1st session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP 1) that took place in 2005, in Montreal, Canada. This had a fundamental impact on how the mechanism evolved.

This study argues that the 2010 CMP 6 decision to introduce the concept of standardized sectoral baselines into the CDM, and extended at CMP 7 in 2011 (Durban, South Africa), could also have a substantial impact on the further evolution of the CDM and its regulation. It is argued that this impact could be even more meaningful if the standardization could be broadened beyond the setting of baselines and applied to the requirements of CDM procedures and project cycle. The study suggests that the current body of procedures and the project cycle of the CDM still contain some serious bottlenecks that prevent the efficient and robust assessment of the projects applying for carbon crediting. Tackling these bottlenecks through the use of standardized assessments, avoiding double-checks, and increasing the predictability of the process, can have an important positive impact on the efficiency of the CDM.

Potential contributions of standardization to the efficiency and outreach of the CDM

Standardization could contribute to increasing the efficiency of the CDM in terms of limiting transaction costs, time requirements, and enhancing transparency, consistency and predictability, while also improving access to the CDM by underrepresented regions and sectors. However, standardization alone cannot resolve all the regulatory and governance issues of the CDM in achieving the above-mentioned objectives. The limitations of standardization relate essentially to the required regulatory effort to establish standardized baselines and procedures in practice.

Besides a suggested extension of the scope of standardization to include monitoring and verification (MV), this study suggests two main areas for extending the concept of standardization within the CDM:

(1) Standardization of a project registration procedure that is open to project activities using standardized sector-specific baselines (as an optional standardized track, "fast-track").

(2) Standardization of the procedures for Programmes of Activities (PoAs) addressing micro-scale activities.

Standardization of the registration procedure for project activities using sector-specific standardized baselines (as an optional procedure)

Under the standardized project registration proposed in this study, the project cycle would start with the completion of a registration template by the project entity based on a standardized – yet comprehensive – checklist, eliminating the need for a project design document (PDD). The completed template would then be automatically registered (without validation) by the CDM Executive Board. After project implementation, the confirmation of the project's compliance with the registration template, along with the verification of achieved emission reductions by a Designated

Operational Entity (DOE), would take place at the same time in one single step.

The proposed standardized registration approach would rely on improved consistency and objectivity of the regulatory project assessment, and would reduce the length and the transaction costs associated with the CDM project cycle (e.g., avoiding duplication of checks currently undertaken at validation and verification stages).

The proposed standardized project registration is applicable primarily for projects that are similar, replicable, and of small and medium size (e.g., renewable energy, certain energy efficiency initiatives). It could also apply to micro-scale activities that may not be part of a PoA. The proposed approach could benefit at least one-third of the current projects in the pipeline and could be extended to two-thirds of CDM projects for which standardized baselines (and their embedded additionality assessment) could be developed in principle.

Conservative baselines and additionality thresholds at the sectoral level, combined with clear eligibility requirements integrated into the proposed registration template, could help ensure environmental integrity of the standardized project registration. Possible approaches are also suggested in this study to ensure that the relevant national and international good practices (in terms of sustainable development and environmental standards) are followed by the projects (e.g., through clear allocation of responsibilities). However, these aspects of standardized project registration would benefit from further dedicated analysis.

Standardization of procedures for PoAs addressing micro-scale activities

Standardization of the PoA procedures for micro-scale activities would, firstly, consist in the removal of the CDM Programme Activity (CPA) concept. Secondly, it would consist of the application of micro-scale thresholds at the level of each unit. This would improve the attractiveness of the PoA concept for micro-scale activities where the distinction between an individual activity (e.g., the installation of a cooking stove) and a CPA become artificial and impractical. This would allow the Coordinating Managing Entity (CME) to include underlying units in the POA without validation by a DOE, in accordance with the eligibility criteria and the additionality requirements for micro-scale CDM projects.

Furthermore, the standardized procedures for PoAs would allow the use of streamlined yet robust monitoring approaches. Such approaches would cover the total stock of underlying units (e.g., based on sampling or changes in market penetration rates) and allow for statistically optimal sampling procedures.

The suggested standardized procedures would represent a procedural option available for all the PoAs addressing micro-scale activities, independent of the availability of standardized baselines. It is estimated that standardized PoA regulation for micro-scale activities could be applicable to at least half of the PoAs currently in the validation pipeline and facilitate the development of PoAs in Least Developed Countries (LDCs) in projects such as cooking stoves, solar home systems, and efficient lighting.

The applicability of the suggested standardized procedures could also be extended for the PoAs addressing small-scale underlying units in case those PoAs are using standardized sectoral baselines (and its embedded additionality).[1] In this context, the inclusion of the small-scale underlying units in the PoA would be very similar to the automatic registration based on the use of the registration template such as suggested above for CDM projects using sector-specific baselines.

To ensure environmental integrity of the standardized PoA procedures for micro-scale activities, the baseline and additionality would be validated at the level of the PoA by a DOE prior to PoA registration (similarly to the current PoA rules). The CME's management capacity, including its capacity to check the eligibility of units to be included under the POA, would be assessed by a DOE at the stage of validation

1 The notion of an embedded additionality is not an official UNFCCC term. It is used in the report with reference to the standardized sector-specific baseline framework which defines in one step a benchmark both for additionality and for a baseline scenario of a CDM project. Annex 1 explains this concept further.

of the PoA design document (PoA-DD). The completeness and objectivity of eligibility criteria for inclusion of individual underlying units will be ensured through the validation of the inclusion list. The removal of the CPA level in micro-scale PoAs allows for optimized management and reporting requirements for PoAs. It also simplifies the requirements for verification and the implementation efforts for CMEs through, for example, the sampling based on total stock of underlying units.

Potential contributions of standardization to outreach of the CDM

The CDM is currently hindered by significant uncertainty around the future scope and attractiveness of the mechanism. This study suggests that the standardization could, in the longer run, broaden the scope of the CDM towards more programmatic and systemic approaches, particularly in the area of policy-driven mitigation actions.

Several design features of the standardized approaches could be examined as a starting point for exploring options to allow policy-driven actions to generate carbon credits: (i) more aggregate decision making (e.g., sectoral level of baseline and additionality setting); (ii) introduction of a sectoral perspective as compared to the project-by-project focus in the current CDM; (iii) establishing creditable thresholds with more explicitly embodied partial crediting (i.e., crediting off less than the actually achieved emission reductions). These approaches could be refined to address some of the issues which currently limit the crediting of policy-driven actions under the CDM, discussed in this study. The use of standardized baseline setting and its embedded additionality demonstration is also creating the regulatory environment where creditable actions shall contribute to reach the pre-defined performance or emission levels for a sector or technology in a country.

The experience that would be gained through the development of the standardized baselines within the existing CDM framework, together with the potential expansion of the CDM reform to the ways of crediting policy-driven GHG mitigation actions, could inform the development of new carbon market mechanisms.

Introduction

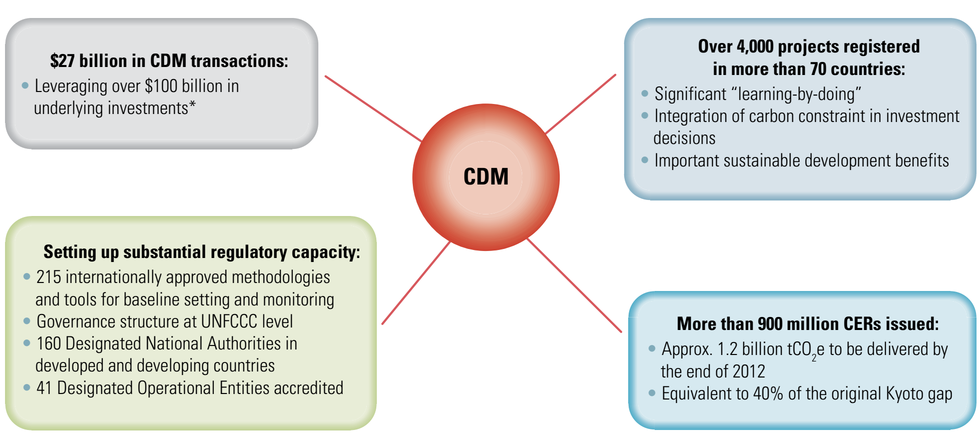
Over the past 10 years, the CDM has proven to be a successful mechanism in stimulating greenhouse gas (GHG) mitigation activities in developing countries. It is expected to reduce about 1.2 billion tonnes of CO_2e by the end of 2012 which represent about 40% of the original Kyoto gap.[2] The actual emission reductions volumes exceed the early expectations by far.

The CDM also put a price on carbon in countries where greenhouse gas emissions have not yet been regulated. It also produced significant side-benefits ranging from technology transfer and sustainable development gains, to raising awareness and building capacity and knowledge on greenhouse gas emission mitigation among administrations and the private sector in developing countries (UNFCCC, 2010a; UNFCCC, 2011b).

Most importantly, the CDM has introduced the idea of market-based mitigation on a global scale and stimulated the discovery of cost-efficient mitigation options. It has also contributed to the development of more than 200 internationally accepted methodologies and tools to assess emission reductions from a broad range of different technologies in almost all sectors of the economy.[3] Figure 1 illustrates these and other important achievements of the CDM, such as leveraging over $100 billion in underlying investments through an aggregate CDM revenue volume of $27 billion.

Despite these achievements the CDM is far from being a perfect mechanism. Since its inception the international climate policy community has struggled to define, regulate, and improve the mechanism in almost all aspects: scope and eligibility of project types and carbon crediting schemes, balanced access to the CDM for different groups of countries and sectors of their economies, methodologies to assess the emission reductions achieved by CDM projects, and criteria

FIGURE 1: WHAT HAS BEEN ACHIEVED SO FAR?



* *Source:* World Bank, 2011.

2 This represents the targets that have been agreed by the Parties that have ratified the KP (i.e., excluding the U.S.), amounting to an overall reduction of about 4% below 1990 levels, representing an approximate reduction of 2.6 billion tons of CO_2e over the 5-year commitment period, assuming emissions stay stable over that period. This is a simplified assumption, since in many countries emissions have increased, thus also increasing the volume of emission reductions needed to meet their obligation (World Bank, 2010a).

3 A number of existing methodologies are still rarely or never used, largely reflecting the limitations of the bottom-up approach. While providing flexibility and opportunities for methodologies of all types of projects to be considered, this approach results in fewer general and broadly applicable methodologies (World Bank, 2010a).

for baseline setting and additionality, project cycle procedures, governance, and roles of different stakeholders in the CDM.

With the launch of the high-level policy dialogue on the CDM going back to a decision by the 63rd meeting of the CDM Executive Board, this report intends to be a comprehensive review of the experience with the CDM and a contribution to the discussion on how to position the CDM post-2012. It can be expected that the policy dialogue will provide a full review of the CDM and a comprehensive overview of the recommendations on how to develop the mechanism further.

The scope of the present study more specifically focuses on the assessment of opportunities to improve the effectiveness of the CDM through the enhanced use of standardization. The study argues that the introduction of the concept of standardized baselines to the CDM could substantially change the way the CDM develops. The impact of such a decision could be comparable to and even more substantial than the establishment of the programmatic carbon crediting option in 2005.

The recent decision on standardized baselines was taken in order to facilitate the scaling up of the CDM, to improve its outreach to low-income countries and underrepresented sectors, and to improve its efficiency. The Decision 3/CMP6 on the CDM says:

> *"The use of standardized baselines could reduce transaction costs, enhance transparency, objectivity and predictability, facilitate access to the CDM, particularly with regard to underrepresented project types and regions, and scale up the abatement of greenhouse gas emissions, while ensuring environmental integrity." (UNFCCC, 2010c).*

It is clear that the driving reasons and objectives for the enhanced use of standardized baselines have striking similarities to the rationale of the earlier PoA decision. In fact, this study systematically links both of these decisions on CDM regulation and shows potential synergies.

The goal of the present study is to discuss what the options are for driving the idea of standardization further. The working hypothesis is that baseline standardization alone may not be sufficient in that regard but can be seen as a starting point for improving the CDM through the enhanced use of standardization at other levels of CDM procedures. Starting here, the study examines how standardization could be used to simplify CDM procedures throughout the project cycle and to extend the scope of the CDM in a way that improves access of underrepresented sectors and regions. It goes without saying that the achievement of the quoted targets depends on much more than standardization under the CDM, but the suggestion is that standardization can contribute substantially and is therefore worth developing further.

The first chapter sets the scene by analyzing in detail procedural imperfections of the CDM that could be addressed – at least in part – through extending standardization to project cycle procedures.

The second chapter discusses new opportunities that standardization could provide to the CDM reform. It identifies how sector-specific standardized baselines and the embedded additionality demonstration could create a foundation for more transformational procedural reforms while still maintaining the environmental integrity of the mechanism. The scope of the current standardization under the CDM is assessed in a critical manner and recommendations for enhanced use of standardized approaches are provided in view of creating new options in the CDM regulatory environment.

Furthermore, two paths of CDM procedural improvement are proposed in the study: (i) an optional (i.e., voluntary) standardized registration procedure for project activities using sector-specific standardized baselines, and (ii) a standardized procedure for PoAs addressing micro-scale activities by overcoming the CPA concept, i.e., eliminating it from

PoA regulation, and simplifying monitoring and verification approaches. For both options, a more efficient project cycle is described, followed by an analysis of the modifications to the current CDM regulation that would be required. The potential impact of the proposed improvements to procedures is assessed (based on expert judgement), and suitable ways of mitigating possible risks associated with these changes are proposed.

The **third chapter** of the study analyzes if and how standardization could enable policy-driven actions to generate carbon credits under the CDM. Under current CDM regulation, the policy support can already be combined with CDM incentives, in particular in the case of PoAs. The chapter also assesses the ways standardization could help overcome the remaining barriers to better incorporate the CDM in host countries' low carbon development policies, and to inform the development of new market mechanisms.

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chapter 1

Overview of the current status of Clean Development Mechanism (CDM) reform

Since the CDM procedures were defined in the Marrakech Accords in 2001, the mechanism has been constantly evolving. To help ensure the environmental integrity and efficiency of the mechanism, the initial principles underlying the CDM procedures are now complemented by a complex set of rules and regulations.

The regulations, procedures, and governance of the CDM have come under increasing criticism. An extensive body of academic and analytical literature assesses the shortcomings of the CDM and suggests a broad set of improvements and reforms for both the supply and demand of emission reductions. The main issues raised by stakeholders, parties, and observers focus on:

- The level of environmental integrity of the CDM and relevant issues of baseline setting and additionality (Haya, 2007; Michaelowa and Purohit, 2007; Schneider, 2007; Haya, 2009; UNFCCC, 2011g; AEA, 2011; SEI, 2011);
- The governance structure of the CDM with its inherent problems such as conflicts of interest, lack of transparency, mistrust among actors, lack of knowledge and capacity, absence of administrative law protecting the actors and of an appeal mechanism (Streck and Lin, 2008; Figueres & Streck, 2009; Von Unger and Streck, 2009; EPRI, 2011b);
- The level of clarity and predictability of the regulations and processes (AEA, 2011; Gillenwater and Seres, 2011; PD-Forum, 2011b; EPRI, 2011b; IETA, 2010; CIRED, 2011);
- The recognition of local stakeholders' views (Boyd et al., 2009; Haya, 2007; Schneider, 2007; Alexeew, 2010; AEA, 2011; UNFCCC, 2011g); and
- The enforcement of environmental and sustainability standards by CDM projects (Schneider, 2007; Haya, 2009).

Most of the shortcomings of the CDM are closely interlinked through established procedures and governance. They need to be addressed from a common perspective and take into account the ultimate objective of the reform of the mechanism. During the last decade, several important new concepts and approaches were introduced into the CDM in an effort to improve its effectiveness without changing the overall paradigm of the mechanism. Among the most important are: the introduction of the PoA concept and regulation, the use of default factors, and the use of simplified procedures for small-scale project activities. The increasing considerations of standardized approaches as an alternative way to account for emission reductions and for establishing sectoral baselines and its embedded additionality could potentially address one of the most contested issues of the CDM, i.e., additionality demonstration and baseline setting. Further streamlining the CDM procedures, reducing transaction costs and uncertainties for project developers could also better facilitate the implementation of the CDM.

This chapter focuses specifically on the benefits of an enhanced use of standardization, particularly in the case of administrative procedures, stand-alone activities and PoAs. First, the key outcomes of the CDM reforms in these areas are assessed. Second, persistent bottlenecks in the CDM procedures, which continue to hamper its efficiency and create considerable risks along the project cycle, are identified and discussed.

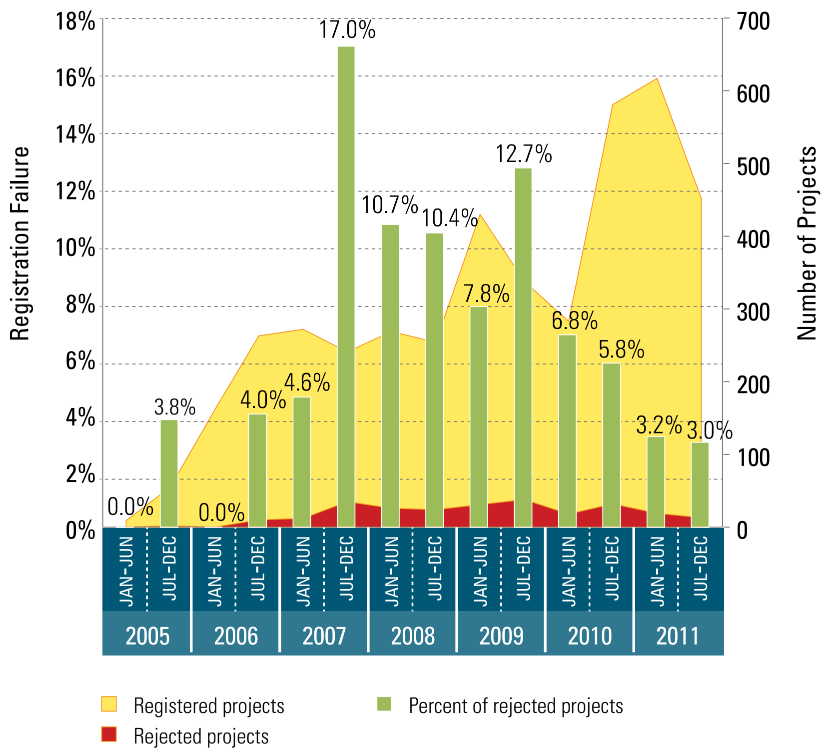
1.1 Continuous improvements of the CDM procedures

During the past decade, CDM procedures have been the subject of constant improvements, reflecting an increased level of maturity, efficiency and clarity of regulation. The CDM Executive Board (CDM EB) has progressively improved its interaction and work with stakeholders such as policy makers, project participants, DOEs, and the parties to the UNFCCC to address a number of identified shortfalls.

Figure 2 shows the number and share of registered and rejected CDM projects according to registration or rejection date. This data can be used as an indicative barometer of the regulatory clarity. The yellow and red areas indicate respectively the number of registered and rejected projects. The bars indicate registration failure in the respective semester. For example, in the first semester of 2006, all 150 projects considered by the CDM EB were registered with no rejections. During the second half of 2006, more than 250 projects were registered and 4% of considered projects were rejected.

From 2005 to 2007, in the early stage of CDM development, the focus was on kick-starting the mechanism, and the CDM EB's administrative structure was understaffed and suffering from budget shortages (GTZ, 2006; IGES, 2006). This is reflected in a low rejection rate during this time.

FIGURE 2: SHARE OF REGISTERED AND REJECTED PROJECTS FROM 2005 TO 2011



Source: First Climate, based on UNEP Risoe CDM Pipeline as of April 2012.

From 2007 to 2009, regulation was characterized by a high degree of scrutiny and ad-hoc regulatory intervention, leading to a peak in rejection rates (Figure 2; UNFCCC, 2008). The corrective actions were mainly applied in case-by-case decisions leading to consecutive revisions and the creation of more specific rules. This can also partially be viewed as a reaction to concerns regarding the integrity of the mechanism expressed by some market observers (Michaelowa & Purohit, 2007; Schneider, 2007). In early 2007, a Registration and Issuance Team (RIT) was established in the UNFCCC Secretariat to enhance the level of scrutiny (UNFCCC, 2008; GTZ, 2006).

In 2010, the UNFCCC initiated a series of significant reforms towards a more streamlined CDM. These reforms focus on a more systematic and holistic revision of the performance of the mechanism, streamlining complex procedures that had been created to address all possible projects, and assuming a much more proactive role in improving access to the CDM for under-represented sectors and countries. In particular, the following objectives and main actions of the CDM reform were defined: improved efficiency in the operation of the CDM; improved regional and sub-regional distribution and capacity-building; improved objectivity, clarity and integrity in the operation of the CDM; enhanced transparency of the CDM and more direct communication; and enhanced promotion of the mechanism.

The efforts to increase the efficiency of the CDM led to streamlined regulatory procedures to better match the ever increasing number of submissions starting in 2010. According to IGEC (2011), 2011 saw a significant decrease in registration failures, which can be viewed as a reflection of the increased quality of the submissions at the point of registration.[4] In particular, in 2011, only 50% of registrations triggered a review process by the CDM EB, compared with 90% in 2009; also, the case-by-case interventions triggered by the CDM EB were reduced to 20% in 2011, compared with 50% in 2009.

Below, the main improvements achieved so far are considered in the area of administrative procedures and the project cycle for both stand-alone activities and Programmes of Activities (PoAs). The use of standardized approaches is discussed in Chapter 2.

1.1.1 Administrative Procedures

The key objective of procedural improvements in the CDM is to increase efficiency by streamlining administrative procedures and saving time and transaction costs. Procedural improvements are also instrumental in increasing the predictability and transparency of the project cycle. Several improvements have been introduced so far:

- **Eliminating the duplication of work steps.** Multiple stand-alone improvements were implemented by the CDM EB and the Secretariat in this area.

  Example: The merger of two procedures to handle post-registration changes (deviations from the monitoring plan and project design changes) became fully effective upon the adoption of the new project cycle procedure (UNFCCC, 2011i).

- **Streamlining of regulatory documents and requirements** with the aim to improve clarity for users, eliminate inconsistencies, and reduce subjectivity (inconsistency) in implementing CDM rules. According to the Project Developer Forum, the predictability could be further improved through better communication, digitization of Project Design Documents (PDDs), automation of workflow, and training schemes accredited by the CDM and available to the DOEs, RIT/UNFCCC Secretariat assessment team members and practitioners to generate a common understanding of guidelines (PDF, 2011a; UNFCCC, 2011b).

  Example: The development of the CDM Project Standard (UNFCCC, 2011j) bundles applicable regulatory documents into one central document to increase clarity and remove inconsistencies.

- **Introducing risk-based approaches to quality control** for example using a spot-check approach. Risk-based control systems move away from assessing 100% of cases with a 100% assessment scope in each case. Instead, such systems focus quality control on cases or areas of assessment scope where non-compliance is most likely to occur. Risk-based approaches are frequently applied within the context of other assessment frameworks outside the CDM, such as financial due diligence.

  Example: In the context of the new post-registration procedures, the CDM EB will introduce a risk-based approach that aims at reducing the workload by relieving staff from dealing with "straightforward" cases of issuance (UNFCCC, 2011k).

- **Introducing the concept of materiality** in view of increasing efficiency of quality control at the DOE and CDM EB level and reducing transaction costs. The principle of materiality allows the acceptance of minor mistakes as long as the scale of related damage is insignificant. It is a principle that is used by other standards outside the CDM, such as the ISO 14064/65 or the EU ETS (EA, 2010). The CDM EB shall implement the concept within the CDM rules as per the CMP.7 decision.

1.1.2 Programmes of Activities (PoAs)

The introduction of the concept of a PoA and related rules in 2007 targeted the need to increase efficiency and enable the top-down development of GHG emission reductions programs to address, in particular, the needs of small and micro-scale activities.

Since its introduction, the accomplishment of PoAs varied in terms of supporting project types and host country locations

4 Since summer 2009, the completeness check procedure is returning incomplete submissions, however at the cost of a prolonged validation cycle.

BOX 1: STREAMLINING IN OTHER OFFSETTING SCHEMES

Streamlining is currently implemented by the two major voluntary carbon standards: the Verified Carbon Standard and the Gold Standard.

Verified Carbon Standard (VCS). The VCS regulator is currently finalizing the "Standardized Methods Initiative," involving an extended peer review process. The focus of the standardization initiative is on identifying performance benchmarks and performance method requirements, as well as defining principles of standardized approaches and positive lists to pre-determine additionality for projects with no revenue streams other than carbon finance, with low rates of adoption, etc.

Gold Standard. The second version of the Gold Standard includes the initiative of top-down development of streamlining (e.g., a simplified track for micro-scale projects, top-down development of methodologies, and dispatching regional Gold Standard experts to several African countries).

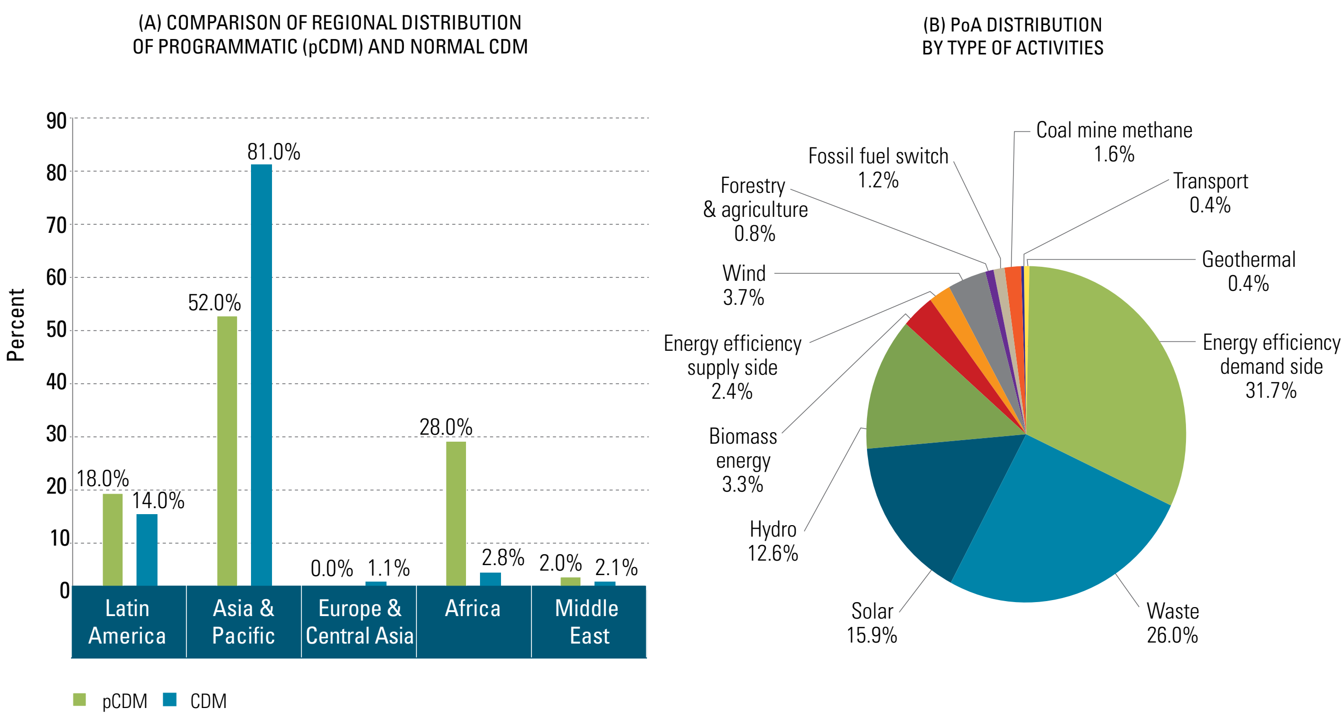
that had been less successful under the CDM (Figure 3). Notably PoAs have been able to foster project activities such as the introduction of energy-efficient appliances or small-scale renewable energy measures such as solar water heaters or domestic biogas. Nevertheless, PoAs are still facing a number of barriers and obstacles, such as the inherent complexity of programme management, high transaction costs, the lack of seed financing, and fine-tuning of regulations.

Key regulatory improvements that were achieved to increase the practicability of PoAs are:

- **Combination of multiple methodologies under a PoA.** Approved by CMP 6 in Cancun, this decision is as an important step towards improving the applicability of programmatic CDM.

  Example: It allows a combination of multi-type activities in municipal/city context. It also applies to multiple

FIGURE 3: NUMBER OF PoAs COMPARED TO NORMAL CDM PROJECTS



Source: UNEP Risoe CDM/JI Pipeline Analysis and Database, March 1, 2012.

energy efficiency interventions in buildings that are targeted by the same incentive schemes but are covered by different CDM methodologies.

- **Specific sampling guidelines.** The sampling approach enables both reporting and verification to reach economies of scale and reduce transaction costs since DOEs do not need to verify every CPA.

  Example: In cases where sampling across CPAs is selected, the final number of emission reductions that are verified and issued can be capped after accounting for a certain percentage of error envisaged in the sampling.

- **PoA standard for the demonstration of additionality, the development of eligibility criteria, and the application of multiple methodologies.** The standard combines three elements: the demonstration of additionality of a PoA; the definition of eligibility criteria; and procedures for applying multiple methodologies in a PoA. Additionality must be proven by justifying, in accordance with respective guidelines, that no CPA would occur without CER revenues.

  A critical element of the PoA standard in addressing DOEs' concerns about liability was shifting responsibility for eligibility to CMEs. Under the standard, CMEs now have to demonstrate that each CPA is eligible to be included. DOEs are therefore responsible for ensuring that CMEs have adequate management procedures in place to undertake this demonstration task and that the eligibility criteria are appropriate to determine additionality of each CPA at the inclusion stage. The eligibility criteria provide clearer guidance on what may be included for CPAs under a PoA. It should be noted, however, that the EB retains the right to revise the eligibility criteria of a registered PoA at any time if there are concerns regarding the environmental integrity of the PoA.

  The standard allows all methodology combinations for small-scale projects as long as they do not have cross-effects. Combinations of methodologies contained in the "General Guidelines to Small-Scale Methodologies" can be applied without further assessment for cross-effects, while for other combinations the coordinating entity needs to prove to the UNFCCC Secretariat that there are no cross-effects. Where cross-effects occur, project participants shall submit a request for deviation or clarification. Combinations of methodologies for large projects need specific CDM EB approval.

1.2 Remaining bottlenecks of the CDM procedures

Despite significant progress, some barriers remain. While important improvements have been achieved to the CDM procedures and project cycle efficiency, all stages of the project cycle are currently associated with considerable risks. These include insufficient predictability, a lengthy process, and high transaction costs.

1.2.1 INSUFFICIENT PREDICTABILITY OF THE CDM PROCESS

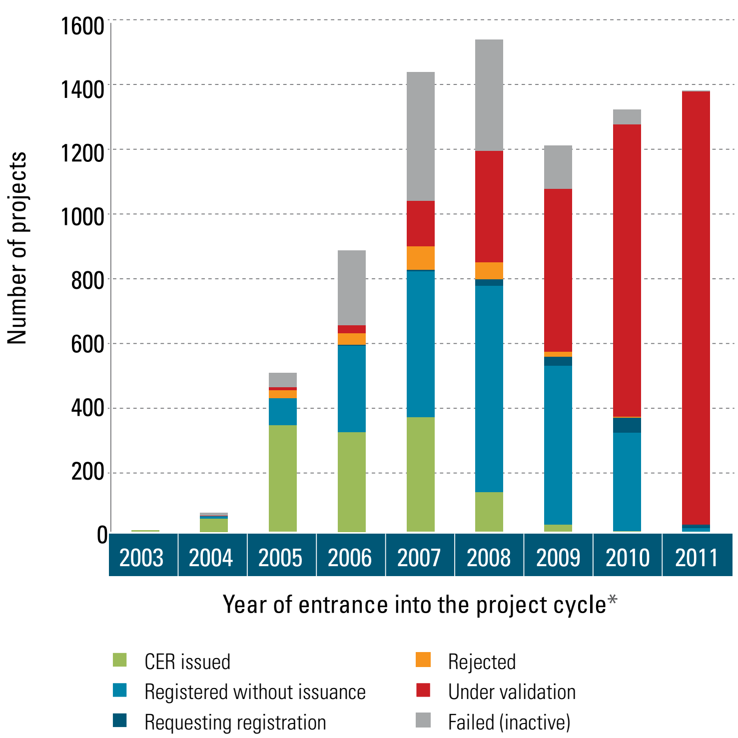
The insufficient predictability of the CDM process is closely linked with the consistency and certainty of CDM EB (and DOE) decisions, rules, and guidelines. The administrative process can be deferred at any stage of the project cycle by unexpected interpretations or modifications of the rules by the regulator. This could ultimately result in a negative impact such as registration or issuance failure for reasons that could not have been anticipated at the time of project development (IETA, 2010; World Bank, 2010).

The low predictability is possibly reflected in the rate of failure during the project cycle, which may, to a certain extent, reflect the non-realized expectations of project developers to obtain CDM registration. While it is recognized that non-CDM related factors also affect such project failures, it is assumed that operational and other project-related risks would remain comparable within and outside the CDM project cycle. Thus, the rate of project failure would partly reflect the number of projects that were brought by mistake into the CDM process due to lack of predictability and certainty.

The rate of failure is however not directly observable from available project statistics given that the share of projects that finally receive CERs may be determined only *ex post*. For many projects listed in the CDM database, it is not known whether the validation or the monitoring is still ongoing or if the projects have in fact been cancelled.

Based on statistical data, it can be demonstrated that a considerable share of projects drop out at validation but also after registration. In Figure 4, the project success rate is indicated by their state in the cycle, grouped according to the starting time of validation. For example of the 1,548 projects that started validation in 2008 only 773 (50%) have been registered, 52 (3%) have so far been rejected while 351 (23%) are reported inactive and 351 (23%) are still under validation, and may or may not be registered in future. At the same time only 127 (16%) of the 773 registered projects have had issuances to date. The rate of successful implementation and issuance for the remainder is unclear.

FIGURE 4: PROJECT SUCCESS RATES AT DIFFERENT STAGES OF THE PROJECT CYCLE



* The year of entrance into the project cycle indicates the year when the proposed CDM project was published for the Global Stakeholder Consultation.

Source: First Climate, based on UNEP Risoe CDM Pipeline as of October 2011.

Lack of consistency and certainty

One of the main reasons for an inefficient, insufficiently predictable project cycle is the lack of consistency and certainty in interpreting and applying regulations and procedures on a case-by-case basis, i.e. subjectivity. It slows down the work of the DOEs, in particular for issues or cases that are not straightforward (e.g., through clarification requests sent to the UNFCCC Secretariat and the CDM EB). This is particularly the case given that the DOEs, in their turn, are scrutinised for full compliance with such regulations and procedures.

Specifically, the guidance with respect to the determination of additionality still does not provide sufficient objectivity, and its application is often inconsistent.[5] The improvements and clarifications in terms of the additionality demonstration reflect the constant effort to increase the environmental integrity of CDM projects and to eliminate projects that would have been implemented anyway. For instance, different approaches to demonstrate additionality for micro-scale and small-scale projects were introduced. Some suggestions are now under discussion to address the peculiarities of large investments (De Jong, 2011). Another important issue relates to the additionality of activities benefiting from national support schemes (e.g., such as the controversy around the additionality of Chinese wind CDM projects (He and Morse, 2010)). Possible reforms to overcome these issues were suggested in the debate (Castro et al., 2011) on the standardization of baselines and the clarification

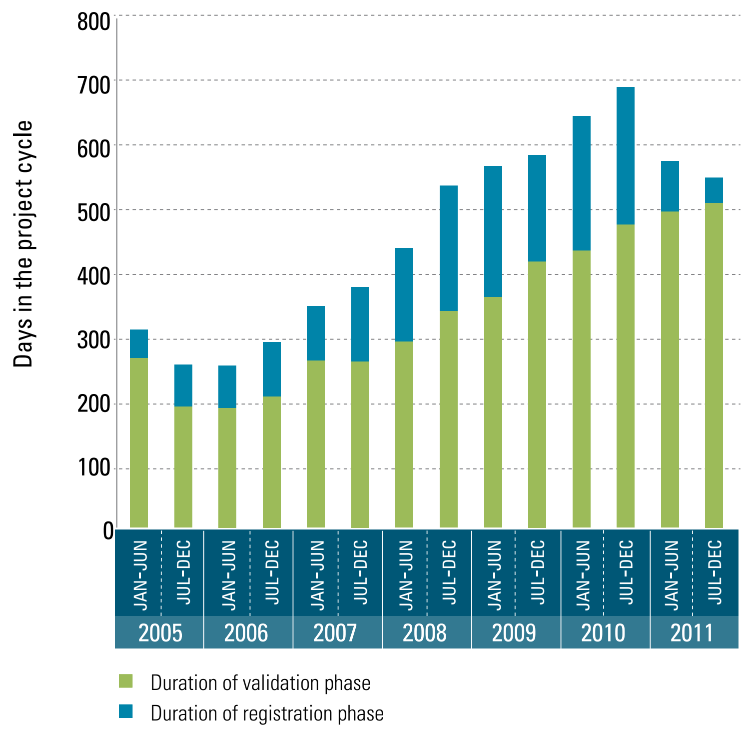
5 Inappropriate additionality argumentation is reported to be the main cause for incompleteness messages (IGES, 2011).

of the additionality of projects in relation to the presence of domestic support policies. However, the CDM EB decided in 2010 to discontinue the consideration of this matter due to its high political sensitivity (UNFCCC, 2010e).

1.2.2 LONG TIME-TO-MARKET

The time-to-market is the time span from the decision to develop a project under the CDM to a subsequent issuance of CERs. A traditional project implementation cycle often moves much faster than the CDM project cycle. The timeframe for financial closure is much tighter than the almost two-year period that is required on average to get a CDM project registered. Ultimately, this discrepancy may act as a deterrent and result in preventing the successful development of an eligible project at an early stage. The long time-to-market also prevents some project owners from considering the CDM as a potential financial incentive for their projects or causes projects to interrupt their operation due to the delayed inflow of carbon revenue. In spite of past procedural improvements, the time required for registration (from the starting date of the global stakeholder consultation) remains considerable at over 500 days (Figure 5).

FIGURE 5: AVERAGE LEAD TIME FROM THE START OF GLOBAL STAKEHOLDER CONSULTATION TO REGISTRATION



Source: First Climate, based on UNEP Risoe CDM Pipeline as of April 2012.

In 2011, this trend was reversed due to the introduction of the retroactive registration date (i.e., date of the submission of the registered version of the PDD). However, it is likely that the overall time for registration will remain well above one year. The availability of resources from DOEs and the UNFCCC Secretariat will play an important role in ensuring a timely processing of projects.

Furthermore, the time required for the first issuance is considerable and adds to the total time-to-market. According to IGES (2011), the average number of days from registration to first issuance is currently over 800. These delays are mainly due to changes in the project design and the monitoring setup.

Overall, the total time to-market of a CDM project, on average, adds up to over 1,300 days.[6] This does not account for the several months needed for preparation of the PDD for stand-alone projects or PoA-DD together with CPA-DD for PoAs. This means that at least four years may be required to get the first CERs issued.

Duplication of checks

Originally, the scrutiny of the individual projects at validation and verification stages would largely rely on independent, accredited DOEs. However, to avoid crediting non-eligible

6 The average is clearly hiding the difference between some plain vanilla projects that are relatively simple, highly replicable and well-known by the regulator and the more challenging activities that may, for instance, require revisions or applying new complex methodologies for the first time.

projects, a review process was introduced in the Marrakech Accord's CDM modalities and procedures.[7] A completeness check by the UNFCCC Secretariat (at the point of submission of a positive validation/verification by the DOE to the CDM EB) was also introduced. The initial intention was to focus on the completeness of the documentation, but in practice, it was used as an additional quality control of the technical content of the project submission (on top of the successful validation/verification). Thus, in the current CDM procedures, the quality checks implemented by DOEs (at validation and verification) and the CDM EB (at registration and issuance) are similar in scope. The project eligibility and compliance with applied methodology and tools are assessed before the project starts or at least at an early stage of project construction, and then again after the implementation of the project. Similar checks are done at verification. While the checks are essential, doing them repeatedly at different stages of the project may not specifically ensure the increased environmental integrity of the mechanism.

The current set-up results in processing delays and unnecessary additional costs for validation and verification). One of the major causes for delay at the issuance phase is the fact that projects rarely are implemented exactly the way they were planned. Deviations from the PDD are typically the rule, not the exception. With an increasing number of projects at first issuance, the number of notified changes and the required checks may significantly delay the issuance of CERs and thereby the generation of carbon revenue for the project (IGES, 2011).

1.2.3 HIGH UPFRONT TRANSACTION COST

Validation constitutes the largest cost element for third parties in developing a CDM project. Fees for validation and verification have been increasing continuously (World Bank, 2010a), arguably as a reaction to the training needed to adapt to regulatory changes.[8]

The cost of validation and verification constitutes "money at risk" in a sense that it needs to be invested prior to project approval and the generation of carbon revenues. Recurring costs of monitoring and verification have a further deterring effect.

The risk of upfront transaction costs is especially acute for small-scale projects. The cost of validation alone can be a substantial barrier to commencing an activity under the CDM. Furthermore, the monitoring requirements for small-scale projects (as well as PoAs) may lead to a higher level of transaction costs (Müller et al., 2011).

Excessive data requirements

High upfront transaction costs are also caused by data requirements at validation and verification. The current CDM procedures often require significant data collection on a project-by-project basis to establish the baseline, demonstrate additionality, calculate the grid emission factor, etc. This puts a significant burden on individual project developers, especially where such data is not readily available and accessible (e.g., in LDCs).

For projects or PoAs with numerous, dispersed project units, the stringency of MV requirements under the current CDM can mean a considerable effort to gather data. In terms of technical resources and manpower, it may lead to a level of transaction costs comparable to the expected carbon revenues. Stringency of such requirements can deter some projects and entire sectors, such as transportation and agriculture, from entering the CDM process in the first place.

Also, high regulatory uncertainty and long lead times makes CDM revenues unbankable in most cases, and it is challenging for investors to include them at the moment of their investment decision. This penalizes those projects that are highly dependent on such CDM revenues and may lead additional projects not to be implemented under the CDM. Conversely, an ever-increasing regulatory effort would be required to prevent non-additional projects to enter the CDM. In this context, standardization and increasing regulatory certainty through the use of standardized approaches such as those suggested in this study could have a positive impact on the environmental integrity of the mechanism.

7 The review process of the registration of a project activity can be implemented if warranted by either (i) a party involved in the project activity, or (ii) at least 3 members of the EB.

8 A prominent example was the introduction of the Validation and Verification Manual (Carbon Finance, 2009).

chapter 2

Standardized procedures under the Clean Development Mechanism

Standardization is not new to the CDM, but over the past few years it has come into focus. This trend started in Copenhagen in 2009 (Decision 2/CMP.5), when the Subsidiary Body for Scientific and Technological Advice (SBSTA) was requested to recommend modalities and procedures for the development of standardized baselines. A year later in Cancun, the parties elected to implement standardized baselines (Decision 3/CMP.6), covering baseline setting and additionality demonstration. A few months later, the CDM EB approved guidelines for the establishment of sector-specific standardized baselines. In Durban in 2011, the parties called for further actions on standardization, requesting additional work by the CDM EB, including the development of top-down standardized baselines and expansion of the scope covered by the approved guidelines on standardized baselines (Draft decision 8/CMP.7).

It is hoped that standardization can contribute to increasing the efficiency of the CDM in terms of transaction costs, time requirements, transparency, consistency and predictability. It could also improve access by underrepresented regions and sectors to the CDM. It is clear that standardization alone cannot resolve all the regulatory and governance imperfections of the CDM, or achieve all of the mentioned objectives. This chapter proposes, however, that in reviewing different approaches for standardization under the CDM, an extension of the scope of standardization to monitoring and verification could strengthen the positive impact of standardization toward the identified objectives.

Two paths of CDM procedural improvement are proposed: (i) an optional (i.e., voluntary) standardized registration procedure for projects using sector-specific standardized baselines, and (ii) an optional (i.e., voluntary) standardized procedure for PoAs addressing micro-scale activities. This means removing the CPA concept from PoA procedures addressing micro-scale activities and simplifying the monitoring and verification approaches. For both cases, an improved project cycle is described below, followed by an analysis of the required modifications of the current CDM regulation. The potential impact of the proposed improvements to procedure is assessed along with the ways of mitigating possible risks of the proposed changes.

2.1 Standardization of baseline setting and additionality demonstration: critical features and potential for streamlined project cycle

2.1.1 APPROACHES TO STANDARDIZATION UNDER THE CDM

Standardization of project-based mechanisms, including the CDM, has been extensively discussed (Lazarus et al., 2000; Probase, 2002; World Bank, 2010b). Table 1 summarizes some elements of standardization tools found in the literature and that are to some degree already available under the CDM.

The move toward greater standardization under the CDM was initiated in Copenhagen in 2009 (Decision 2/CMP.5). In Cancun, the CMP requested the CDM EB to develop standardized baselines (Decision 3/CMP.6). In the context of this CMP decision, a standardized baseline is defined as *"a baseline established for a party or a group of parties to facilitate the calculation of emission reductions and removals and/or the determination of additionality for [CDM] project activities, while providing assistance for assuring environmental integrity."* [9]

9 Decision 3/CMP.6 (V. Standardised Baselines), Paragraphs 44-52.

TABLE 1: STANDARDIZATION TOOLS

Standardization tool	Definition	Examples of project activities
Common estimation methods	Tools and guidelines that are used across methodologies. Historically, this is the most commonly used form of standardization under the CDM.	Tool to calculate the emission factor for an electricity system used by multiple CDM methodologies
Positive lists	List of specified types of projects (or PoAs) that are considered eligible (or additional, if applicable) de facto without further justification in a given context of application. Some examples of positives lists: (i) projects (PoA activities) that do not generate any revenues other than CERs revenues, (ii) projects (PoA activities) that are not common practice; or (iii) projects that face high investment barriers. This standardization tool can also be used for definition of "demand-side" measures or technologies ensuring certain quality/quantity parameters of energy supply.	(i) Landfill gas and anaerobic digestion of agricultural wastewater (ii & iii) Efficient lighting, charcoal production, small hydro, solar, wind
Default or deemed values	Indicators that can be used for calculation of baseline, project emissions and leakage based on values that are made available *ex ante*. These indicators can be developed for known technologies with similar performance characteristics and the potential to measure performance easily. The defaults and deemed values may include: fuel emission factors, electricity grid emission factors, lifetime of equipment, and emission reductions per unit of installed equipment. The values may be derived from the recognized statistical and reference sources (e.g. IPCC, IEA, etc.) or politically agreed.	Small and distributed energy generation using appliances
Market (activity) penetration level	Tool used to identify the "spread" of specific project activities/technologies based on market share of current product/service or cumulative market penetration rates. This tool may be particularly suitable for (i) projects generating homogenous output or services, (ii) projects using emerging technologies and (iii) projects operating in markets with high availability of data.	(i) Energy-efficient technologies (ii) Small-scale renewable power generation (iii) Blended cement, natural gas cogeneration, landfill gas combustion, biogas, composting
Emissions performance standards (or benchmarks)	Emission performance standards are emission rates per unit of service or output that are based on the current and/or future performance of a peer group of similar plants or installations. Performance standards can be used to evaluate and compare performance, in particular for projects that generate homogenous products or services and for which data availability is high. These benchmarks could be determined by internationally selected experts and institutes.	Industrial production of energy- intensive products or products with process emissions (aluminium, cement), boilers, engines

Source: Adapted from AEA (2011).

In response to Decision 3/CMP.6, the CDM EB established a *Sector Specific Standardized Baselines* framework that refers to the standardization of baseline emissions and its embedded additionality demonstration since, in effect, the process of establishing the baseline also determines additionality, much in the same way as the combined additionality and baseline tool used to do.

This framework currently covers a select range of technologies: (i) fuel and feedstock switch; (ii) switch of technology with or without change of energy source (including energy efficiency improvement); (iii) methane destruction, and (iv) methane formation avoidance (UNFCCC, 2011l). Under the corresponding guidelines and procedures recently approved by the CDM EB, DNAs can propose a sector-specific list of technologies with positive additionality and a baseline technology with the corresponding emission factor (UNFCCC, 2011l).

The establishment of the *Sector Specific Standardized Baselines* framework can be considered one of the main regulatory achievements. Using this framework has a significant potential to increase the objectivity of assessments without compromising the environmental integrity of the mechanism.

At the time of preparing this study, three main documents were approved by the CDM EB defining the modalities and procedures for the implementation of standardized baselines under the CDM:

- *Guidelines for the establishment of sector-specific standardized baselines* (version 2 approved at EB 65, Annex 23).
- *Procedure for submission and consideration of standardized baselines* (EB 63, Annex 28).
- *Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines* (EB65, Annex 49).

The umbrella definition of standardized baselines provided in Decision 3/CMP.6 leaves open the means of standardization, thus encompassing all possible approaches to standardization, such as default factors, benchmarks, positive lists or baseline technology options and the respective emission factors (examples described in Table 1).

A distinction can be made between standardization approaches referring to (i) methodological improvements using, for example, default factors or benchmarks, and (ii) efforts to move away from a project-by-project approach to a higher level of aggregation, i.e., using the *Sector Specific Standardized Baselines* framework to identify technology defaults or sector defaults. Examples that illustrate both approaches can be found in Annex 1.

The main achievements of standardization aimed at moving beyond a project-by-project analysis (apart from the sector-specific standardized baseline) currently include:

- **A positive list for small-scale renewable electricity generation technologies** implemented within the small-scale CDM activities such as grid connected photovoltaic, solar thermal, offshore wind and marine energy (UNFCCC, 2011e). The current positive list is expected to be expanded by the CDM EB in the future.
- **Guidelines for automatic additionality for micro-scale projects in Least Developed Countries (LDCs) and Small Island Developing States (SIDS).**[10] Other criteria are also defining the eligibility of projects for micro-scale additionality, including: the size of installation, type of installation, type of end-users of service, project type, and the penetration rate of technology in the host country.

In the context of methodological improvements, the UNFCCC Secretariat is currently conducting an assessment as to what elements could be standardized and simplified in existing methodologies (UNFCCC, 2011a). The Management Action Plans (MAP) of the Small-Scale Working Group and the CDM Methodology Panel presented at the 66th EB meeting and published on the 2nd March 2012 identify the top down methodologies and proposed revisions to increase standardisation in existing methodologies in 2012 (UNFCCC, 2012).

10 Defined in the *Guidelines for demonstrating additionality of micro-scale project activities*.

2.1.2 HOW STANDARDIZATION POTENTIAL COULD BE FURTHER DEVELOPED

In Durban in 2011, the Parties called for continuous actions on standardization, requesting the CDM EB to carry out further work, including the development of top-down standardized baselines and expansion of the scope covered by the approved guidelines on standardized baselines (Draft decision 8/CMP.7). For instance, the framework shall now be extended to all sectors, including forestry and transport.

Another important way to broaden the standardization mandate could be to address monitoring and verification (MV) procedures to help shift away from a project-by-project approach to a more aggregated level of GHG mitigation. Standardized approaches to MV could contribute to unlocking sectors underrepresented in the CDM as well as creating streamlined MV approaches.

New aggregated, standardized monitoring approaches would be particularly relevant for sectors with diffused emission sources such as transport, agriculture[11] or some types of energy efficiency measures. Innovative standardized approaches for monitoring will need to be established since it is not always possible to measure the contribution of each direct emission source to GHG emission reductions. Relevant (aggregate) monitoring indicators could be proposed that can be converted to GHG emissions using standardized algorithms and/or default factors. For instance, conservative estimates using information on changes in market penetration rates for specific technologies in the transport or agriculture sector could be used.

To increase the flexibility and practicability of sector-specific standardized baselines, the DNAs would benefit from an option to suggest specific MV procedures consistent with their standardized baseline framework. This may take national circumstances into account more effectively in terms of data availability and established practices.

The verification approach may also be further standardized and streamlined. Risk-based approaches to verification (e.g., spot-check approach focusing verification efforts on a sample of implemented activities) could also further reduce the workload during verification.

2.1.3 CREATING NEW OPTIONS IN THE CDM REGULATORY ENVIRONMENT THROUGH STANDARDIZATION: OPPORTUNITIES AND CHALLENGES

Standardization through sector-specific baseline setting and additionality demonstration represents a substantial departure from a common case-by-case approach and could lay the foundation for more transformational procedural reforms without compromising the environmental integrity of the mechanism.

First, the baseline setting and additionality demonstration for entire sectors in countries or even regions can be submitted by a DNA and approved by the CDM EB. The sectors to be covered by the sector-specific baseline could be strategically selected in a manner that complements the host country's priorities. This aggregated approach enables DNAs to better integrate national and sectoral perspectives and potentially allows for a more strategic use of the CDM to contribute to low carbon development in the host country. While the standardization approach is not mandatory, it could provide a simplified, more certain and predictable framework for potential investors.

Second, the transparent and conservative baseline setting and additionality determination approach provides the basis for environmental integrity of the crediting. The political consensus required to define the level of conservativeness of sector-specific baselines would need to be reached by high- level decision makers ensuring the political credibility of the approach. This approach could significantly reduce regulatory risk for covered mitigation activities through enhanced

11 For agriculture and land management projects (not yet eligible under the CDM), standardized MV approach has been recently approved by Voluntary Carbon Standard based on a methodology developed by Bio Carbon Fund. Under this methodology, the monitoring is focusing of activities rather than of direct emission reductions measurement (methodology VM0017 "Sustainable agricultural land management").

certainty and objectivity, and contribute to addressing procedural bottlenecks.

Third, the enhanced use of standardization could become a viable starting point for the standardization of CDM procedures, both for stand-alone projects using the sectoral baseline and its embedded additionality, as well as for PoAs addressing micro-scale activities that benefit from simplified additionality demonstration requirements. This could contribute to creating more predictable, shorter, and less cost-intensive processes for investors and ultimately make the CDM a more attractive mechanism in poorer countries and regions where projects are more often affected by the current bottlenecks of the CDM regulatory processes.

Finally, standardization helps build the foundation for moving beyond a project-by-project approach. This shift can potentially contribute to extending the CDM to policy-driven activities that reach underrepresented sectors such as transport and energy efficiency. The possibilities of such an extension of the CDM would however depend on whether the mechanism will be considered by the international climate community as a suitable vehicle for such approaches as compared to instruments — such as nationally appropriate mitigation actions (NAMAs), a new market mechanism — that are currently under development (Chapter 3).

Challenges and limitations

In practice, the success of standardization, in particular the establishment of sector-specific baselines, could be limited by a number of factors such as:

- The efforts, costs, and limited capacity of some DNAs (in particular in LDCs) required to establish standardized baselines and procedures at the moment, are unclear, but are likely to be significant given the need to collect data (often of limited availability) that are representative of a sector as a whole.
- The three-year update frequency currently required in these guidelines can be considered too short compared to the effort needed to establish the standardized baselines - which is a data-intensive process that requires funding - and might be a barrier to the development of standardized baselines, in particular in the context of LDCs. This can also reduce the expectation for standardized baselines to improve certainty and predictability of expected carbon revenues for projects.
- The risk of creating further delays and political interference by engaging in a highly political process required to reach agreement on the proposed sectoral baselines, as well as the potential implications of selecting and prioritizing activities throughout the sector and their implications for environmental integrity at the national and sectoral level.
- The reduced incentive for the private sector to opt for a sector-specific standardized baseline in case it leads to significant under-crediting as compared to the normal CDM approach.

Other limitations relate to the current regulatory and procedural gaps that exist for projects that are eligible for the use of sector-specific standardized baselines. Through the enhanced use of standardization, these problems could be addressed by creating more certain and predictable project cycle and regulatory procedures. This could help create a more attractive regulatory environment that would incentivize project proponents.

2.2 Standardization of registration procedures for projects using standardized sectoral baselines and additionality demonstration

The setting of sector-specific baselines and additionality at the aggregate level means that these elements are no longer established on a case-by-case basis at a project level. As a result, the scope of assessments and quality control that has to be implemented for each individual activity is reduced significantly. This approach should have a positive impact on the predictability (objectivity) of assessments, reduce the level of transaction costs, and, in effect, help address many of the bottlenecks of the CDM procedures. The use of sectoral thresholds and other standardization tools shall be implemented only in maintaining conservative approach. Thus, to ensure environmental integrity, it can be expected in some cases that this approach may result in a more conservative estimate of GHG emission reductions compared to the outcome of a more complex and subjective case-by-case approach.

The current procedures for setting the sector-specific standardized baselines have generally outlined what is expected of DNAs. However, it does not define any specific procedures for assessment of projects that are eligible to use standardized baselines.

To address this procedural gap, an optional standardized registration procedure for projects using a standardized baseline is recommended in order to (i) ensure better consistency of procedural requirements in the context of standardized regulations, and (ii) to provide an incentive to project developers to use sector-specific standardized baselines as compared to the normal CDM approach. The details of such a standardized approach are discussed next.

2.2.1 MAIN ELEMENTS OF STANDARDIZED REGISTRATION FOR PROJECTS USING SECTOR-SPECIFIC STANDARDIZED BASELINES

The standardized registration of projects that uses sector-specific baselines and additionality demonstration has several main elements (Figure 6):

- **The registration template** developed for a sector or for a specific technology fulfills the function of a traditional project design document. The eligibility template is a simplified PDD structured as a checklist (discussed in more detail in *Section 2.2.2*, page 17). The aim of the template is to collect key information regarding:
  - Applied technologies and methodologies.
  - Compliance with the applicability conditions set for the use of the standardized baseline.
  - Confirmation of compliance with stakeholder consultation process and of completion of the environmental impact assessment in accordance with national requirements, existing CDM rules, and international good practices (as applicable).
- **Automatic registration** (Step C, Figure 7) is triggered by the submission of a completed registration template. The templates are designed so that a non-eligible project could not complete the template (see example in Annex 2). No validation is undertaken on site prior to the automatic registration.
- **Verification of eligibility and of actual emission reductions** after project implementation (Step E, Figure 7). Verification requires the DOE to confirm compliance of a GHG mitigation activity with the requirements defined in the registration template (i.e., validation is replaced by ex post verification) and verification of the actual emission reductions generated by the project (i.e., credits are only issued for real GHG emission reductions, not for estimates ex ante).

Figure 7 below illustrates the difference between the existing and proposed standardized project cycles.

The proposed standardized project cycle shares some common features with other available offsetting schemes (such as the American Carbon Registry, the Verified Carbon Standard (VCS), the New South Wales' Greenhouse Gas Reduction Scheme (GGAS)). It may be interesting to consider the administrative and environmental performance of these schemes while making this approach operational under the CDM (Table 2).

Required modifications to current CDM procedures

The establishment of an optional standardized project registration procedure would require at least several modifications to current CDM procedures, as discussed below.

First, prior to the project preparation stage, modalities and procedures would need to be developed for:

- The submission by the DNA of a generic registration template that would be made available for proposed projects that use the standardized sectoral baseline. The submission of generic templates could, for example, be an integral part of the proposal for a standardized baseline by a DNA, or the templates could be introduced progressively.
- The approval/rejection of the proposed generic templates by the CDM EB. The procedures may or may not require a qualified DOE to assess if a generic template is "complete".

FIGURE 6: MAIN FEATURES OF STANDARDIZED REGISTRATION FOR PROJECTS USING SECTORAL BASELINES

MAIN STEPS OF STANDARDIZED PROCEDURES	MAIN REQUIREMENTS AND RESPONSIBILITIES
Registration template for project activities that use a standardized baseline	• Elaboration of a standard for the development of registration templates • Submission of sector/ technology-specific registration templates by DNAs for EB approval
Standardized registration of project activities that use a standardized baseline	• Completion of a template by the project proponent to demonstrate project eligibility • Registration of eligible projects without individual validation by DOE
Verification and issuance	• Confirmation of a project activity's ex-post compliance with the registration template by a DOE at the verification stage • Submission of a request for issuance upon verification by DOE

FIGURE 7: COMPARATIVE PROJECT CYCLE UNDER THE EXISTING AND STANDARDIZED REGISTRATION PROCEDURES FOR PROJECTS USING STANDARDIZED BASELINES

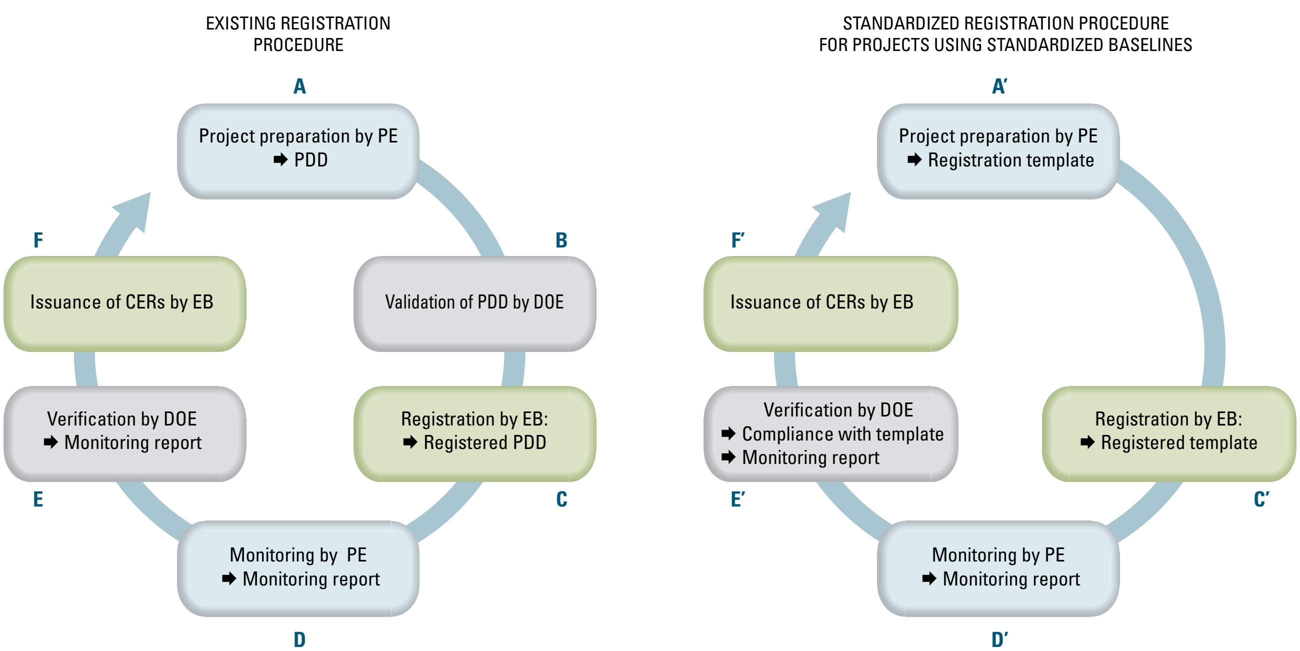


TABLE 2: STANDARDIZATION OF THE APPROVAL AND MONITORING PROCESSES IN OTHER OFFSETTING PROGRAMS

Offsetting program	Registration / Approval	Performance monitoring
Climate Action Reserve (CAR)	• Project eligibility requirements and exclusion criteria are listed. • Application form with attachments is submitted. • Administrator pre-screens projects for eligibility. • All eligible projects can begin activities. • Registration of project occurs only upon first verification.	Annual verification site visits include the assessment of material misstatements, a review of management systems, and the verification of emission reduction calculations.
American Carbon Registry (ACR)	• A project plan needs to be submitted, including description of activity, baseline scenarios, methodology, and monitoring plan. • Detailed eligibility screening of project against ACR standards done by ACR. • No validation is required. If deemed eligible, the project is "Certified."	To get credits issued, a verification statement from an approved verifier based on a desk audit needs to be submitted. Monitoring occurs annually, or more or less frequently, at project proponent's discretion. The first and every fifth verification require a site-visit.
Verified Carbon Standard (VCS)	• Project needs to be validated after which the VCS administrator reviews all documents before registration. • Project needs to be submitted using a template with questions to be answered.	GHG reductions or removals need to be verified before applying for issuance.
New South Wales' Greenhouse Gas Reductions Scheme (GGAS)	• Abatement certificate providers must be accredited with the scheme administrator. • Project must be submitted with application form that is assessed by scheme administrator. • Audit of project proposal is required only if requested by scheme administrator.	Ongoing audit requirement (verification) uses a risk based approach. Audit requirements may change over time to reflect changes in the risk profile of a project. Elements affecting risk include complexity of the activity and number of certificates created. Spot audits are also used. All abatement certificates must be registered within six months after the calendar year in which they were generated.

Second, a review process may be needed to assess the robustness and environmental integrity of new standardized tools and elements at the level of methodologies and/or MV approaches that may be used in the generic templates (e.g., use of conservative default values or a "deemed saving" approach instead of measurement). This review process may be established as part of the procedure for submission and consideration of standardized baselines, or independently, through the modification of the existing procedures for submission of CDM methodology revisions (bottom-up approach).

Once approved, the proposed standardized methodology would be a common good, available to all. In defining an approval process, care must be taken to ensure that it is efficient and does not become a bottleneck. Alternatively, the top-down development of standardized approaches could be envisaged, as far as simplifications of existing methodologies are needed. This would reduce the concerns of non-acceptance as the CDM EB or the UNFCCC Secretariat will lead the development.

Third, at the stage of project preparation (Step A, Figure 7), the registration template must be available for use and approved by the CDM EB. Preferably, the registration template would be based on the broader standardization approach, at the level of both baseline methodology and MV.

The global stakeholder consultation (GSC) is an important transparency and credibility tool of project assessment under the CDM which allows the international community as well as local stakeholders to provide comments on the proposed project activity. A possible modality of global stakeholder consultation under the standardized project registration procedures may consist of conducting a GSC for the overall proposal of the standardized baseline at the moment of its submission for consideration by the CDM EB. Similar to the current procedures for GSC for PoAs, the individual project activities that will be eligible to use the standardized baseline would not be subject to individual GSC. However, other solutions could be provided to this issue under the standardized baseline procedures as appropriate, and more analysis should be conducted in this regard.

At the level of local stakeholder consultation and the environmental impact assessment (EIA), the standardized project registration procedures could adopt an approach similar to what is currently used by the PoA regulation, namely the individual activities would need to confirm their compliance with the requirements of relevant national laws and regulation that shall be duly incorporated into the registration template. This approach would ensure that the requirements of the national systems are fully reflected and that project compliance could be verified by the DOE. However, the inclusion of such requirements in the standardized registration templates may not be straightforward and may require further in-depth assessment at the level of specific technologies and types of activities in different countries. This may also include the assessment of the potential for standardization of stakeholder consultation requirements based on the key principles of the international good practices for environmental and social safeguard policies.

Finally, the optional standardized registration procedures for projects using standardized baselines would need to be duly reflected in the Validation and Verification Standard (e.g., replacement of validation (Stage B, Figure 7) by *ex post* verification (Stage C, Figure 7); use of an adapted auditing approach, different from the normal CDM.

2.2.2 STANDARDIZED REGISTRATION TEMPLATE: GENERIC FEATURES

Content of the standardized registration template

The registration template developed for a sector or for a specific technology is a simplified project design document structured as a check list. The template contains key information regarding the project:

- The simplified description of the applied technologies and methodologies;
- The confirmation of compliance with the applicability conditions set for the use of the standardized baseline; and
- The confirmation of compliance with the local stakeholder consultation process and of the completion of the environmental impact assessment.

The template would include at least the following sections:

I. General project information;
II. Applicability conditions;
III. Technical parameters of project activity;
IV. Method used to calculate emissions;
V. Monitoring;
VI. Local stakeholder consultation;
VII. Environmental impact assessment (EIA);
VIII. Information regarding public funding;
IX. Information on project participants.

Alternatively, the template can contain calculation formulas, references to default factors and, when feasible, the means of verification that shall be provided at the verification stage to increase predictability and clarity (e.g., commonly used types of documentation such as invoices, nameplates, design documents, etc.).

Despite the specificity of templates for each selected sector or technology, it is suggested that the guiding principle for the development of these templates should be to follow a check list format. To demonstrate the use of this principle in practice, this section contains an example of a generic eligibility template for new grid-connected, run-of-river, hydropower generation (Annex 2). It is clear however that the content, structure, level of standardization and the capacity to translate the elements of projects into check list parameters will depend on the technology.

All the elements of the template are derived from applicable CDM rules and are interpreted for the selected application. The user will be required to provide concise pre-defined information as well as a confirmation of the provided conditions and criteria. The description below refers to the sections of the example of a generic template provided in Annex 2.

In **section I**, the general project information is collected, including the information about the project implementation date (#4) and project commissioning date (#5). In order to ensure compliance with rules on prior consideration of the CDM,[12] the current Prior Consideration of the CDM Form (F-CDM-PC) should be sent to the DNA and the UNFCCC Secretariat within 6 months of the project start date (UNFCCC, 2010c).

In **section II**, the eligibility of the project to use the template is verified by means of a confirmation of the main characteristics of the hydro power plant (#8 & #9), as well as its compliance with national laws and regulations (#10). Alternatively, if the template would have to be structured in a more comprehensive way (e.g., include hydro power plants with water reservoirs that are eligible under AMS-I.D. as well), a different set of options would be included in this section.

Section III provides data of installed generation capacity and verifies eligibility of the project activity to use the standardized baseline and its embedded additionality demonstration under which the generic template is developed. To do so, item #11 requires confirmation of the scale of total installed capacity according to available thresholds (micro-scale, small-scale or the threshold established by the selected standardized baselines). The remaining items require the collection of other relevant technical information on the project.

Section IV describes the method used to calculate emissions for baseline, project, leakage and emission reductions. In this specific case, only baseline emissions would need to be calculated using the formulas referring to in the AMS.I.D.

Section V defines all of the required information related to the monitoring methodology and is arranged in two sections:

A. Parameters to be monitored.

In the case of hydro power generation, only two options for monitoring are available: through bi-directional meters or through unidirectional meters (#17). In both cases, the template indicates the required algorithm for calculation (with or without consideration of the electricity supplied from the grid, #17-#19).

B. Metering equipment.

The information provided on the metering equipment is pre-defined, taking into account the metering arrangement (e.g., the ownership of meters). The information of quality assurance and quality control is standardized as much as possible in a format that requires confirmation (e.g. #28 & #29). At the same time, the template also provides a possibility to indicate any specific metering arrangements that may not reflect the common practice for such projects and thus may not be provided as default options in the template.

Section VI contains information about the local stakeholder consultation. First, the developer shall confirm whether such consultation is required for this type of project (scale/location/technology) to fulfil the eligibility requirements for the use of the appropriate sectoral standardized baseline; or justify why such consultation is not required. In case a stakeholder consultation is required at the level of each individual activity, several approaches could be selected to ensure that the consultation has been conducted and the comments have been addressed in compliance with the national

12 If a project has already started before a PDD has been published for public comments or a new methodology or revision of a methodology related to the project has been proposed, notification of CDM prior consideration is required to demonstrate that the benefits of the CDM were a decisive factor for taking up the project. This notification should comply with the "Guidelines on the demonstration and assessment of prior consideration of the CDM", and in accordance with the Project Cycle Procedure.

requirements and based on international good practices (as applicable). In the illustrative example provided in Annex 2, the developer is required to confirm the compliance with the above requirements, as well as confirm that the DNA has been fully informed about the modalities and outcome of the stakeholder consultation. The DNA could, for example, include an explicit indication of this in the Letter of Approval (LoA). In this approach, the responsibility for due consideration of the stakeholder's interests is placed predominantly on the project developer. Other approaches are possible, such as the "host country system approach" and/or the "liability approach" discussed in *Section 2.3.3*, page 24.

Section VII covers the issue of environmental impact assessment using an approach similar to one discussed above for local stakeholder consultations.

Section VIII includes the information regarding public funding.

2.2.3 EXPECTED IMPACT OF USING A STANDARDIZED REGISTRATION PROCEDURE FOR PROJECTS USING A STANDARDIZED BASELINE AND WAYS TO MITIGATE POTENTIAL RISKS

Targeted population of activities

In principle, any project that uses a sector-specific standardized baseline established at the national level (and its embedded additionality demonstration) could opt to use a standardized registration procedure if a generic template is available for that type of activity.

As a starting point, registration templates could be developed for projects that are homogenous and replicable of a small or medium size (e.g., renewable energy, certain energy efficiency measures) as well as for micro-scale activities that may not be part of a PoA. This means that already at the start, the targeted population of the standardized registration procedure is quite large, around one third of the historic CDM pipeline.

For instance, currently in the UNEP Risoe pipeline there are more than 6,700 renewable energy projects,[13] which represents above 70% of the total number of projects (including rejected and withdrawn projects).[14] Of these renewable projects, almost 50% are small-scale. For these projects, a higher level of representativeness and completeness of the template could be achieved, given the vast experience and knowledge accumulated by normal CDM projects.

Streamlining and simplification through standardized registration procedures could also benefit demand-side energy efficiency projects. These projects currently represent only 1% of the total CDM pipeline (excluding PoAs) despite their significant GHG mitigation potential.

The main limitations of the use of the standardized registration procedure for projects would relate to the following factors:

- The sectoral coverage of standardized baselines;
- The requirement to use specific additionality demonstration which is not covered by the demonstration embedded in the standardized baseline (e.g., for large-scale projects); and
- The uniqueness and/or complexity of technical solutions in some projects (e.g., cogeneration, associated gas flaring reduction, industry rehabilitation projects, and energy efficiency in complex sectors such as the steel industry).

In these cases, the use of a standardized registration template, (see *Section 2.2.2*, page 17) may not be feasible or appropriate since many elements would be project-specific.

Further analytical effort would also be required to assess the potential of standardized registration for sectors with diffused emission sources such as transport and agriculture. A substantial effort in terms of further defining standardization of methodological and MV approaches is still required before

13 The renewable energy projects include project activities in different categories such as biomass, energy efficiency households and zero-emission renewable heat and power generation.

14 Based on the data from UNEP Risoe CDM/JI Pipeline Analysis and Database, March 1, 2012.

substantial GHG mitigation can be achieved in these sectors under the CDM.

Acceptability for stakeholders

The acceptability of and stakeholders' position vis-a-vis a standardized track for project registration will largely depend on the level of potential risks. The main risks and possible ways to address them are listed in Table 3.

2.3 Standardization of procedures for PoAs addressing micro-scale activities

This section considers the opportunities for further streamlining the regulation of PoAs, in particular with a focus on PoA procedures addressing underlying micro-scale activities. First, some key barriers specific to PoA implementation are described which has a dampening effect on private sector participation in PoAs. Second, standardized PoA procedures are proposed to address several of these barriers specifically related to PoA procedures and project cycle of micro-scale PoAs. Finally, the expected impact of proposed standardization on the PoA pipeline is described and the ways of addressing potential risks associated with these modifications are discussed.

The standardized procedures would represent a procedural option available to all PoAs addressing micro-scale activities, independent of the availability of standardized baselines.

2.3.1 KEY BARRIERS TO IMPLEMENTATION OF PoAs

Despite significant and important improvements in the applicability of PoA regulation (see *Section 1.2.1* on page 5), several key barriers still limit its full potential:

- **Threshold limits to a CDM Programme Activity (CPA).** The threshold limits (such as small-scale and micro-scale thresholds) are currently defined at the CPA level rather than at the level of the underlining units, reflecting a lack of recognition of the differences between projects and programs. If each unit within the CPA is within the category of small-scale or micro-scale thresholds (e.g., a compact fluorescent lamp (CFL), a cooking stove, a renewable energy installation such as solar home water heater or an energy efficient appliance), then the thresholds should not restrict the size of the overall CPA. Under the current rules, project developers that want to apply the micro-scale additionality guidance have to cluster household/small-medium enterprise/community level activities into CPAs that are below the micro-scale limits. While keeping the combined mitigation effort in a CPA below the micro-scale limits, the mere possibility of having numerous CPAs in a PoA makes the CPA stratification artificial. In the meantime, it increases the administrative burden related to handling an inflated number of CPAs.
- **Starting date of a CPA.** According to current rules, a CPA cannot start prior to the PoA validation date, i.e. the date of the publication of the PoA on the UNFCCC web-site. However, rules also require the first specific CPA to be submitted along with the PoA for publication. The nature of PoAs is such that the institutional structure of PoAs can require more time than is needed to prepare the first CPA. Structuring a PoA thus substantially delays CPA implementation. Many of the PoAs have a difficult time financing incremental costs for implementation. This causes them to wait for PoA publication on the website before they start generating emission reductions, which has a negative impact on private sector interest in these projects.
- **Approval process for PoAs.** The current CDM approval process for PoAs involves PoA validation, CPA scrutiny during inclusion, and the verification of CPAs. This approach for CPA inclusion into a PoA is currently understood by DOEs as requiring an additionality assessment or check of CPA additionality against the eligibility criteria at the CPA level and monitoring of each CPA. Whilst this is often appropriate for single unit type CPAs (e.g., a small hydro power plant or a composting unit), it is not appropriate for dispersed small/micro-scale CPAs (e.g., cooking stoves, or CFLs).

TABLE 3: POTENTIAL RISKS OF USING A STANDARDIZED REGISTRATION PROCEDURE FOR PROJECTS USING A STANDARDIZED BASELINE AND MITIGATION OPTIONS

Potential risk	Mitigation options
Risk of potential negative impact on environmental integrity of the mechanism (level: low)	• Conservativeness and stringency of baseline and additionality of eligible activities are ensured through the approved sector-specific baseline and its pre-defined additionality/thresholds • Ensure that any other elements of standardization used in the template are robust and conservative • The increased transparency and predictability of the standardized registration procedure would reduce the risk of additional projects not being implemented. These are projects that are highly dependent on the CDM revenue stream and are currently the most vulnerable to the high upfront transaction costs and regulatory risks. In this context, standardized procedures could have a positive impact on the overall environmental integrity of the mechanism.
Late identification of non-eligible projects (level: low-medium)	• Ensure completeness of the generic eligibility template • Make project proponent clearly responsible for misstatements. Given that the crediting is made only upon verification of emission reductions, the risks are not more than currently under traditional CDM.
Increased risk of damaging impact on local communities and the environment of the registered projects: (level: low-medium)	One or both of the following: • *"Host country system approach"*: Request a formal approval by the DNA that (i) the stakeholder consultation/EIA are not required for the project activity (e.g., due to proven benign nature of the activity); or (ii) if applicable, that appropriate measures have been taken to address any issues raised and an appropriate environmental management plan is prepared. • *"Liability approach"*: Establish a liability for any damage to local communities or the environment by (i) revoking project registration; or (ii) suspending project registration status until the identified damage is remedied by the project participants. This approach would provide direct financial incentive to the project developer to ensure good sustainable development standards (e.g., through the use of different potential instruments such as escrow accounts, insurance, bonds).
Low uptake as compared with traditional CDM due to novelty of approach and lack of capacity to implement it, in particular by the private investors (level: medium)	• Further streamline CDM procedures, in particular for MV, to cover large spectrum of sectors, including those with untapped potential (transport, agriculture) • Ensure that the newly established processes (e.g., approved standardized values used in the template) are efficient and not create new bottlenecks in the procedures • Support the development of piloting activities that would demonstrate practicability of the fast-track procedures.
Increased risk of exposure for project participants (level: low)	• Ensure completeness and clarity of the generic registration template to reduce the possibilities of misinterpretation • Preserve the optional (voluntary) nature of the standardized procedure while keeping a normal registration procedure available for project proponents • Support capacity building for DNAs and project participants, in particular in LDCs

- **Counterparty risk in PoAs.** Since investors can only provide financing to a bounded project, investments in PoAs typically take place at the level of individual CPAs. For instance, several separate investors may provide financing and operate distinct sets of activities (e.g., number of lights to be installed) within the framework of a single PoA. Yet, investments in CPAs are complicated by some rules and procedures that apply to the PoA as a whole. As a result many PoAs are struggling to structure carbon finance solutions for

CPAs and to allocate risk (e.g., given that performance of CPAs controlled by fellow investors may have direct impact on the probability of issuance for the entire set of CPAs under a PoA). It is important that the issue of counterparty' risk in PoAs be recognized and treated differently compared to traditional CDM projects.

The next section identifies and discusses proposals to address several of these barriers in the framework of micro-scale PoAs by redefining the CPA concept and simplifying the monitoring and verification approaches.

2.3.2 SIMPLIFIED PROCEDURES FOR PoA ADDRESSING MICRO-SCALE ACTIVITIES

The objective of the proposed modifications in PoA procedures for micro-scale activities is to enhance CDM reach to micro-scale activities, which account for most of the PoAs in the existing pipeline and have a substantial potential for implementation in LDCs (e.g., cooking stoves, solar home systems, and efficient lighting).

The modifications mainly consist of:

- Removal of the CPA level from the regulatory structure of PoAs with underlying micro-scale units to make the PoA concept more compatible with the reality of micro-scale activities. It is hard to apply the CPA concept in the context of a very large number of micro-technologies, e.g., cooking stoves or CFLs, incentivized over time through a program. As discussed above, in this context a CPA distinction may become artificial and lead to an inflated number of CPAs to be managed by the CME. This modification could also enable fast-track inclusion of underlying units by the CME.
- Recognition of streamlined and robust monitoring approaches.

The suggested standardized PoA procedures for micro-scale activities would have the following main features (Figure 8):

- **Standardized inclusion of underlying units by CME.** The standardized procedures would feature the inclusion of underlying micro-scale units directly by the CME in accordance with the eligibility criteria to be defined in the registered PoA-DD and in compliance with the additionality requirements for micro-scale CDM projects. The validation of such inclusion by the DOE would no longer be required given that both the capacity of the CME to manage the PoA and the eligibility criteria for inclusion are covered by the current scope of validation.
- **Simplified monitoring approach** that would be based on (i) sampling of the total stock of underlying units at the time of the monitoring and verification, or (ii) changes in market penetration rates.

FIGURE 8: STANDARDIZATION OF PoA PROCEDURES FOR MICRO-SCALE ACTIVITIES

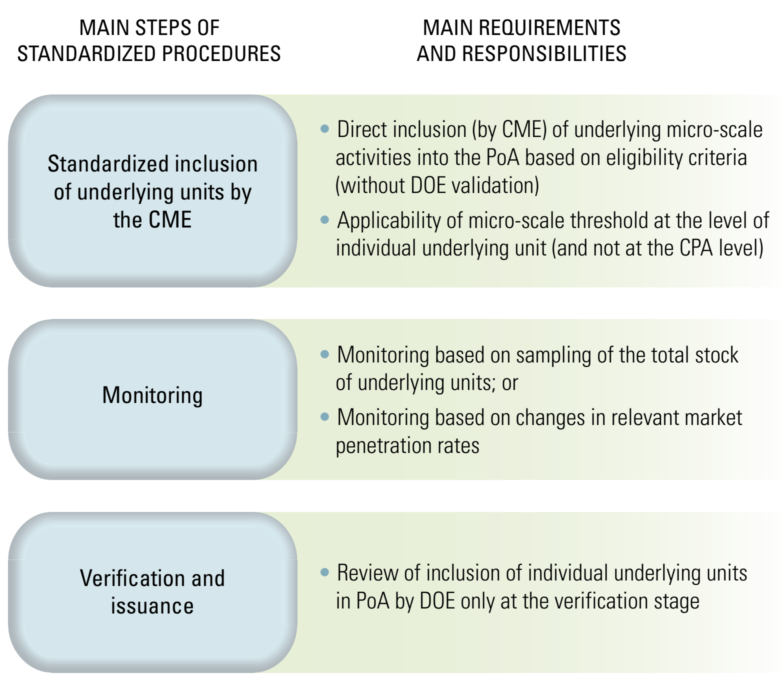
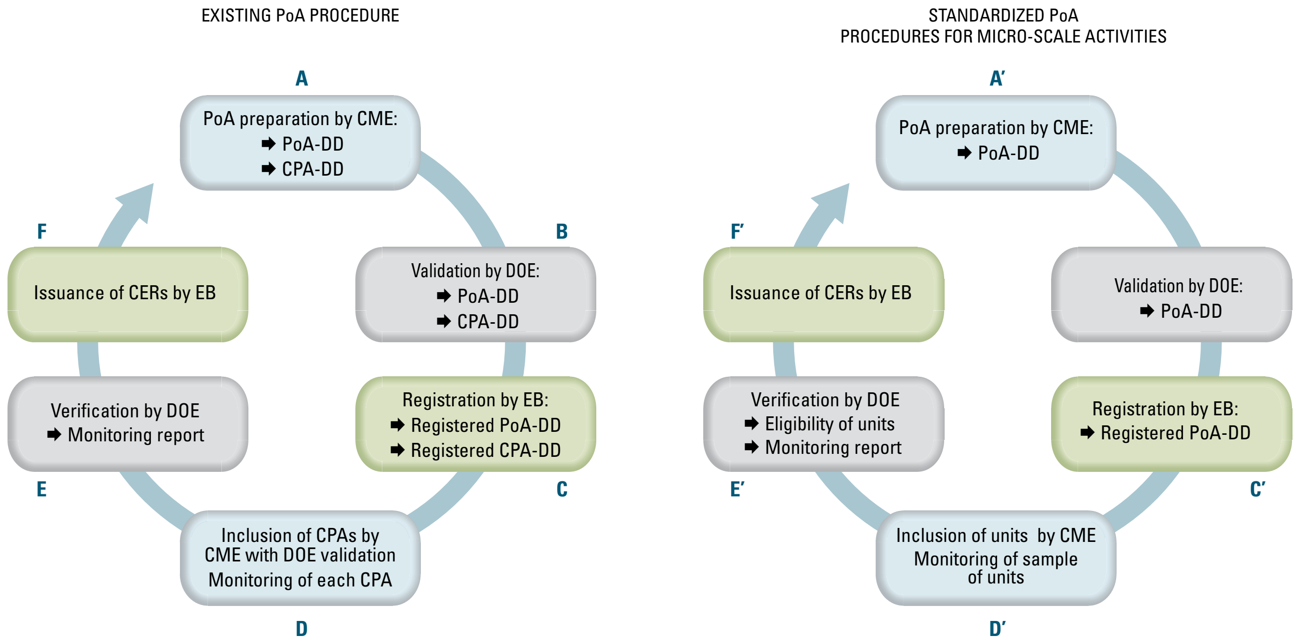


FIGURE 9: COMPARATIVE PROJECT CYCLE UNDER EXISTING AND STANDARDIZED PROCEDURES FOR PoAs WITH MICRO-SCALE UNITS



- **Verification** would encompass a review of inclusion of individual underlying units in the PoA by a DOE and the verification of emission reductions.

Furthermore, the elements of the simplified registration templates suggested above (see *Section 2.2.2*, page 17) could also be used to simplify the forms used to check the eligibility of inclusion of underlying micro-scale units.

Figure 9 illustrates the difference between the existing and standardized procedures for PoA with underlying micro-scale units.

Required modifications to current procedures for PoAs

The suggested standardization would require the following modification in the current PoA procedures:

First, the standardized registration procedures for PoAs with underlying micro-scale activities should be implemented on the basis of PoA-DDs exclusively. It would require neither separate CPA-DDs (Stages B & C, Figure 9) nor the inclusion of CPAs over time as a procedural step prior to verification. The PoA-DD would define the eligible types of activities under the PoA that can be added directly by the CME. In addition, the micro-scale additionality guideline would have to include the reference to underlying units and not to CPAs, and the activity-specific thresholds would have to be revised accordingly.

Second, the PoA standard[15] would need to be revised to allow for a transfer of authority and liability to the CME for the direct inclusion of underlying units (Stage D, Figure 9),. The CME

15 "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for PoAs (version 01.0)" as approved at EB65 in December 2011.

would have the authority to include underlying units into the program and the responsibility to ensure the quality of the monitoring. The CME would take a greater share of liability for misstatements and erroneous inclusion. At the same time, the fast-track inclusion would make the inclusion substantially faster and reduce transaction costs for the CME. Finally, to ensure the integrity of the process, the DOE would verify the eligibility of inclusion during the verification stage (Stage E). Only the emission reductions from the eligible underlying units would be verified.

Third, the PoA standard would need to allow for flexibility in terms of including underlying units. This should better account for the operational needs of CMEs in addressing micro-scale activities. To keep transparent and verifiable records/reporting of inclusion (e.g., a registry), the CME would have to indicate the expected periodicity of reporting in the PoA-DD and in the eligibility requirements (if applicable).

Fourth, the shift of the eligibility check for included units (Stage B to Stage E, Figure 9) would require relevant modifications of the VVS that would recognize the different distribution of responsibilities for inclusion in the context of PoAs with underlying micro-scale units. Upon verification (Stage E, Figure 9), the DOEs would verify that the data management and quality assurance processes of the CME are working properly. Further, the DOE would check the eligibility of included units as contained in the monitoring report. In the context of micro-scale activities, risk-based approaches for verification could be used (e.g., spot-checks of sample units among all activities). Therefore, a key difference from current practice is that eligibility is not verified for each single CPA (Stages D & E, Figure 9), but could be assessed on a sample basis among all activities.

Finally, the sampling guidelines for PoAs would need to be revised to explicitly allow sampling to be based on the totality of the stock of included units (e.g., to ensure accuracy of the approach, test samples could be made of the included units).

2.3.3 EXPECTED IMPACT AND WAYS TO MITIGATE POTENTIAL RISK FOR THE STANDARDIZED PROCEDURES FOR POAS WITH UNDERLYING MICRO-SCALE UNITS

Targeted population of activities

The proposed reform is focusing on PoAs with underlying micro-scale units (e.g., GHG mitigation at the level of households), recognizing the specific management and operational needs of such PoAs. The use of standardized procedures would complement the standardized approach to the additionality definition that is already available and has been implemented for micro-scale activities. Further, the process for inclusion of individual micro-scale units may become more rigorous and reduce the impact of erroneous inclusions on the environmental integrity of the PoA as compared to the current inclusion practices at a more aggregate CPA level.

Based on an analysis of the PoAs in the CDM pipeline that are currently under validation, it can be estimated that at least half of these PoAs could qualify as PoAs with underlying micro-scale units (efficient lighting, cook stoves, solar home systems, other micro-scale technologies for energy generation by user).

With the use of standardized sector-specific baselines (and its embedded additionality) in the context of PoAs, the applicability of standardized PoA regulation could later on be extended to PoAs addressing small-scale underlying units. In this context, some elements of the standardized project registration for CDM projects using standardized baselines could also be applied (see *Section 2.2,* page 13). However, further analysis would be needed to check whether these modifications would meet the practical needs of PoA developers and investors, or whether other avenues of CDM reform should also be explored such as testing innovative approaches that would credit the impacts of policy-driven actions under the CDM.

Acceptability to stakeholders

The acceptability to stakeholders and regulators of the standardized registration of PoA with underlying micro-scale units is related to the potential risks regarding the environmental integrity of the proposed modifications. The main risks and possible ways to address them are described in Table 4 below.

TABLE 4: POTENTIAL RISKS OF STANDARDIZED PROCEDURES FOR PoAs ADDRESSING MICRO-SCALE ACTIVITIES AND MITIGATION OPTIONS

Potential risk	Mitigation options
Risk of potential negative impact on environmental integrity of the mechanism (level: low)	• The suggested modifications have no impact on conservativeness and stringency of baseline and additionality for eligible activities. Similar to the current PoA rules, both baseline and additionality would be validated at the level of the PoAs by a DOE prior to PoA registration. The CME managing capacity, including the capacity to check eligibility of inclusion, is validated by a DOE at the stage of PoA-DD validation. • Ensure that eligibility criteria for inclusion of individual underlying units are complete and straightforward. The use of a checklist approach to the extent possible would limit the possibility of misstatements or erroneous inclusions.
Late identification of non-eligible units (level: low-medium)	• In principle, the process for inclusion of individual units may become more rigorous and reduce the impact of erroneous inclusions on the integrity of the PoA as compared to the current inclusion practices at a more aggregate CPA level. • Ensure completeness of the eligibility criteria for inclusion. • Shift greater responsibility for misstatements to the CME. Given that the crediting is made only upon verification of emission reductions generated by eligible units, the regulator takes no risk for that it would be any different from an existing PoA.
Low uptake as compared with traditional CDM PoA (level: low-medium)	• Support the sharing of lessons learned from best CME management practices for micro-scale activities. • Support the development of complete and objective eligibility criteria in the priority sectors based on the check list approach as applicable. • Support the development of PoA pilots using a streamlined registration approach that would demonstrate practicability of the fast-track procedures.
Increased risk of exposure for project participants (level: low)	• Ensure completeness and clarity of the eligibility criteria template to reduce the possibilities of misinterpretation. • Support capacity building for CMEs, in particular in LDCs.

chapter 3

Can standardization facilitate crediting of mitigation impacts of policy-driven actions under the CDM?

The features embedded within a standardized baseline approach could potentially enable the shift toward the crediting of policy-driven actions under the CDM. This would mean that the CDM reform process could continue to move away from crediting projects and specific measures, and instead allow the mitigation impacts of policy-driven actions to be credited. However, currently the CDM does not allow policies to be credited, but only the measures or activities implemented under a policy within the PoA framework

As discussed in Chapter 2, the standardized baseline moves away from a project-by-project approach and towards sector or aggregate approaches where baseline and additionality thresholds are pre-defined and agreed as part of a political process. This, as well as the inclusion of MV under a standardized approach, are features that would be necessary to facilitate the crediting of policy-driven mitigation impacts. It appears plausible that further reforms to expand and apply standardized approaches could support such a trend (Figure 10).

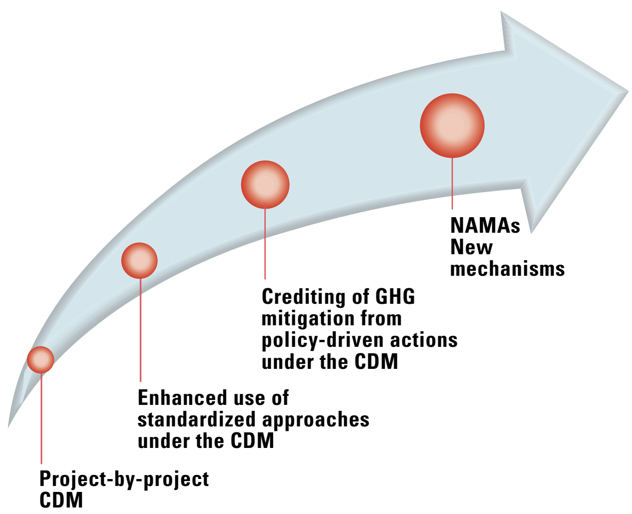
In the previous chapter, the possibilities that standardization offers for streamlining the CDM procedures were reviewed. Chapter 3 considers to what extent these standardized approaches under the CDM could be extended to provide a valid testing ground for new carbon market mechanisms currently being discussed.

3.1 Crediting the impacts of policy-driven actions: main issues and approaches

The crediting of policy-driven actions that result in GHG mitigation is different from the crediting of project-based CDM activities. One example of a policy-driven activity would be a government implementing a feed-in tariff that is financed with the support of carbon finance, to incentivize renewable energy sources. In considering this example, it becomes clear that there are several key differences compared with CDM project activities:

- There is no direct allocation of carbon revenues to individual measures; the carbon revenues are given to the government that implements the policy.
- The activities target a more aggregated "unit" or population under a policy than would be affected by an individual project, i.e., they address all renewable energy providers.
- The data requirements and methodological approaches for providing evidence that the policy is contributing to the environmental integrity of the CDM are different.
- From a GHG mitigation perspective, the institutional, legal, and political environment is critical to the success of the policy.

FIGURE 10: POSSIBLE EVOLUTION OF APPROACHES UNDER THE CDM



3.1.1 POLICY-DRIVEN ACTIVITIES UNDER THE CURRENT CDM REGULATORY FRAMEWORK

The possibility of crediting policies or standards under the CDM has always been controversial as a result of the differences between policy-driven and individual project crediting. However, this was still under consideration up until CMP.1 in Montreal in 2005 where it was decided that:

> *"A local/regional/national policy or standard cannot be considered as a CDM project activity, but that project activities under a PoA can be registered as a single CDM project activity provided that approved baseline and monitoring methodologies are used that, inter alia, define the appropriate boundary, avoid double counting and account for leakage, ensuring that the emission reductions are real, measurable and verifiable, and additional to any that would occur in the absence of the project activity"* (UNFCCC, 2005).

There are however, two exceptions to the strict treatment of policies and additionality. First, the "non-enforcement" rule of the additionality tool allows the CDM to help enforce a pre-existing mandatory policy or law, if it can be shown that "applicable legal or regulatory requirements are systematically not enforced and that non-compliance with those requirements is widespread in the country."

Second, the E- policy rules state that the impact of a policy which gives comparative advantage to less emissions intensive technologies or fuels and that has been enacted since the adoption of the Marrakech Accord in 2001 can be disregarded in the baseline scenario (UNFCCC, 2005). Thus, the current CDM rules allow, under certain conditions, the generation of CERs from activities that support the achievement of the policy goal. Yet, especially in the case of the E- policy, the application of these rules by the CDM EB has not been consistent (Castro et al., 2011) but rather case-specific, thus causing uncertainty when developing projects.

A number of registered PoAs illustrate how policies and the CDM incentives have been combined. For example, in five of the 13 registered PoAs, the CME is a state-owned entity which indicates that the state has an interest in ensuring that the PoA takes place. In the case of the Egypt Vehicle Scrapping and Recycling Program, the CDM explicitly supports the enforcement of an existing mandatory policy.

The examples of how the CDM is being combined with other incentives are numerous, and such combinations are a general rule for PoAs. Some examples from the current PoA pipeline are provided in Table 5.

3.1.2 BARRIERS TO CREDITING IMPACTS OF POLICY-DRIVEN ACTIONS UNDER THE EXISTING CDM FRAMEWORK

Despite examples where individual measures contributing to the implementation of a policy can be credited under the CDM, or where a non-enforced policy can be structured into a CDM project or program, the guiding principle remains that policies as such are not creditable under the CDM. This means that the activities under policy-driven measures in PoAs are credited but not the policy itself, and a clear link between the revenues from carbon credits and the actual measures have to be established. This creates difficulties for a broad range of policies, instruments, and incentive structures to be credited under the CDM despite their contribution to GHG mitigation.

For example, the transport sector could greatly benefit from the crediting of policy-driven actions, since its individual emission sources are small and dispersed. As a result, current requirements to identify emissions for each individual measure and to monitor all emissions at the unit level requires overwhelming efforts. Allocating CERs to individuals implementing the activities as well as monitoring at the level of each activity may not be viable or would lead to very high administrative costs. This applies, in particular, to demand-side energy efficiency measures, where a large variety of different measures or improved practices (such as hot-water consumption, solar water heating, average room temperature, isolation, fuel-switch) can be encouraged by a policy. In both cases, crediting the impacts of the policies quantified at the aggregate level could become a practical, cost-effective solution.

TABLE 5: COMBINATION OF POLICIES AND CDM INCENTIVES WITHIN THE PoAs

PoA example	PoA targeted policy/goal
Egypt Vehicle Scrapping and Recycling Program	The goal: Remove old vehicles from the streets of Egypt by providing advance payments and subsidies to car owners who bring their vehicles to recycling and scrapping centers, supported by a mandatory law. Policy: Approving a greater implementation of the Vehicle Scrapping and Recycling Program. The law was designed to accelerate the rate of fleet replacement, improve air quality, and reduce traffic accidents. However, the law is not enforced and support from carbon finance is expected to increase the enforcement rate of the law.
Smart Use of Energy, Mexico	The goal: To transform the energy efficiency of Mexico's residential lighting stock by distributing up to 30 million CFLs to households. A significant public education component promoting the importance of energy efficiency is included. The policy: This PoA is developed under the national climate strategy. Demand-side energy efficiency has been identified by the Mexican government as one of the key areas to address in order to reduce GHG emissions and energy consumption (National Energy Savings Commission).
Energy-efficient lighting using Compact Fluorescent Light Bulbs in rural areas, Senegal	The goal: This Demand-side Energy Efficiency Measures PoA is based on the installation of CFLs to promote energy-efficient lighting in newly electrified households in rural areas of Senegal. . The policy: This CDM PoA will be undertaken in connection with a nationwide rural electrification plan implemented under the supervision of the Senegalese Rural Electrification Agency. The objective of the plan is to increase electricity access in rural areas from 16% to 50% by 2012.
Methane capture and combustion from Animal Waste Management System (AWMS) of the 3S program farms of the Sadia Institute, Brazil	The goal: To use methane from lagoons. The policy: National, state or municipal legislation in Brazil regarding AWMS requires water treatment by open-air in non-permeable lagoons. The project goes beyond these legal provisions to collect methane, i.e. the baseline scenario corresponds to current legal provisions.

However, key barriers preventing the crediting of policy-driven actions are primarily the result of a lack of consensus in defining politically acceptable approaches to address the following issues:

- **Attribution of mitigation impact to policy-driven actions.** How can emission reductions be directly attributable to policy-driven actions? For example, soft measures/enabling environments are unlikely to be considered part of the contribution to achieving GHG emission reductions; however the costs of creating such infrastructure can be significant.[16]
- **Additionality demonstration for policy-driven actions.** The additionality tool and concepts has been developed to assess microeconomic/individual decision-making processes. It favors the use of investment analysis, which is unlikely to be applicable in the context of policy-making or policy implementation since the economic rationale is far from being the only one that drives policies or incentivizes the targeted mitigation activities. The IPCC approach that was included in a draft version of the PoA standard recently considered by the CDM EB describes how additionality could be demonstrated for a PoA, which has the aim of implementing a new policy, enforcing an existing policy, or enhancing the implementation of an existing policy.[17] However, the approach would

16 For instance, one may think about a network of inspection points for the vehicles to enable and enforce the implementation of low emission vehicle standards or, in some other cases, the maintenance of metering equipment/labs.

17 A proposal for a policy PoA was circulated as an annex to the proposed agenda ahead of the EB 63 meeting in 2011. This annex included a proposed standard to the requirements on additionality demonstration for a PoA. The so-called "category 2 approach" to additionality demonstration describes how additionality could be demonstrated for a PoA which has the aim of implementing a new policy, enforcing an existing policy, or enhancing the implementation of an existing policy. The parts related to the policy PoA were not included in the standard finally adopted by the EB.

require extensive data collection to justify the implementation of a policy, which seems impractical. Furthermore, the E+/E- rule is mainly limited to the demonstration of the baseline and can't be explicitly used for demonstration of additionality. At the same time, under the new sector-specific standardized baseline setting and additionality demonstration framework, it might well be that these issues are no longer relevant.

- **Acceptability of blended financial sources.** Under the current CDM rules, there is a requirement that excludes the diversion of the official development assistance (ODA) for GHG mitigation activities. Therefore, if the policy supported by carbon finance under the CDM receives support from another source of financing, blending these two sources is possible only to the extent that ODA is not diverted (to avoid the situation where the ODA would be used to support developed countries in achieving their emission reduction targets). In some cases, a conservative interpretation of this requirement has resulted in the understanding that if any ODA is used in conjunction with carbon finance, the emission reductions triggered by the ODA must be identified. This is of course often not possible.[18] There could be other approaches for addressing the issue of blending, such as only crediting a pre-defined share of emission reductions or allowing only a pre-defined list of technologies to benefit from blending. However, the use of public funding to support financing of creditable projects would also benefit from a conceptually different treatment that would need to better recognize the dedicated nature of these funds that are often earmarked for the generation of GHG emission reductions.

18 For example, Germany allows JI projects on its territory. However, if the project benefits from other sources of public support, the share of emission reductions corresponding to the other sources of public support need to be subtracted from the JI project baseline (Bundesministerium for Justiz, 1997). As the determination of the share attributed to the other sources of finance is very difficult, this rule has resulted in a situation where no JI projects are developed in Germany if the project gets support from any other public source.

3.2 The potential for crediting the impacts of policy-driven actions in the context of standardized baselines

Within the evolving standardized baseline approaches there are many design elements that enable a closer linking of CDM to national policy implementation in host countries. These approaches could be refined to address some of the barriers limiting the crediting of policy-driven actions. The design features of the standardized baseline approach that could be examined as a starting point for exploring options for crediting policy-driven actions are:

- **More aggregate decision-making.** The standardized approach moves many aspects of decision-making concerning the additionality and the baseline for emission reduction calculation to a higher aggregate. In standardized approaches, a similar baseline is set for a larger group of similar measures within a certain geographical or system boundary. Shifting the decision-making to a more aggregate level might offer a practical tool for a policy-maker wishing to use CDM to support policy implementation in that sector. The same governmental body that has proposed the policy can also propose a standardized baseline in line with the policy aims.
- **Introduction of a sectoral perspective.** The standardized baseline approach may cover a whole sector of a country for which the baseline will be defined. Given that the standardized baseline would be developed and/or approved by the host country authorities, CDM decision-making would be more closely linked to the level of decision-making regarding sectoral policies (e.g., energy policy, transportation policy, energy efficiency policy) and could become closely linked with the development of low carbon emission strategies and the climate policy of the country.
- **Establishing creditable thresholds for the activities driven by policies.** The setting of the baseline level and of the additionality threshold eligible for crediting is a key element in both the standardized baseline approach

as well as crediting of policy-driven measures. This is the area where there are probably the most synergies between the concepts. While setting the baseline level is ultimately a politically negotiated decision, a baseline that would be acceptable to all stakeholders has to embed some level of under-crediting or partial crediting compared to actual emission reductions achieved.

- Such an approach has been used, for example, in the Egyptian car scrapping PoA where CDM funding is allowed only until a certain level of policy implementation rate is achieved, after which the program needs to continue on its own.
- Another example is the implementation of renewable energy generation targets that are included in the positive list. The partial crediting envisaged under the standardized baseline framework could in part address concerns regarding blending.

The standardized baseline approaches could also be more suited to facilitate the CDM support to technology development policies (e.g., energy efficiency improvement measures in cooling systems). Careful analysis would need to be undertaken of how and at what level of aggregation an appropriate standardized baseline should be set to capture a variety of very different measures contributing to energy savings.

While the current standardized baseline framework allows some opportunities to explore options for crediting policy-driven activities, without explicit political support from the CMP it will be difficult to develop activities that will provide robust responses to the issues currently acting as a barrier. This is because it is not possible to address the issues for policies in the same way as for projects. Providing solutions to the barriers identified above would require enhanced use of standardization, as well as different approaches for determining additionality. With political support to establish pilots in a start-up phase, meaningful responses to the current concerns about crediting of policies could be provided.

First, additional conceptual and analytical work would be required to explore and identify approaches for expanding the standardized methods for MV as suggested in *Section 2.1.2*, page 12, but also taking into account policy-specific issues. Developing a more aggregated approach to MV would not need to start from scratch. There is a long history of GHG and energy policy and programme evaluation where MV is done at an aggregate policy or program level using sampling and other statistical methods (e.g., the U.S. 2007 National Action Plan for Energy Efficiency (Schiller, 2007)). There are past lessons learned, existing solutions, and practicable ways to address many of the concerns related to boundary definitions, uncertainties related to sampling, or methods of turning gross savings into net savings.

Second, the analytical effort would need to facilitate the identification of different approaches to crediting thresholds to define additionality as currently applied under the standardized baseline framework. Currently the threshold is established using a politically negotiated cut-off threshold for additionality. All measures beyond this cut-off are eligible for crediting under the CDM, i.e., are automatically additional. This approach is valid if incremental emission reductions will come at higher incremental costs (i.e., there is a relationship between cost and performance that can be identified). However the approach is limited in its application in the case of energy efficiency measures that could have a "high positive economic return."

Third, alternative approaches to determining additionality could be explored. For example, the implications of the use of a conventional formula that avoids the political negotiation to establish additionality as required under the standardized baseline framework should be assessed. For instance, in the case of a mandatory policy, it could be possible to credit only the equivalent of the costs required to implement the policy (standardized costs for testing labs, labeling, ongoing enforcement, etc.) or to close the funding gap in a public incentive scheme implemented under the standardize baseline approach with pre-set thresholds (e.g., up to 20% funding gap financing out of the CDM allowed).

Concluding remarks

This study argues that using standardized assessments of projects as well as defining baselines and additionality at the sectoral level can have an important positive impact on the efficiency of the CDM process. This would contribute to limiting transaction costs and time requirements, as well as enhancing transparency, consistency and predictability of the CDM process, while also improving access to the CDM by underrepresented regions and sectors. The impact of standardization could be even more meaningful if the standardization could be broadened beyond the setting of baselines and applied to the requirements of the CDM procedures and the project cycle. Establishing a robust, clear and practical framework for the development and use of standardization tools — including sector-specific standardized baselines — is key to ensuring its attractiveness to decision makers at the national and international levels, as well as to project developers.

To complement and enlarge the current scope of standardization efforts undertaken by the CDM EB, the study suggested two parallel, yet consistent, routes for standardization of the project registration procedures using standardized sectoral baselines and for PoAs addressing micro-scale activities.

Standardized procedures can be introduced in phases. This approach would help to gain quickly the relevant experience through the application of new procedures to the most straightforward, well-known GHG mitigation activities:

- In case of sectoral baselines, similar, replicable renewable energy projects of small and medium size seem to be the best starting point. Some types of energy efficiency measures, also of small and medium size, would be an attractive testing ground for expanding the scope of the approach.
- In case of standardized PoA procedures, PoAs addressing underlying micro-scale activities appear to be the most relevant and practical application.

The study also recommends preserving a non-mandatory nature of the proposed standardized procedures in view of creating a flexible regulatory environment and addressing the needs of project and program developers with different levels of CDM knowledge and experience.

Among and beyond the issues that are tackled in this study, there are aspects and elements to the suggested standardization of procedures that would require additional analytical efforts. Furthermore, to get broader political support and acceptance of the suggested modifications, active and consistent stakeholder consultations should continue. This sustained dialogue would also help to effectively address the needs of CDM participants, while ensuring that useful elements of the standardization gained through the CDM experience will effectively inform the development of new market mechanisms.

annex 1

Options to standardization: examples in renewable energy generation

This annex describes the application of options to standardization using concrete examples. The first example covers the standardization through sector-specific baseline setting and additionality demonstration for the renewable energy sector as per the *Guidelines for the establishment of sector-specific standardized baselines* (UNFCCC, 2011i). The second example illustrates the potential for standardization using a CDM methodology and the case of solar home systems.

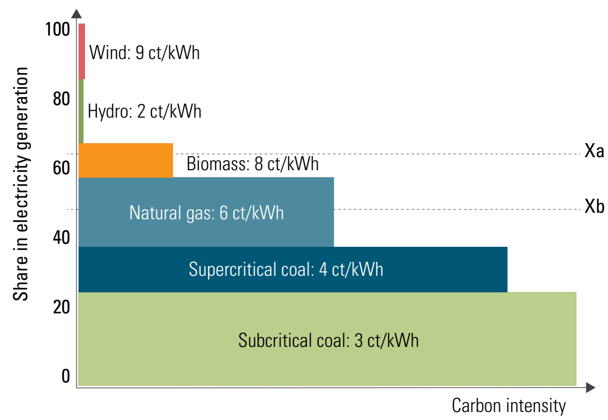
Standardization through sector-specific baseline setting and additionality demonstration: example of the renewable energy sector

Figure 11 illustrates the application of the Guidelines to defining a standardized baseline for the power sector.

First, the figure shows the different fuels used for electricity generation through the national grid in a generic case. The fuels are classified by their share of electricity generation and their carbon intensities, respectively (i.e., subcritical coal being the most intensive, hydro and wind being less).

Second, thresholds are used to define the additionality and baseline. The UNFCCC Secretariat, in consultation with relevant panels and working groups, will develop criteria for the definition of suitable thresholds that are sector specific. In order to kick-start the implementation of standardized baselines, the UNFCCC has established default values for thresholds. For priority sectors (i.e., energy households and energy generation in isolated systems), the default values have been set at 80% for both additionality and baseline identification. For the remaining sectors, the thresholds are established at 90%.

FIGURE 11: ADDITIONALITY AND BASELINE DETERMINATION FOR FUEL/TECHNOLOGY SWITCH



Source: Figure provided by South Pole, 2012

The baseline emission factor is determined by the threshold Xb, which corresponds to natural gas in this generic example. The costs of hydro and wind power generation technologies are situated above the defined threshold for additionality, Xa.

Third, according to the Guidelines these technologies will be considered additional only if they are facing barriers or are less commercially attractive than all fuel/feedstock or technologies used to produce the aggregate results. In this generic example, the levelized electricity generation costs for hydro are lower than for any technology below the threshold Xa and it is therefore not additional. However, wind power meets the criteria and thus is deemed additional.

Potential for standardization using a CDM methodology: example of renewable electricity generation by the user (solar home systems)

The potential for standardization based on methodological improvements can be illustrated on the basis of a new methodology for rural electrification submitted by the World Bank to the UNFCCC Small-scale working group. This proposal was approved by the CDM EB in March 2012 as the methodology AMS I.L: *Electrification of rural communities using renewable energy (EB65, Annex 53).* This methodology is also taking suppressed demand into consideration.

Table 6 below illustrates suggestions for further standardization of an approved methodology AMS I.A: *Electricity generation by the user*, as reflected in the recently approved methodology AMSI.L (in the case of solar home systems).

TABLE 6: STANDARDIZED APPROACH FOR SOLAR HOME SYSTEMS

Parameter	Approach used in the methodology AMS I.A	Further standardization reflected in the recently approved methodology AMSI.L
Baseline scenario	Fuel consumption of the technology in use or that would have been used in the absence of the project activity to generate the equivalent quantity of energy using any of the following three options based on results of direct metering or on a comparative performance of the peer-group: • Direct metering *(Option #1)*: Based on the estimated or metered average annual individual energy consumption observed in similar systems; • Comparison of performance with a peer-group *(Option #2)*: Based on the estimated annual output of the group of renewable energy technologies installed; • Historical level *(Option #3)*: Based on trend-adjusted projection of historic fuel consumption.	The standardization approach for baseline is based on the use of global default values for each type of electricity usage (accounting for suppressed demand): • Households lighting: Kerosene pressure lamps that are displaced by the project activity; • Household appliances: Car battery charging from diesel generators that are displaced by the project activity.
Baseline emission factor	For *Option #1* and *Option #2*, a default value of 0.8 kgCO_2e/kWh, may be used based on a diesel generation unit's emission factor. In the case of *Option #3*, the baseline emission factor is identified based on the historic fuel type identified in the baseline scenario.	On a global level, the baseline emission factor is based on the fuel type identified in the baseline scenario, that would be used to satisfy the minimum service levels and for each type of electricity usage.
Monitoring	Two options can be used: • An annual check of all systems, or a sample thereof, to ensure that they are still operating; • Direct metering of generated electricity.	Provided that the standardized baseline and emission factor illustrated above are available, the monitoring does not require direct metering and can be based on a sampling of units to check the number of units in operation – either annual or bi-annual. The use of sampling is justified given that the default factors are provided for all types of baseline technologies.

annex 2

Registration template for CDM project using sector-specific standardized baseline: example

Registration template for CDM project using sector-specific standardized baseline

Project type: Run-of-river new grid-connected hydro power generation
Template approval date: [XX/XX/20XX]

I. GENERAL PROJECT INFORMATION

1. Project title:	[Insert title]		
2. Project entity:	[Insert name] For all project participants fill Annex I.		
3. Project location:	[Insert coordinates]		
4. Date of start of project implementation:	[Insert date]		
5. Project commissioning date:	[Insert date] Please confirm the commission date is:	☐ Expected	☐ Actual
6. Crediting period:		☐ Fixed (10 years)	☐ Renewable (7 years x 3)
7. Lifetime of the project:		[Insert value, years]	

II. APPLICABILITY CONDITIONS

8. The hydro power plant is run-of-river:	☐ Yes
9. The project is connected to the grid:	☐ Yes
10. The project is complying with national laws and regulation:	☐ Yes

III. INSTALLED GENERATION CAPACITY

11. Confirm the scale of total installed generation capacity [Threshold as per standardized baseline]:	☐ Micro-scale: <5MW ☐ Small-scale: 5MW to 15MW
12. Detailed information on installed capacity:	☐ Provided in Table A.
13. Changes as compared with the design approved for implementation by the relevant national authority:	☐ Yes (please indicate) ____________ ☐ No

Table A. Detailed information on installed capacity

Unit No.	Nameplate capacity (MW)	Generation potential (MWh)	Operation start date	Type of technology [1]
xx	xx	xx	xx	xx
xx	xx	xx	xx	xx
Total	xx	xx	-	-

1) The type of technology shall be indicated if so required by the eligibility criteria of the standardized baseline.

IV. METHOD USED TO CALCULATE EMISSIONS

14. Baseline grid emission factor:	[as established by standardized baseline]
15. Baseline emissions:	Use formula (1) from AMS.I.D.
16. Estimated emission reductions:	Use formula (10) from AMS.I.D.
16a. Annual amount:	[Insert amount, tCO_2e]
16b. Total amount:	[Insert amount, tCO_2e]

V. MONITORING

A. Parameters to be monitored

17. Electricity supplied to the grid:	Bi-directional meter data: ☐ Yes (use in [15] above for calculation) ☐ No (continue to [18]; use [19] for calculation)
18. Electricity imported from the grid:	☐ [(MWh)]
19. Net electricity supplied to the grid:	Calculate as [17]-[18]

B. Metering equipment

20. Metering arrangement:	☐ Project-owned [continue to 21]		☐ Utility-owned [continue to 25]
21. Type of the main meter:	☐ Analogue	☐ Digital	☐ Bi-directional
22. Accuracy class:	☐ 0.2S	☐ 0.5S	☐ Other [insert value]
23. Calibration frequency:	☐ Half-yearly	☐ Yearly	☐ Other [insert value]
24. Calibration arrangements:	☐ Internal	☐ Third-party	
25. Cross-checking procedures:	☐ Invoices	☐ Back-up meter	☐ Plant operational data (e.g., capacity, hours)
26. Recording frequency:	☐ Daily	☐ Monthly	☐ Other [insert value]
27. Record keeping:	☐ Electronic	☐ Paper	
28. Confirm allocation of responsibility for monitoring:		☐ Yes	
29. Confirm establishment of internal quality assurance procedures:		☐ Yes	

VI. STAKEHOLDER CONSULTATION[19]

30. Confirm that stakeholder consultation is required by the standardized baseline:			
	☐ Yes [continue to 31]	☐ No [continue to 34]	Please justify why the stakeholder consultation is not required: ______________
31. Confirm that stakeholder consultation was conducted in compliance with the national requirements and based on international good practice as applicable, before project implementation date:			☐ Yes [insert date]
32. Confirm that comments provided by local stakeholders are taken into account in compliance with the national requirements and based on international good practice as applicable:			☐ Yes [continue to 33] ☐ No
33. Confirm that DNA has been fully informed about the outcome of the stakeholder consultation:			☐ Acknowledge in the LoA ☐ Other

19 As discussed in Section 2.2.2 on page 17, this section of the registration template has to be further elaborated.

VII. ENVIRONMENTAL IMPACT ASSESSMENT (EIA)[20]

34. Confirm that EIA is required by the standardized baseline:	☐ Yes [continue to 35] ☐ No [continue to 38]
35. Confirm that EIA and required procedures were properly conducted before project implementation date:	☐ Yes [insert date]
36. Confirm that EIA contains approved environment management plan as relevant and this plan is being properly implemented:	☐ Yes ☐ No [not required]
37. Confirm that EIA was approved by the relevant national authority (including appropriate environment management plan if applicable):	☐ Yes

VIII. INFORMATION REGARDING PUBLIC FUNDING

38. Confirm the use of public funding:	☐ Yes (continue to 39)	☐ No
39. Confirm that there is no ODA diversion:	☐ Yes	

IX. INFORMATION ON PROJECT PARTICIPANTS

Date of submission:
[Insert]

Authorized representative of project entity:
[Signature]

20 As discussed in *Section 2.2.2* on page 17, this section of the registration template has to be further elaborated.

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