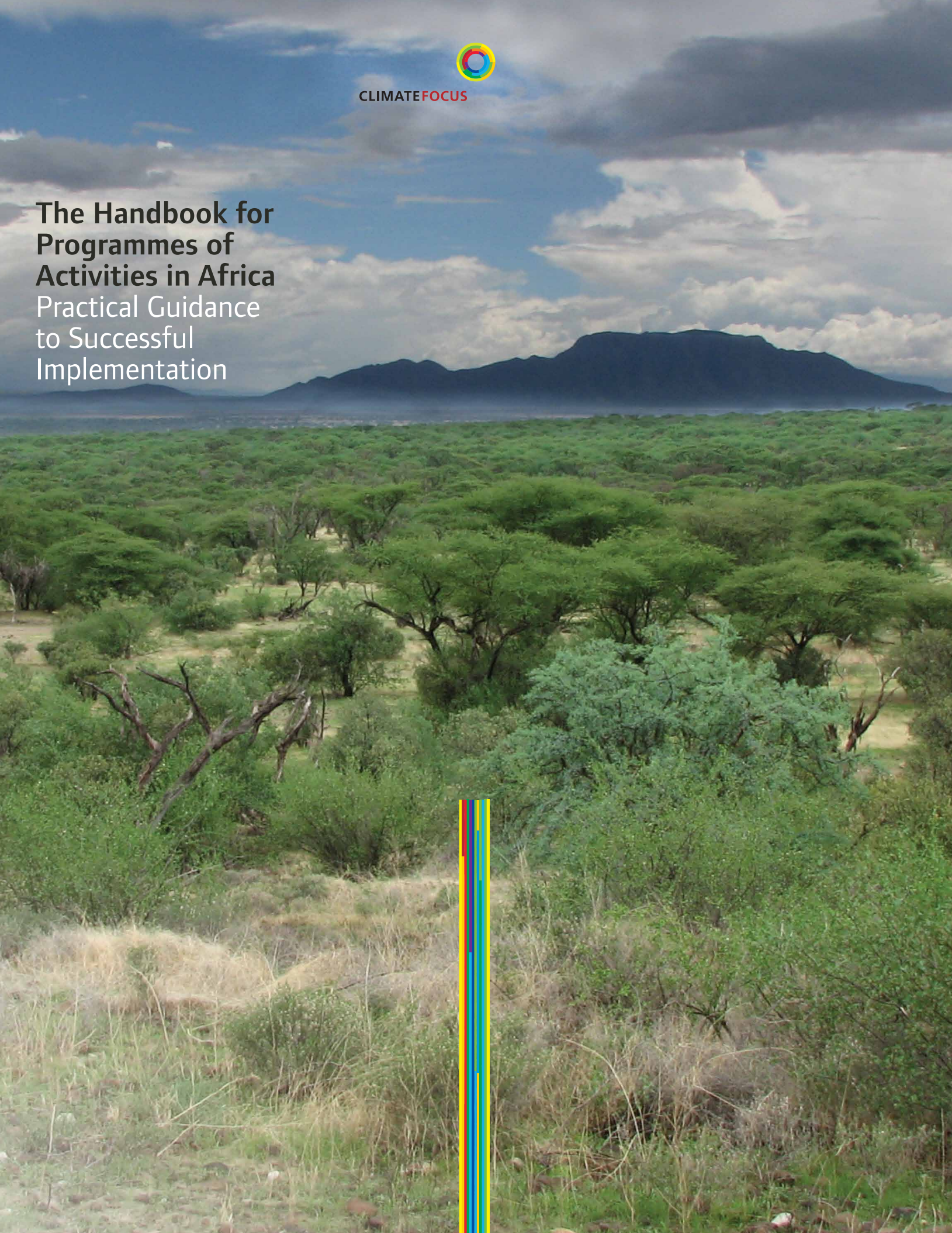




CLIMATE FOCUS

The Handbook for Programmes of Activities in Africa

Practical Guidance
to Successful
Implementation



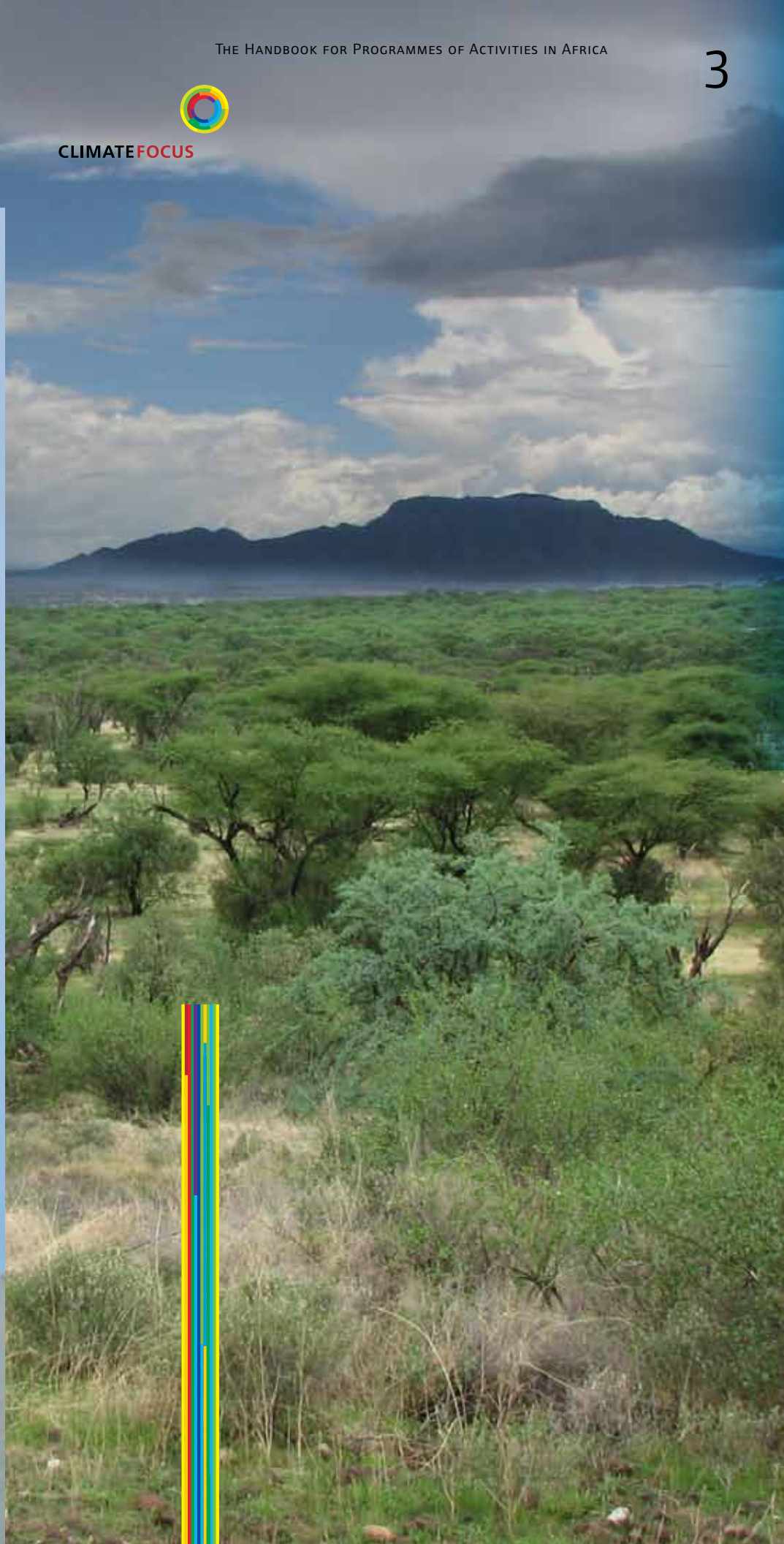




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Practical Guidance
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List of Acronyms and Abbreviations

(AIE)	Accredited Independent Entity
(AAUs)	Assigned Amount Units
(AfDB)	African Development Bank
(CDM)	Clean Development Mechanism
(CPA)	CDM Project Activity
(CER)	Certified Emission Reduction
(CFL)	Compact Fluorescent Lamp
(CPA-DD)	CPA Design Document
(CME)	Coordinating or Managing Entity
(DNA)	Designated National Authority
(DOE)	Designated Operational Entity
(ERPA)	Emission Reduction Purchase Agreement
(ERU)	Emission Reduction Unit
(ETS)	Emissions Trading Scheme
(EU ETS)	European Emission Trading Scheme
(EB)	Executive Board
(GHG)	Greenhouse Gas
(GIS)	Green Investment Schemes
(ICL)	Incandescent Lamp
(IET)	International Emissions Trading
(JPA)	Jl Project Activity
(JI)	Joint Implementation
(JISC)	Joint Implementation Supervisory Committee
(LDC)	Least Developed Country
(NGO)	Non-governmental organisation
(OECD)	Organisation for Economic Co-operation and Development
(O&M)	Operation and Maintenance
(PoA-DD)	PoA Design Document
(PoA)	Programme of Activities
(PDD)	Project Design Document
(PIN)	Project Idea Note
(SMEs)	Small and Medium-Sized Enterprises
(tCO ₂ e)	Tonne of CO ₂ equivalent
(UNFCCC or 'the Convention')	United Nations Framework Convention on Climate Change
(VCS)	Voluntary Carbon Standard
(VER)	Voluntary Emission Reduction



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Foreword

At the beginning of May this year, the **Clean Development Mechanism (CDM)** registered its 3,000th project. The first CDM project was registered in November 2004, and the first CDM project in Africa was registered in August the following year. This milestone 3,000th project illustrates that the CDM is now a successful and well-established mechanism that has been key to greenhouse gas emission reduction projects in over 70 countries. It is no secret, however, that Africa as a whole has not benefited from the CDM to the extent that was originally envisaged. Out of 3,000 projects, just over 60 have been registered in 18 African states.

A number of reasons have been proposed for the relatively small number of CDM projects in Africa, but one of the most important is related to the specific nature of projects in Africa. Potential CDM projects in Africa are of a different nature to those in other regions of the world, with respect to, for example, size, data availability and financing. These peculiarities have to be taken into account in the UNFCCC process, and may require simplified methodologies and processes, a wider scope of eligible project and activity types, and programmatic approaches that help aggregate a large number of small activities which would not individually warrant the effort and transaction costs of going through the “classical” CDM process. Fortunately, these issues and needs are actively being addressed, and in particular the introduction of the concept of “Programme of Activities” (PoA) has opened up new possibilities and opportunities for implementing CDM projects in the developing world. The suitability of the PoA concept to Africa is emphasised by the fact that the aforementioned first registered African project, South Africa’s “**Kuyasa low-cost urban housing energy upgrade project**”, which involved the installation of insulation, solar water heaters and energy efficient light bulbs in existing and future residential housing, is often described as a “de facto” Programme of Activities. Although the project was registered prior to the publication of the detailed guidance and procedural documentation for PoA, it has aggregated the types of emissions reduction opportunities that the PoA is designed to facilitate, namely highly dispersed, discrete and small-scale activities. Currently 22% of all PoA projects that are registered, requesting registration or under validation are to be implemented in Africa, compared to only 2.6% of “standard” CDM projects. These figures again show the relevance of the concept of PoA to the African context.



The African Development Bank is actively engaged in the promotion and implementation of CDM projects, as demonstrated by the recent launch of initiatives such as the Africa Carbon Facility, the Bank's participation in the Nairobi Framework and the African Carbon Support Programme, which is financed by the Fund for African Private Sector Assistance (FAPA). FAPA is a joint initiative of Japan, Austria and the AfDB to promote private sector development in Africa. The FAPA trust fund provides untied grants for technical assistance and capacity building for private sector projects and African institutions.

In order to further facilitate the uptake of CDM in Africa, and in particular of PoAs, the Bank is pleased to support the publication of this handbook. Although the concept of PoA is now well established, and the number of registered PoAs is steadily growing, implementation of a PoA is still challenging, in particular with respect to identifying and defining the role of the programme coordinator, as well as with respect to the financial, legal and organisational management of such a programme.

I trust this handbook will assist you in developing your PoA and will ensure that Africa benefits further from the CDM.



Héla Cheikhrouhou
Director

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Introduction

Putting a solar water heater on a roof is a start for a single family to save energy. Putting hundreds of thousands of them on roofs is where solar water heaters start to make a difference in reducing greenhouse gas emissions and contributing to the mitigation of climate change.

Rural families in Africa often prepare their meals on traditional open fires. Changing to fuel efficient stoves can make a real difference: for themselves and for the planet. Smoke related health problems are reduced, cooking comfort increases and women need less time for firewood collecting. At the same time trees do not need to be cut and CO₂ remains sequestered.

One micro-hydropower installation helps an isolated community generate power and switch off their expensive diesel generator. Hundreds of these installations for off-grid settlements may avoid the need to construct an oil-fired power plant.

Programmes of Activities are exactly about that: bundling large numbers of emission reducing activities to a scale that they can earn carbon credits the value of which can make a difference for the programme. Programmes of Activities facilitate large scale emission reduction by bundling hundreds, thousands, millions of individual, similar activities that alone are too small to apply the often costly carbon credit certification processes. Programmes of Activities are a recent facility under the Clean Development Mechanism of the Kyoto Protocol, the world's main carbon credit scheme. Other schemes such as Joint Implementation, the Voluntary Carbon Standard and the Gold Standard have adopted comparable facilities that allow for massive bundling of emission reduction projects, the location and characteristics of which are still unknown at the moment the programme is launched. The number of operational programmes is steadily growing and shows the huge potential of bundling through programmes. Programmes of Activities are able to bring sustainable development to people and places that have hardly benefited from carbon finance before: rural communities, farms or households in developing countries with little or no industry.

Carbon developers have demonstrated that the programmatic approach is operationally and economically feasible and many prominent carbon buyers have embraced Programmes of Activities as a key new type of activity in their investment portfolios. In the meantime, at the regulatory level a dialogue has been established with project developers to remove remaining procedural barriers. At the political level, support for Programmes of Activities is overwhelming.



Programmatic climate mitigation projects feature high on the agenda of international climate negotiations and are likely to continue to attract support, even as the Kyoto Protocol's first commitment period draws to an end. Programmatic approaches are generally considered a stepping-stone to new and enhanced mitigation strategies and policies for developing countries. They are not only wider in scope, but are also more suitable for channelling resources directly to where they are most needed. Through a stringent monitoring and verification scheme, Programmes of Activities ensure that the money invested by foreign parties is backed by real emission reductions which contribute to global climate change mitigation.

Purpose of the Handbook

The PoA Handbook is the first comprehensive publication focusing on the practical and logistical side of PoA development. PoA practitioners all over the world are facing similar questions on how to set up, implement and organise a PoA for which individual solutions are being developed. The Handbook seeks to bring together the emerging experience, learn from early participants in the market and provide structured and hands-on guidance on how to deal with the main issues encountered.

Implementation advice provided by the Handbook does not apply only to PoAs developed under the CDM. Although the CDM PoA is certainly the most concrete programmatic approach developed to date, advice provided by the Handbook should be equally applicable to programmatic approaches under Joint Implementation (JI), voluntary carbon standards such as the grouped project approach of the Voluntary Carbon Standard (VCS), or any future sectoral approach that focuses on the dissemination of many small-scale applications.

Among the major topics of concern in setting up and implementing of a PoA is the role of the programme manager, as well as the financial, legal and organisational management of a PoA. A PoA can only be successful if continuous funding is provided, the various actors and proponents are brought together in a robust contractual framework, and the operational structure is transparent, functional and sustainable. Key questions to address in the context of PoA are (i) how to benefit from the opportunity while managing the thicket of PoA regulations; (ii) how to ensure a functional and sustainable framework with all actors involved; and (iii) how to use the additional inflow of money to make a programme work. These are the guiding questions of this book.



The Handbook is directed at PoA practitioners: companies, non-governmental organisations, government entities or others involved in setting up and managing a programme and that could formally assume the role of programme manager and ‘coordinating/managing entity’, or CME in the terminology of the CDM. Practitioners are also those who may not lead the effort themselves but are vital contributors in the overall set-up of the programme. Entities that feature as co-facilitators of PoAs are financiers that provide loans or grants, consultants that help structure a carbon finance transaction, and buyers of the carbon asset that evaluate a programmatic proposal and often get involved in co-designing programmes, to name but a few.

The Handbook is designed to complement and build on existing publications on PoAs. While these publications focus exclusively or largely on the rules and regulations for CDM PoAs, (including suitable technologies and their emission reduction potential, applicable CDM methodologies, financial model calculations and case studies), their findings represent a valuable departing point for the PoA Handbook. Overviews and useful summaries of the regulations from these publications are cited as appropriate.

Overview

The Handbook is organized into six main chapters.

The second chapter (“Why do a PoA?”) discusses some of the benefits of the programmatic concept over the more conventional CDM project-offsetting. This chapter also gives a brief overview of the political outlook for PoAs under the Kyoto Protocol.

The third chapter (“Basic procedures and carbon management”) provides an easy-to-understand explanation of the rules and regulations of PoAs under the CDM, JI and other standards for those practitioners not yet familiar with them. This chapter presents the main technical obstacles to the registration of a PoA faced so far and how these hurdles have been (or are currently being) addressed under the CDM. It also provides practical guidance on how to manage the carbon component of a PoA.

The fourth chapter (“Role of the programme manager”) looks at the characteristics and responsibilities of the main actor in a PoA, the programme manager. The chapter analyses which characteristics are particularly relevant for fulfilling the role of a programme manager and which core competencies the programme manager should possess.

A defining characteristic of PoAs is that they require a combination of resources, skills and competencies hardly found within one single entity. For instance, an entity may possess a strong local network that can be used for dissemination and maintenance of a technology but lack the international network, carbon finance knowledge and access to financiers. Or an entity may have financing and a suitable technology but insufficient access to local users. PoAs are not usually carried out by one single actor but rather in partnership with other actors, relying on a combination of skills and capacities. In addition to the role of the programme manager, the chapter examines the outsourcing of functions within the programme and different partnership models.



In the fifth chapter (“Financial management”), we explain the role and use of carbon finance within the overall financial structure of a programme. Just as there are many different types of organisations setting up and implementing a PoA, the financial structures of PoAs come in a plurality of shapes. Carbon revenues can go to different parties and be used in different ways to facilitate a programme, be it as a discount on the purchasing price of a technology, as equity or collateral to improve loan conditions or as a contribution to the management and organisation of the programme as a whole, to name a few. Every programme manager has to decide on a suitable financial model and distribute carbon revenues within the overall structure, in such a manner that sufficient incentives are created and maintained throughout the entire lifetime of the programme. Different models also exist as to whether carbon finance is provided upfront or only after delivery of the emission reductions.

The sixth chapter (“Legal management”) highlights the key legal and institutional challenges surrounding the implementation of a PoA. We discuss and provide some tools to (i) reduce uncertainties generated regarding the programme’s success; (ii) manage risks associated with the interdependence that exists between actions carried out by all actors; and (iii) deal with issues of negligence and intentional defective performance. In this context, the adequate allocation of responsibilities and liabilities is a key concern for every programme manager and a sound contractual structure is paramount to the long-term success of a PoA. The chapter discusses the most important legal relationships within a PoA and provides operational guidance in the form of model legal clauses that programme managers can use and incorporate directly into their contracts.

In the seventh and final chapter (“Challenges and Opportunities for PoA in Africa”) we focus on the particularities of PoA development in Africa and present the CDM’s struggle to take off across the continent. We also provide an explanation of the current status of PoAs in Africa and the opportunities that this mechanism brings; highlighting a few examples and discussing their benefits and challenges. The chapter closes by introducing the opportunities arising through NAMAs, and the possibility of framing PoAs within them.

Further reading

Three publications on PoAs provide guidance on specific aspects of PoA project development. The first is the “PoA Blueprint Book, Guidebook for PoA coordinators under CDM/JI” (2nd Revised Edition, Frankfurt and Main, 2010). This Blueprint Book provides organisational models and guidance on project design for a broad range of programmes with participants varying from households to larger industrial participants. The latest update of the book also includes legal guidance, case studies and guidance on technology specific issues.

Under the CD4CDM initiative, UNEP Risø has published a range of CDM and JI guidebooks, including “A Primer on CDM Programme of Activities” (Roskilde, 2009). This guidebook focuses on the regulatory aspects and provides suggestions for structuring PoAs.

Finally, South Pole Carbon Asset Management has published a Guidebook entitled “PoA, Developing CDM Programme of Activities” (Zurich, 2010). This Guidebook also introduces the regulatory context of PoAs but then focuses on their structure and management. The Guidebook also includes an analysis of the PoA pipeline.





2

Why do a PoA?



— A programmatic approach has several advantages over conventional carbon credit certification. Most important, programmes of activities make it possible to develop the full potential of projects in a way that can easily be replicated to produce an extensive portfolio of projects with fast and high emission reduction potential. Rules regulating the design and registration of PoAs under the Clean Development Mechanism (CDM) have also been adopted under Joint Implementation (JI) and in the voluntary market.



Advantages over Importantly, top the carbon plicated and st growing implementation ment Mechanism mentation (JI)

2.1. Key recommendations

- Assess whether your project matches the profile of a PoA and can benefit from the advantages listed in this chapter.
- PoAs may not only provide an opportunity for household level programmes, but also for large investments that are implemented in parallel or in phases.
- Consider the liability of validators¹ for erroneous inclusion of CPAs in a PoA.

2.2. Advantages of PoAs over conventional carbon credit certification

A PoA aims to enable projects with a high replication potential that are implemented over a longer period of time, typically several years to over a decade. In contrast to a regular CDM, where the pooling of individual abatement activities is restricted to a one-off ‘bundling’ of a number of small similar projects, a PoA creates an umbrella structure that supports the inclusion of multiple and unlimited bundles of subprojects over time. Adding projects, or CDM Project Activities (CPAs) as they are called, to the PoA requires only a ‘quick check’ by a validator, as opposed to the more detailed and lengthy validation and registration procedure of the regular CDM project-approval cycle.

The first advantage of a PoA is that not all individual activities have to be known or identified at the moment the PoA is registered, but can be included periodically as the programme develops. This way, the portfolio of activities that reduces emissions under the PoA is allowed to grow over time. This is particularly useful for programmes where there may be little or no indication upfront of how many activities will eventually be implemented and where they will be located. Clear examples are programmes in which energy efficient light bulbs, solar cookers or building renovations are offered to consumers, and where the pace of implementation depends on the pace at which households or small business owners adopt a particular technology.

1) A “validator” is the generic term used for the Designated Operational Entity (DOE) under the CDM or Accredited Independent Entity (AIE) under the JI. Both DOEs and AIEs perform independent third party checks on project design and monitoring reports of emission reductions.

Regulatory Context

The basis for PoAs lies in the regime of the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC is an international agreement, enjoying almost universal participation, which lays out a regulatory regime for controlling global greenhouse gas emissions. The main objective of the UNFCCC is to stabilise greenhouse gas concentrations in the atmosphere “at a level that would prevent dangerous anthropogenic interference with the climate system”.

The UNFCCC assigns general obligations to state-parties in accordance with their respective capacities and responsibilities to undertake climate change mitigation and adaptation measures. It divides countries into two main categories: Annex I countries, comprising the industrialised countries that were members of OECD at the time of the UNFCCC’s adoption (including all EU member states, USA, Russia, Ukraine, Australia, New Zealand, Canada and Japan), and non-Annex I countries (all remaining parties).

The Kyoto Protocol, created and adopted under the UNFCCC, is an international agreement that details and develops some of the general obligations found in the UNFCCC. The Kyoto Protocol complements the UNFCCC through a more concrete regulatory framework that defines clear emission reduction commitments for Annex I parties, and mandates the creation of a monitoring and accounting system for monitoring the achievement of these targets. In addition, the Kyoto Protocol creates three “flexible mechanisms” (JI, the CDM and IET) to assist in the implementation of the Protocol. These flexible mechanisms have in effect laid the foundation for the development of the international carbon market.

JI and the CDM allow Annex I countries to offset their emissions by reducing emissions in other countries, either Annex I (JI) or non-Annex 1 (CDM). By means of the CDM and JI, the Kyoto Protocol uses market mechanisms to identify the cheapest reduction opportunities. In addition, through the utilisation of Green Investment Schemes, the trade in AAUs backed by projects that reduce emissions, IET also comes to resemble a form of offset mechanism, rather than simply a mechanism to trade emission quotas.

The UNFCCC, the Kyoto Protocol and its flexible mechanisms provide the regulatory setting in which PoAs generally operate. It is important to note, however, that credits generated by PoAs can also be accepted under domestic or regional emissions trading schemes. Several emissions trading initiatives (similar in concept to IET) have been implemented or are currently being designed in different countries and regions. These trading schemes exist independently of the Kyoto Protocol and may establish additional criteria for offset projects that also apply to PoAs. The European Union Emissions Trading Scheme (EU ETS) is a prime example.

PoA development opportunities also exist outside the regulatory context. So-called “voluntary markets” are not regulated by the Kyoto Protocol or the UNFCCC, but rather motivated by self-imposed environmental and social commitments of companies, non-governmental organisations and individuals. Under the voluntary market, these actors seek to voluntarily offset their emissions.

Such offsets can normally only be generated in sectors or countries that do not yet face emission reduction obligations. This is to avoid counting a single unit of emission reductions twice: as an international offset credit and towards the compliance of the operator of the installation in which the reduction took place. Because of this potential for double counting, voluntary projects typically take place in non-Annex I countries or countries that did not ratify the Kyoto Protocol.

Lastly, it is worth noting that while programmatic approaches can be used in all the mechanisms described above, only the CDM, JI and the voluntary market offer (so far) clear procedures on how to develop and operate a PoA.



Secondly, PoAs can shorten the time needed for a project to be included in the CDM to a period of weeks (the time needed to draft CPA documentation and include the CPA in a registered PoA) rather than years (the time needed to draft a PDD, validate it and have the project registered). Since projects can only generate carbon credits from the moment they are registered, delays caused by the lengthy validation and registration procedures cost project developers and investors considerable amounts of time and resources, including lost revenues from the sale of carbon credits. PoAs can mitigate this risk by offering fast-track “inclusion” procedures.

The third advantage is that a PoA explicitly allows for the development and inclusion of CPAs in several different host countries. In principle, the regular CDM has no restrictions on including different host countries and developing a project or a bundle of projects that cover different countries, but so far this option has hardly been exercised and has been limited to countries sharing a common border. That may be different under a PoA. A PoA offers the possibility of unlimited replication of projects under one umbrella, making it possible for project developers to expand the geographical coverage to different host countries.

Furthermore, a PoA can also offer clear benefits for larger projects. For example, many large wind power projects (say over 500 MW) are implemented in stages. As a result, the first tranche of 100 MW may be implemented five years before the last tranche. In the past, a project developer could either register each tranche as a separate project or bundle them. Registering them all separately implies facing the costs and uncertainty of validation and registration for each tranche. Bundling them would, in turn, give all tranches the same crediting period, which means that the last wind turbines would have already lost a five-year crediting period before the start of operations. A PoA undoes both disadvantages by requiring a single validation and registration process and allowing for the inclusion of separate CPAs with stand-alone and overlapping crediting periods.

A fifth advantage of a PoA is that it allows innovative companies to register a PoA and open it to the inclusion of projects implemented by other project developers. In other words, an innovative developer can register a PoA for a project type for which it sees a large replication potential in one or several countries and allow individual project developers to participate through individual projects, thereby benefiting from the validation and registration

Growing portfolios, growing emission reductions

In Nepal, deforestation is a serious concern and source of greenhouse gas emissions. Firewood gathering by household members for cooking purposes is an important driver behind deforestation. Small digesters fed with manure from cattle can produce biogas to feed a cooking stove, thereby replacing the use of firewood and simultaneously reducing greenhouse gas emissions.

The current average rate of implementation is around 17,500 digesters per year. After the development of four CDM bundles, the Alternative Energy Promotion Centre (AEPC) of Nepal is currently developing the emission reduction potential of the Biogas Support Programme under a CDM PoA.

The emission reduction potential per digester is around 2.3 tCO₂e per year. When assuming that the pace of implementation remains constant, the digesters installed in the first year will be set to reduce emissions of 40,250 tCO₂e in the second year. With the additional digesters implemented in the second year, the third year will provide 80,500 tCO₂e, and the fourth year 120,750 tCO₂e. Whether these figures provide an accurate forecast depends on the actual pace of implementation, since, in the end, household members decide whether and when to install a digester.



work already done by the developer. In this case, access to carbon finance and the ability to generate carbon credits becomes a ready-available service offered by the innovative developer. Since most of the procedural work has been done, including the validation and registration of the umbrella design of the PoA, each individual project developer needs only to prepare and add its project as an individual CPA. While the validation and registration of a PoA may take over a year under the CDM, the inclusion of a CPA generally takes no longer than a few weeks. In particular, for projects set to start operations soon, such quick access to carbon finance can significantly increase the amount of emission reductions and carbon credits.

In cases where a project developer knows the exact number and location of all subprojects and the subprojects are implemented within a time frame of a small number of years, bundling may still remain a more attractive option. In this case, a full list of individual activities can be included when the project undergoes validation and registration, saving the costs and effort of having various successive CPA inclusions. However, since a CPA can also be a bundle of projects, the developer of a bundle could opt for inclusion as a CPA in an already registered PoA, rather than opt for separate validation and registration of the bundle. This will save time and can allow for an earlier start of the crediting period of the projects in the bundle.

2.3. Long-term perspectives for PoAs under the Kyoto Protocol

Despite the high level of uncertainty surrounding the negotiations at the international level, the programmatic model of project implementation and development appears well placed to survive the end of the first commitment period of the Kyoto Protocol.

The future of the PoA concept relies primarily on the continuation of the CDM and JI. The lack of certainty in relation to the form and substance of the Kyoto Protocol's flexible mechanisms after 2012 represents a significant

disincentive for developers and investors of all project types. On the other hand, it is clear that most countries and international experts support the continuation of a reformed CDM and JI, even if under a different name and/or political context.

It is widely acknowledged that the Kyoto Protocol's project-based mechanisms have successfully stimulated the development of large and medium-sized projects with low abatement costs, but have left small or micro projects largely untouched, in particular those located in riskier countries. The current reform of the CDM seeks to tackle this shortcoming by further reducing transaction costs for small CDM projects, creating additional incentives for countries with only a few CDM projects registered and easing the development and registration of PoAs.

For most developing countries, PoAs represent an opportunity for greenhouse gas mitigation support that is intrinsically aligned with local economic, social and environmental goals. In addition, many Least Developed Countries have only recently established their institutional infrastructure to assess and approve CDM projects at the national level. Hence, PoAs are a logical and ready-to-implement alternative for the promotion of low-carbon sustainable development in such countries.

2.4. Further reading

For an overview of the differences between PoA and conventional off-setting we refer to the guides listed at the end of the previous chapter. Since the future of the PoA concept relies on the continuation of JI and CDM, the future of these two trading mechanisms is widely discussed in international climate negotiations. The UNFCCC website (www.unfccc.int) provides an overview of decisions made and draft proposals under discussion. The International Institute for Sustainable Development (www.iisd.org/climate) is another source of information on developments in climate negotiations.





3 Basic Procedures and Carbon Management





3.1 Key recommendations

- Assess whether developing a PoA provides the best carbon solution for your project.
- Familiarise yourself with the rules and project cycle of a PoA.
- Scope the levels of the programme clearly: what is defined at the programme level and what at the individual project level?
- Ensure your documents, PoA-DD and CPA-DDs, are well formulated.
- A solid understanding of the purpose and methodology is a prerequisite for a successful PoA.
- Remember that at least one CPA needs to be included in the PoA upon registration.
- Remember that demonstrating additionality is key to successful registration.
- Optimise your emission reductions: be aware of start dates and crediting periods of CPAs.
- Understand the trade-off between small versus large CPAs.
- Promote your programme at an early stage and liaise with the host country DNA to build acceptance.
- Remember that the crediting period can only commence after the PoA has been registered.
- Consider that carbon standards, other than the CDM, may offer interesting program features.

3.2. Basic steps and procedures

A PoA consists of the implementation and coordination of several emission reduction activities or set of interrelated activities. In contrast to conventional project offsetting, where the number of greenhouse gas abatement activities is normally geographically and numerically limited, a PoA allows for an unlimited number of small and geographically dispersed activities, or subprojects, to be added to the programme over its lifetime. Simply put, a PoA represents an umbrella structure that can accommodate an increasing number of discrete GHG reduction activities, but registered as a single project under the CDM or JI. Figure 3.1 gives an overview of the structure of a PoA, showing the PoA as an umbrella structure for an undefined number of CPAs. The number of CPAs can grow over time. Each CPA in itself can consist of single projects or a number of smaller subprojects. Figure 3.1 shows the most extended structure in which each CPA consists of a number of smaller subprojects.

Where there are large differences between the CDM and other carbon standards, these are explained in dedicated boxes.

The PoA procedures were established by the Kyoto Protocol parties at their December 2005 meeting in Montreal, which were then adopted and elaborated by the CDM Executive Board in 2006 and by the JI Supervisory Committee in 2009. The basic procedures in the CDM are outlined in Figure 3.1 and consist of the drafting of the relevant CDM documents by the programme manager, validation of the programme by an accredited validator (known as Designated Operational Entity or DOE), programme registration, CPA inclusion, generation, monitoring and reporting of emission reductions, third party verification of emission reductions and issuance of CERs.

While the PoA-DD describes the concept, methodology, monitoring plan and general project management aspects, the individual CPA-DDs outline the

Figure 3.1
Structure of a PoA with its CPAs and individual projects

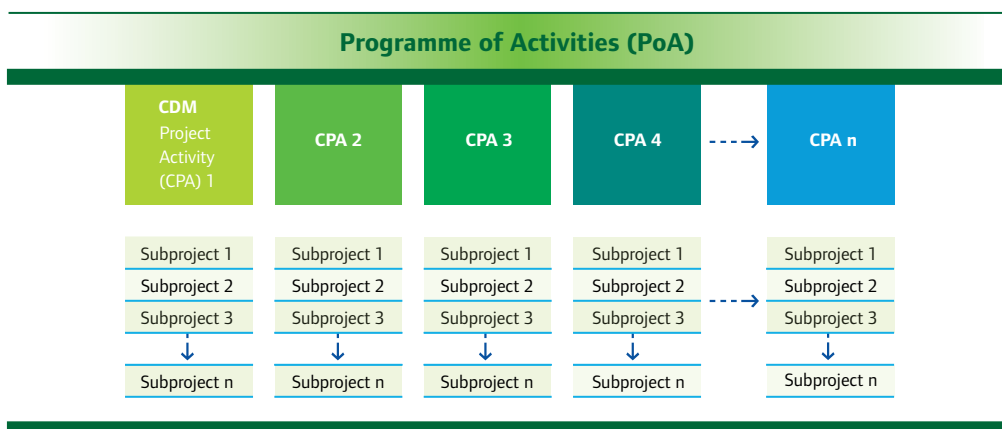


Table 3.1:
Items to be included in the CDM-PoA-DD and the CDM-CPA-DD³

Items to be included in the PoA-DD
Description of a typical CPA
Definition of eligibility criteria for inclusion of a CPA, for the demonstration of additionality of the CPA.
Description of the operational and management arrangements of the CME, including a record keeping system for the CPAs.
Monitoring plan at CPA level or alternative monitoring method.
Items to be included in each CPA-DD
Geographic references or other means of programme identification.
Start date, crediting period.
Confirmation that the start date is not before the date of commencement of validation of the PoA.
Information on how the CPA meets the eligibility criteria stipulated in the PoA, including a demonstration of the additionality of the CPA.
Calculations of baseline emissions and estimated emission reductions.
The CPA should include an environmental impact assessment and information on inviting and addressing stakeholder comments (unless these topics are addressed at PoA level).
Confirmation that the CPA is unique and not already covered in other CPAs or CDM projects.

specific programme activities (CDM Project Activities or CPAs) that are included in the registered PoA. Each CPA has the characteristics of a regular CDM project: it reduces emissions, has defined project boundaries, a crediting period, a start date and contains concrete references to the actual activity on the ground. The checklists in Table 3.1 show that the PoA-DD and CPA-DD typically differ from the PDDs used for regular CDM projects. The complete details can be found in the PoA templates on the CDM website at UNFCCC².

Once the validator has finalised his assessment of the PoA and the related documents, the PoA documents along with the validation report can be submitted to the UNFCCC for registration. It is only after the submission of a PoA for registration³ that the CPAs included in a PoA can generate CERs from monitored and verified emission reductions. Registration takes place eight

weeks after a complete submission of a project for registration, unless any of the host or investor country governments, or three members of the Executive Board, requests a review. Reviews are requested only if there are issues related to the validation requirements. In practice, the review process can delay project registration by several months or lead to an eventual rejection of the project. Adding a CPA to a PoA is called inclusion and in most cases the first inclusion runs parallel to the registration of the PoA. This means that the first CPA undergoes validation along with the PoA itself and, when the PoA is registered, the first CPA is immediately included. It is possible to include more than one CPA in parallel to the registration of the PoA⁴. When registering a PoA, it is important that the criteria for the validator's check when each new CPA is submitted for inclusion are clearly defined. Figure 3.2 presents the different tasks and stages in the development of a PoA.

Multinational PoAs remain challenging

A PoA can cover different countries, if all participating host countries issue a Letter of Approval. However, this increases the complexity of the CDM documents and especially the overall business model of the PoA. Under most methodologies, each country will add complexity, requiring a different baseline determination and maybe even a different additionality argument (e.g. due to different underlying parameters, such as country risk premium). In addition, PoAs are often closely linked to national policies and institutions. As a result, a multinational PoA might need to rely on a completely different set of actors (e.g. service providers) and policies in each of the host countries involved.

The role of the host country is limited to issuing a Letter of Approval. For PoAs, this is a little more complex than for a regular CDM project since the respective DNA will have to verify that the PoA contributes to sustainable development both at the programme level and individual (sub) project level. As the total scope of the PoA is not known at the date of host country approval, the defined eligibility criteria are of highest importance for the DNA approval process. Another issue with host country approvals is that many DNAs lack the understanding of the PoA concept due to limited experience with this relatively new approach. A lot of work remains to be done to improve this.

(Marc Andre Marr – Perspectives)

2) Forms for PoA projects are available at: http://cdm.unfccc.int/Reference/PDDs_Forms/PoA/index.html

3) Annex 12 to EB meeting 59, paragraph 25

4) See, for example, paragraph 60 of EB meeting report 33



Figure 3.2
Procedure for PoA development under the CDM



Joint Implementation and Green Investment Schemes

Including a Joint Implementation Project Activity (JPA) into a JI Programme of Activities follows rules that are slightly different from the CDM. In the first place a JI Project Activity or JPA is only a row in a table in the annex of the JI-PoA-DD, whereas the CPA-DD form is a six page document. Another difference between PoAs under the CDM and JI lies in verification. JI PoA procedures require that the verifier undertakes “site inspections of at least the square root of the number of total JPAs.” Under the CDM a verifying DOE is required only to “include in its verification report a description/justification of the site visits undertaken”.

Under a Green Investment Scheme the transaction of carbon credits is subject to the rules and regulations of International Emissions Trading under the Kyoto Protocol. These rules do not regulate anything on Programmes of Activities. Any Programme under a GIS and the inclusion on CPAs is hence only subject to voluntary agreements between the buyer and the seller of the carbon credits.

“Validator liability is a serious barrier”

“The Executive Board has decided to limit the time frame in which a review on the inclusion of a CPA can be requested. Nevertheless, the validator’s liability continues to be a barrier for validators since the extent of the liability remains unchanged. In complex programmes with a high number of CPAs, the programme manager should share the risk with the validator. A better way to share the risk between the validator and the programme manager would be that if the validator samples among CPAs, he bears the liability if the error is detected in the CPAs that were part of the sample. If the error is in the CPAs that are included but not part of the sample, the programme manager should bear the liability.”

(Marc Andre Marr, Perspectives)

The CDM Rules provide that the validator approving the inclusion of a CPA remains liable for the credibility of the ensuing emission reductions. Within one year of inclusion of the CPA, or within half a year of the first issuance of CERs from the CPA, the Executive Board or the Designated National Authority (DNA) of one of the countries involved can request a review of the included activity. The review is performed by a validator that has not been involved in the inclusion process⁵. If a CPA inclusion is found to be erroneous, the validator that proposed the CPA for inclusion is obliged to acquire and cancel an amount of CERs equal to the amount of CERs that have been issued from this CPA. Once an erroneous inclusion has been identified, the review can be extended to all CPAs. An erroneous inclusion is a “CPA inclusion in situations where the DOE has been found to have failed to conduct an assessment of compliance in accordance with the established assessment requirements.”⁶.

As a result, validators see themselves forced to increase their fees to compensate for the liability they face. As an alternative, the programme proponents and the DOE agree that the liability is shared or even completely shifted to the programme proponents.

3.3. Define the programme and the CPA level

PoAs are the umbrellas for a number of similar project activities. When drafting the documentation for the registration of a PoA, the programme and the CPAs must be clearly defined and distinguished. The programme generally consists of the activities that promote the selected technology, facilitate its dissemination, construction and the provision of maintenance services and/

or support with financing. The programme thereby provides the services or organisational structures that enable participants to adopt the technology, often starting with creating awareness of the technology and helping participants overcome certain barriers. The PoA itself does not reduce emissions; it only enables the participants to do so.

Individual participants are described in the CPA. Activities under a CPA are those activities that reduce emissions. These include the actual construction and operation of the technology and, as a result, reducing emissions.

3.4. Prior consideration and additionality

For regular CDM projects, if the start date of the programme precedes the date of registration, it must be demonstrated that carbon finance was a decisive factor in the investment decision. For this purpose, it is necessary to inform the UNFCCC secretariat within six months of the start date of the programme⁷. For PoA projects this is not required, not for the PoA nor for the CPAs⁸. For a PoA it is necessary to provide a confirmation that the start date of all CPAs is later than the start of validation of PoA⁹. The start of validation of a PoA is typically the date on which the CDM-POA-DD is first published for stakeholder consultation⁹.

5) Annex 38 to EB meeting 55

6) Paragraph 65 of EB meeting report 61

7) Annex 22 to EB meeting 49

8) Annex 26 to EB meeting 60, paragraph 3

9) Annex 38 to EB meeting 55



Additionality at the PoA level implies substantiation of one of the following:

- that the proposed measure is voluntary and would not be implemented in the absence of the CDM;
- that existing regulations mandating a certain environmentally friendly behaviour are systematically not enforced and that non-compliance with those regulatory requirements is wide spread in the country/region; or
- that the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation.

It is sufficient to demonstrate just one of these three items, rather than all three of them.

Recent developments in the climate negotiations:

Parties to the UNFCCC and the Kyoto Protocol meet every year to negotiate the further development of commitments and institutional arrangements under the two treaties. At their December 2010 meeting in Cancun, Mexico, the Kyoto Protocol parties made several “requests” (understood in the instructional sense) to the CDM Executive Board on PoAs. Two are of particular relevance. Firstly, the Executive Board was requested to further clarify how the rules for the demonstration of additionality for conventional projects apply to PoAs, including the inclusion of CPAs. Secondly, the Executive Board was asked to simplify the application of PoAs to programmes involving more than one methodology and technology. In response to these requests, it is likely that the Executive Board will revise its guidelines on these matters in its upcoming meetings.

The additionality assessment is a key part in the programme documents, demonstrating that the implementation of both the PoA and each CPA are not feasible without the application of the CDM and that possible alternative scenarios lead to higher greenhouse gas emissions than the programme scenario. The CDM provides the choice that additionality should be demonstrated at either PoA or CPA level¹⁰. In April 2011 the Executive Board clarified that a full additionality assessment is not needed on CPA level and that the additionality at the CPA level can be confirmed according to “eligibility criteria for inclusion of a project activity”, which is a dedicated section of the PoA-DD¹¹.

The CDM “tool for the demonstration and assessment of additionality” provides a structural approach to demonstrate additionality. It is de facto mandatory for large-scale CDM projects and can be applied at either the programme or the CPA level¹²:

1. Identification of alternatives to the project activity.
2. Investment analysis to indicate that the proposed programme activity is either (a) not the most economically or financially attractive, or (b) not economically or financially feasible at all.
3. Barrier analysis (legal, investment, prevailing practice, or others).
4. Common practice analysis.

Examples for the demonstration of additionality

The PoA “Promotion of Biomass-Based Heat Generation Systems in India” aims to develop heating systems in India that are fired with biomass. Additionality at PoA level is demonstrated with a decision of the Board of the CME that confirms that the PoA is a voluntary action, not required by law. In this project, a CPA can include several small biomass systems. Additionality of individual projects is demonstrated by using guidance from Executive Board meeting 54, Annex 15. This guidance defines renewable energy projects with a capacity below 5 MW as additional, if they are located in a part of the country that is identified by the governments as a special underdeveloped zone, they are off-grid, they are decentralised power generation projects for households or SMEs, or they are on a positive list of the government. For installations with a capacity above 5 MW, additionality is demonstrated with an investment barrier analysis. An individual project is additional if the costs of heat production per unit are higher for heat from the biomass installations compared with the alternative: generation of heat from fossil-fired boilers. The “CFL lighting scheme – Bachat Lamp Yojana” targets the implementation of CFLs in India. The programme manager chose to demonstrate additionality at CPA level only. CPA additionality is demonstrated with reference to the price difference between the energy efficient lights and the less efficient, commonly used incandescent lamps. Other barriers referred to were lack of awareness and the negative perception of consumers on the quality of the efficient lighting, an ineffective institutional framework for the promotion of CFLs and the investment barrier that an investor faces since CFLs can be purchased at a feasible price when bought in large numbers.

PoA additionality of the “Uganda Municipal Waste Compost Programme” is demonstrated by showing that the programme is a voluntary action, not required by law and that budget constraints at the municipal level constitute a barrier for the investments in composting technology. CPA level additionality is demonstrated with an investment analysis on a ‘typical’ composting project. This analysis will be repeated only for each new CPA whose capacity deviates from that of the ‘typical’ composting facility.

10) Paragraph 73 of EB meeting report 47

11) Annex 26 to EB meeting 60, paragraph 4

12) Methodological Tool: “Tool for the demonstration and assessment of additionality” (Version 05.2)



Examples of inclusion criteria for the demonstration of CPA additionality

The criteria for the demonstration of additionality of a CPA in the “Uganda Municipal Waste Compost Programme” include demonstrating that the disposal of wastes at a landfill or dumpsite is common practice. In addition, if the capacity of the composting installation in the CPA deviates by more than 20% from the capacity from the default system, it should be demonstrated that without the CDM the CPA is not viable. The financial additionality of the CPA with default capacity has already been demonstrated in the PoA-DD.

The “CUIDEMOS Mexico (Campana De Uso Inteligente De Energia Mexico) – Smart Use of Energy Mexico” PoA aims to reduce electricity consumption in Mexico with the distribution of 30 million CFLs. For this programme, the additionality of each CPA should be demonstrated with a simple cost analysis, showing that there are no revenues other than those from the generation and sale of carbon credits. In addition, a common practice analysis should demonstrate that the market penetration of CFLs implemented without support from the CDM remains low. The same approach to CPA additionality has been adopted for a very different programme, the “Masca Small Hydro Programme”. In this programme, the CPAs are small hydropower stations in Honduras.

The additionality test is less complex where the individual CPAs fall under the CDM definition for small-scale projects. After prior consideration of the CDM and identification of alternative scenarios, small-scale projects can demonstrate barriers that prevent the implementation of the project without carrying out an investment analysis.

Since April 2011 very small projects with a confined capacity are additional if they meet certain requirements. This applies to CPAs with:

- Aggregate capacity of renewable energy technology of no more than 5 MW;
- Aggregate energy savings up to 20 GWh/year;
- Fuel switch, reduction of methane emissions or other gases with annual emissions reductions up to 20,000 tCO₂e/year.

These kind of projects are additional if any of the following conditions are satisfied:

- They are located in Least Developed Countries or Small Island Countries or in an underdeveloped zone of the host country as identified by the government;
- They consisting of small components serving households/communities/SMEs;
- Or, for renewable energy projects only, if they use technologies recommended by the DNA and approved by the EB.

3.5. PoA vs. conventional bundling

Most traditional CDM projects are single project activities, implemented in one stage and limited to one location. If a project involves a set of subprojects or is being implemented in different locations, project developers have to opt between a PoA or a bundling of these activities.

- Crediting period: The CDM Rules allow for different crediting periods between the CPAs. In a bundle, all subprojects receive the same crediting period. If these subprojects start operations on different dates, not all emission reductions will be credited if they are developed in one bundle.
- Methodology: The CDM Rules also allow for the application of a simplified small-scale methodology where under a bundled approach a large-scale methodology would have to be used. If a PoA consists of many small subprojects, the project developer can choose the size of a CPA to match the size limits for use of small-scale methodologies. The size of a CPA determines whether a simplified (and often less costly) small-scale methodology can be used.

Bundling

Bundling is bringing together several small CDM projects in a portfolio. All projects in a bundle can be described in a single PDD and go through validation and registration as if it were one project. The composition of a bundle cannot change over time and all projects in the bundle will have the same CDM characteristics such as the crediting period. The projects in a bundle do not have to be the same, but if a bundle includes different technologies, separate monitoring plans are required and monitoring reports should be drafted separately for each technology.

Check: A CPA is a de-bundled component of a large scale project if:

There is a CDM project requesting registration, or another CPA of another PoA requesting inclusion:

- that has the same activity implementer OR the CME also manages a large scale PoA;
 - whose project boundaries are within one kilometre of each other at the closest point;
 - that is in the same geographical area;
 - that uses the same methodology; and
 - together they exceed the threshold for small-scale projects.
-



PoAs under voluntary carbon standards

Different institutions have developed standards for the monitoring, calculation and verification of voluntary emission reductions in the voluntary carbon markets. The two most popular standards are the Verified Carbon Standard (VCS) and the Gold Standard.

The VCS uses the concept of Project Grouping, which is similar to Programmes of Activities under CDM and JI. Project Grouping allows the project developer to bring together a number of similar activities and monitor these in a consistent manner.

The Gold Standard is both used for voluntary projects but is also used as a quality label on CDM and JI projects. Programmes of Activities are supported for CDM and voluntary markets only. No guidance has been developed for Gold Standard JI. The Gold Standard features a main advantage for voluntary PoAs: it allows the addition of project activities to the PoA even if they have a start date that lies before the registration date of the PoA.

It is possible to bundle different subprojects with similar characteristics into one CPA and thus benefit from a single CPA inclusion procedure. While the bundling of (sub) projects under a CPA is allowed, de-bundling a larger project to benefit from simplified procedures applicable to small-scale projects is not permitted. Make sure that the (sub) project is not considered a de-bundled component of a large-scale project.

For example, company XY is implementing a cascade of hydropower stations in a single river, each with a capacity of 10 – 12 MW (which is comfortably below the small-scale threshold value of 15 MW). The cascade has been developed as a PoA, but at least two of the stations in the cascade are within one kilometre distance from each other. Since there is only one developer, company XY, de-bundling can be an issue. A possible solution would be to group the two hydropower stations that are within 1 km of each other into separate CPAs. If the hydropower stations are too large and their joint capacity exceeds the small-scale threshold, de-bundling issues cannot be avoided. In this case, the project developer should develop the PoA while using a large-scale methodology.

3.6. Start dates and crediting periods

The duration of a PoA, the period in which the CPAs under the PoA can generate CERs, can be up to 28 years from the date of registration or any later date¹³. The duration is defined by the project participants in the PoA-DD. It is important to note that the key features of a CDM project, such as the crediting period and the start date, are determined at the CPA rather than at the PoA level (Figure 3.3). All CPAs have an implementation start date that is “the earliest date at which either the implementation, or construction, or real action of a programme activity begins”¹⁴. The CPA start date cannot be before the start of validation of the PoA¹⁵.

In addition to the implementation start date, a CPA also has a start date for its crediting period. The programme developer must define this date in the CPA-DD: it can be the date of inclusion in the registered PoA or any later date. Since the time needed for CPA inclusion may or may not be longer than the time needed for CPA implementation, the start date of the CPA crediting period should be defined as the date of inclusion or the expected start date of the project operation.

The crediting period of the individual CPAs is either seven years with two renewals or ten years fixed without renewal. The PoA end date marks the end of the crediting period for any CPA included in the programme¹⁶.

The crediting period of a CPA defines the period in which the project can generate carbon credits. It is important to define a crediting period that covers the maximum length of the operational lifetime of all the various (sub) projects in order to ensure that carbon credit generation can be optimised.

The first step is to determine the start date of the PoA. The start date is set so that the programme’s lifetime covers a maximum length of CPA crediting periods. In other words, avoid having the lifetime of the PoA start while the first CPA has not yet been included or does not yet generate credits.

The crediting period of a CPA cannot start before the date of registration of the PoA. For PoAs, the effective date of registration is the date at which the PoA is submitted for registration¹⁷. If the physical implementation of the programme and the first CPA takes less time than the PoA validation, registration and CPA inclusion, the expected date of the first inclusion should mark the start date of the PoA. Since it is difficult to estimate the date of the first CPA inclusion at the time of drafting the PoA-DD, the programme developer can define the start date of the PoA as “the likely date of commissioning of the first CPA or the date of inclusion of the first CPA, whichever is later”.

13) Annex 29 to EB meeting 47, paragraph 4g

14) Glossary of CDM terms, version 05

15) Annex 29 to the report of EB 47, paragraph 5d, with an exemption defined in paragraph 72 of EB meeting report 47

16) Annex 29 to EB meeting 47, paragraph 5c

17) Annex 12 to EB meeting 59, paragraph 25

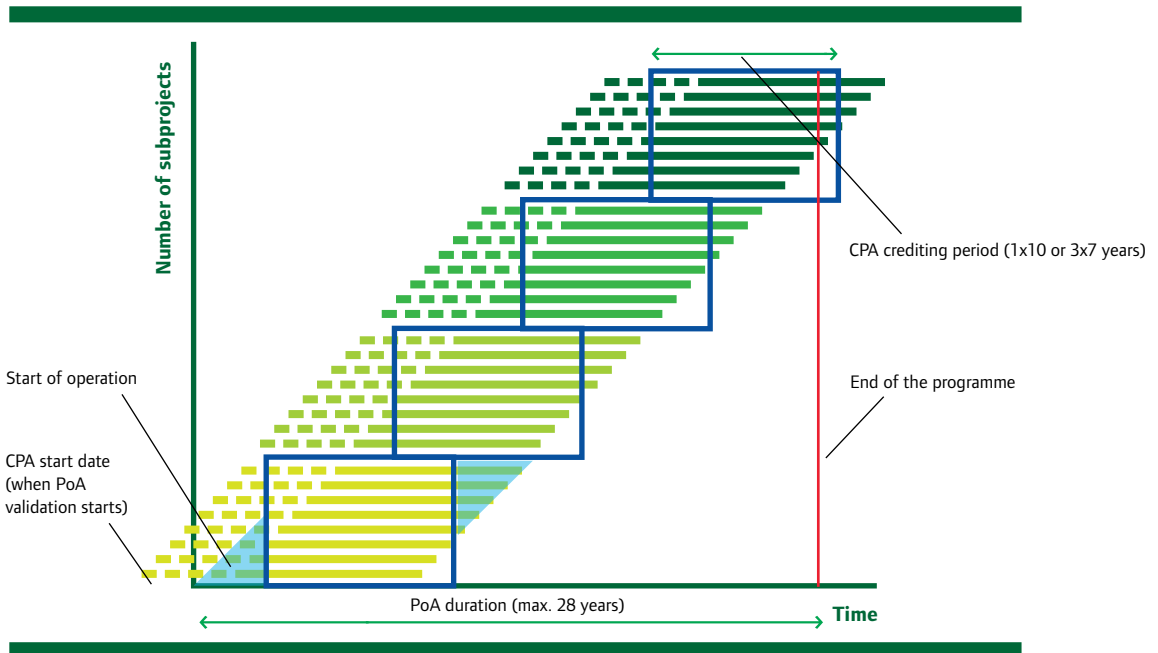


Figure 3.3
PoA and CPA duration, crediting period and start dates.
 Adapted from: CDM glossary of terms and CPA-DD and PoA-DD forms

PoA level	Any date on or after submission of the PoA for registration Defined by the project participants in the PoA-DD	Starts at the PoA start date Defined by the project participants in the PoA-DD	Should not exceed 28 years after the start of the crediting period* Defined by the project participants in the PoA-DD * 60 years for afforestation and reforestation
	Start date	Start of crediting period	End of crediting period
PoA level	Start of its implementation Defined by the project participants in the CPA-DD Cannot be before the start of validation of the PoA* * with an exemption for projects that start validation before the end of 2009	The date inclusion or any date thereafter Defined by the project participants in the CPA-DD	Ten year crediting period or a seven year period with two renewals CPA crediting period cannot extend beyond the lifetime of the equipment or the end date of the PoA* * with an exemption for some methodologies
	Start date	Start of crediting period	End of crediting period

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Figure 3.4
Crediting period and generation of emission reductions under a PoA

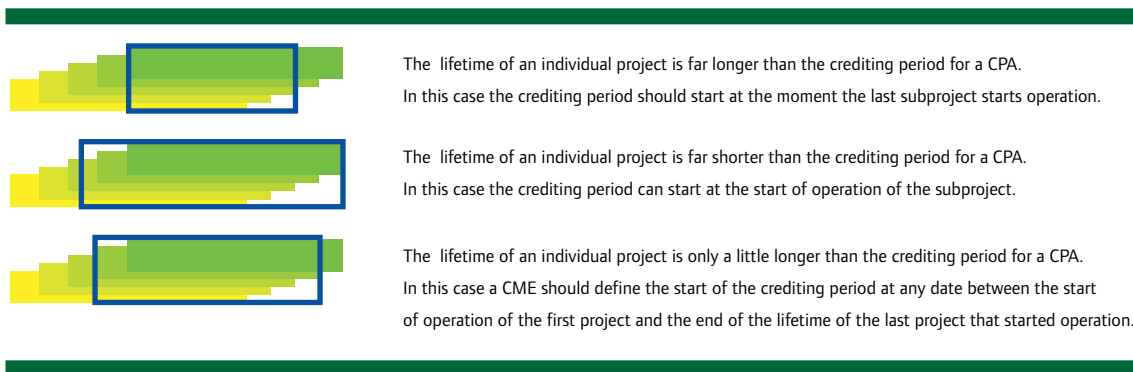


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Figure 3.4 shows how a CPA can include many small bundled subprojects, creating an increasingly large portfolio over time. The dotted lines indicate the time needed for the construction of each individual activity within a CPA and the blue boxes represent CPAs and their crediting period. However, since the lifetimes of subprojects in the CPA do not run in parallel, some emission reductions fall outside the crediting period and cannot be verified and converted into carbon credits. For the first CPA, the lifetimes of the subprojects that fall outside the CPAs crediting period are marked with two small blue triangles. The start date and crediting period for each CPA should be set to minimise the lifetimes of subprojects that are not covered within the crediting period of a CPA. Figure 3.5 provides examples of three possible scenarios.



Figure 3.5
Coverage of crediting periods



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A different situation arises when the lifetime of the used equipment/technology is very short, as in the case of improved cooking stoves, for example. The crediting period of a CPA cannot exceed the lifetime of the equipment used in the project, unless the methodology allows replacing the equipment. This requirement is circumvented by some methodologies, such as the AMS-I.E.¹⁸ which states that “monitoring shall consist of an annual check of all appliances or a representative sample thereof to ensure that they are still operating or are replaced by an equivalent in service appliance”. This implies that the lifetime of the equipment can be extended if it is replaced by an equivalent in service appliance, and that the crediting period may extend beyond the lifetime of the equipment.

3.7 CPA size

It is up to the programme developer to choose the most convenient CPA size. Two aspects determine the optimal size:

1. Small-scale methodologies: It is important to ensure that each CPA stays within the small-scale limit if a small-scale methodology is applied.
2. Financial aspect: Balancing the costs of each inclusion with the value of the additional amount of CERs generated is important for ensuring the project's cost-effectiveness.

Regarding the first aspect, the size limits in which CPAs can apply a small-scale methodology are defined for the three different small-scale project categories, as listed in the table below. In some cases, the small-scale methodology itself provides more specific guidance on the size limits that apply for that specific methodology.

Regarding the financial aspect, the CPA size needs to strike a balance between:

- More but smaller CPAs: higher costs for drafting CPAs, including CPAs and monitoring and verification, but it allows for tailoring crediting periods to the period in which the individual subprojects will generate emission reductions.
- Less but larger CPAs: lower costs for drafting CPAs, including CPAs and monitoring and verification, but less ability to tailor crediting periods to the period in which the individual subprojects will generate emission reductions.

Balancing these two is a financial and operational exercise. The cost of each inclusion varies per project type and also per validator. The costs of the first inclusion will be around EUR 10,000 to EUR 30,000, while subsequent inclusions may be cheaper (you can also include more than one CPA at once, allowing for economies of scale). Assuming a CER price of EUR 10, the costs of an additional inclusion is equal to the value of around 1,000 to 3,000 CERs. The optimal size of a CPA is determined by the time needed for all subprojects not yet included in the PoA to generate 1,000 – 3,000 CERs. The amount of subprojects that are implemented in that period is the optimal CPA size.

For example, take a CPA where the pace of implementation is 100 projects per month, each generating 12 tCO₂e/year or 1 tCO₂e/month. At this pace, the programme will reduce 50 tCO₂e emissions in the first month, assuming implementation is distributed evenly throughout the month. This will be followed by 150 tCO₂e in the second, 250 tCO₂e in the third, and so on. The accumulative reduction will amount to 1,250 tCO₂e by the end of the fifth month. These reductions are worth EUR 12,500. If the costs of inclusion are around EUR 10,000, the new CPA can be implemented just before the end of month five. In this case, the lost emission reductions – reductions that cannot be converted into CERs – are balanced against the costs of inclusion. A possible solution to this is starting the crediting period of the CPA at the moment the first project starts operations. In this case the first monitoring report lists the dates at which all individual projects started operating and started generating CERs.

While the above example illustrates how the required CPA size can be determined based on the anticipated emission reduction potential, it does not take into account the fee that is payable to the Executive Board upon registration of the programme. The registration fee is only incurred during the inclusion of the first CPA(s) upon registration of the PoA, and is correlated to the size of that CPA. CPAs included at a later stage of the programme are excluded from paying this fee, thereby incentivising the programme manager to limit the number and/or size of the CPA(s) submitted together with the request for registration of the PoA.

¹⁸ AMS-I.E. Switch from non-renewable biomass for thermal applications by the user, Version 02, paragraph 14.

Table 3.2
CPA size limits for small-scale methodologies

Project type	Size limit of a CPA when using small scale methodologies
Generation of power, heat or mechanical energy	Installed capacity no more than 15 MWe or 45 MWth
Energy efficiency, demand and supply-side	Energy saving not exceeding 60 GWh/year
Fuel switch, reduction of methane emissions or other gases	Emission reductions not exceeding 15,000 tCO ₂ e/year

3.8. Applying Methodologies

Methodologies describe how emission reductions are measured and monitored, thereby enabling the determination of the amount of carbon credits to be generated. To be applicable to a PoA, a methodology needs first to be approved by the Executive Board, which ensures that the methodology provides correct guidance on how emission reductions are to be calculated and monitored. A comprehensive overview of all approved CDM methodologies can be found in the CDM Methodology Booklet¹⁹, which can assist in identifying the appropriate methodology for a programme.

While applying a single methodology for the programme is the most common way forward, sometimes more than one methodology can be used in a PoA. This is, for instance, the case with the use of landfill gas for power generation, where one methodology is applied to calculate the reduced methane emissions from the landfill, and a second methodology is used to calculate the amount of avoided emissions when using gas to generate power rather than relying on fossil fuel.

In situations where more than one methodology is applied, there are three possibilities. Combinations of methodologies:

- that have not been applied in a registered CDM project before, can be used only after prior approval by the Executive Board.

- that have been applied in an approved CDM project before, can be applied in a PoA as well but only if interactive cross effects between the different measures can be excluded or are conservatively accounted for. Checking whether a combination of methodologies has been applied in a registered project can easily be done with the “advanced search” option for searching projects on the UNFCCC website at: <http://cdm.unfccc.int/Projects/projsearch.html>
- that have been approved by the Executive Board for use under a PoA can be used. A list of already approved combinations can be found in paragraph 11 of the “General Guidelines to SSC CDM methodologies, version 17”²⁰.

Contrary to common misunderstanding, there is no need to revise the PoA-DD every time the Executive Board changes or replaces the applied methodology. A revision is only required if a methodology is revised after it has been put on hold. In this situation, only the CPAs included after the methodology revision need to follow the revised PoA-DD. PoAs cannot include additional CPAs if the methodology applied is put on hold or withdrawn, unless the methodology has been put on hold for the purpose of inclusion in a consolidated methodology²¹. Fortunately, the occasions when methodologies have been put on hold are extremely rare and have been limited to the early days of the CDM.

Methodologies under JI and voluntary standards:

The CDM has an approval procedure for methodologies that is separate from the registration procedures of projects. That is different under JI which allows for a JI specific approach or use of an approved CDM methodology. When using a JI specific approach the recognition of the proposed approach is an integrated part of the project determination procedure. As a consequence, there are no limitations to combining methodologies in a JI PoA.

The Gold Standard and VCS also endorse use of CDM methodologies but also have their own approval procedures. Under the Gold Standard more than one methodology can be used for the PoA but not all Gold Standard methodologies can be used for PoAs.

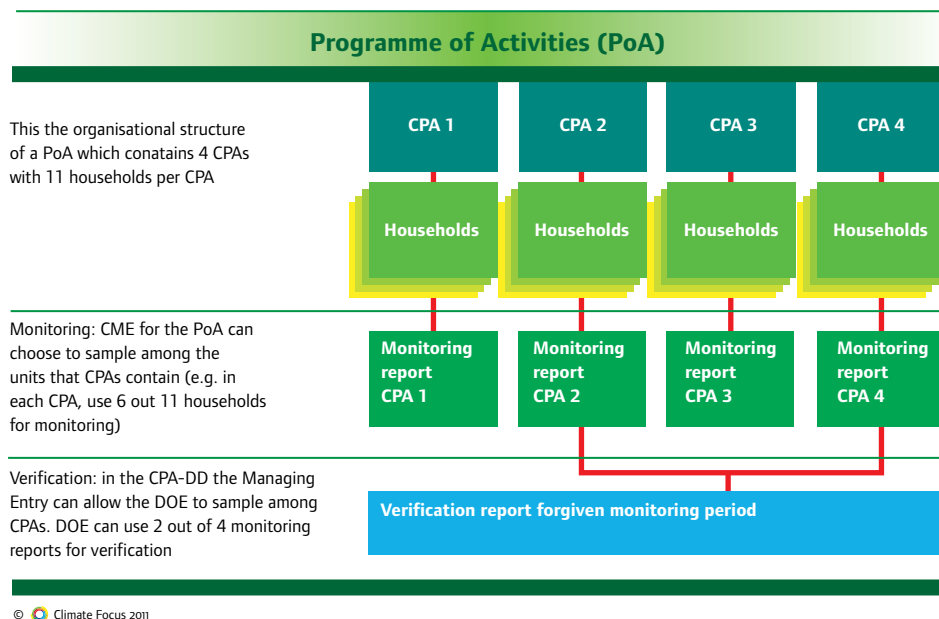
¹⁹) <http://cdm.unfccc.int/methodologies/documentation/index.html>

²⁰) Annex 21 to EB meeting 61, paragraph 11

²¹) Annex 38 to EB meeting 55, paragraph 18-21



Figure 3.6
Sampling for monitoring and verification under a PoA



3.9. Gathering baseline data, monitoring and verification

All emission reductions generated under the programme must be monitored and reported for verification. Since PoAs can include many CPAs and each CPA is required to present its own monitoring report, considerable effort is required to gather baseline and monitoring data in a consistent fashion. Most small-scale methodologies focus on historic data to determine the baseline emissions. For some PoAs this can be done through a baseline survey.

To reduce the costs related to data gathering, you can combine the regular baseline surveys with the monitoring survey provided the PoA is already operational. A baseline survey aims to gather information that can be used to calculate the historic emissions of participants to the programme. To ensure that current baseline data is available for each new CPA, this survey will have to be regularly repeated. When including a new CPA on an annual basis, the baseline surveys will also have to be repeated annually. This effort can then easily be combined with the annual gathering of data for the monitoring reports.

The verification of the monitoring reports by the verifier can be based on a sample of the monitoring reports of all CPAs included²² (see Figure 3.6). If the programme manager does not want to have all the monitoring reports from all the CPAs verified, the CDM-POA-DD should propose a statistically sound monitoring procedure for the verification of the emission reductions.

It is possible to resort to sampling methods when monitoring data within each CPA, a practice for which the Executive Board has formulated strict guidance²³. Key elements of this guidance include:

- When using sampling the PoA-DD should include a “sampling plan”, in which the sampling approach and sample size are properly justified. For the justification of the approach chosen, you can resort to using historic data if available.

22) Annex 29 to the report of EB meeting 47, paragraphs 30a and 31a

23) General guidelines for sampling and surveys for small-scale CDM project activities (Version 01), EB 50, Annex 30. http://cdm.unfccc.int/EB/050/eb50_repan30.pdf

The guidelines include further guidance on what should be included in the sampling plan, including elements such as the qualification of the people conducting the samples, characteristics of the population, procedures for data management, suggestions for dealing with non-response, etc.

- Unless the methodology defines otherwise, for each parameter the sampling should have:
 - a confidence interval of 90 percent; and
 - a precision or error margin of 10 percent.

In addition, the guidance introduces four sampling methods: The first is Simple Random Sampling, in which a random sample is taken from a relatively homogeneous population. This is the most straightforward way of sampling but may not always be the most appropriate. This kind of sampling works when the population of units from which the sample will be taken is of limited size or concentrated in a small geographical area, or when they are easily accessible.

The second way is Systematic Sampling, in which clusters of units to be sampled are selected randomly. Selecting clusters has the advantage that it can make sampling cheaper. A key requirement is that selection is random and does not reveal any pattern. This kind of sampling is relevant when there is a natural flow or order in the population. An example is a production line where you can test every tenth product.

The third method is Stratified Random Sampling, which involves selecting strata or homogeneous subpopulations. Examples might be subpopulations of building types (e.g. offices, houses, shops, etc.). A requirement is that each element is listed in only one subpopulation.

An advantage of random sampling using subpopulations is that sampling efficiency can be improved, for example when the elements within each subpopulation are more homogeneous than across subpopulations. In this case, the stratified sample will give lower variance for a given sample size.

Consider the following aspects to speed up registration:

- Engage or subcontract qualified experts who are experienced and familiar with CDM guidance and the relevant project type. Experts who have previously developed a similar project are capable of anticipating issues and addressing them faster. Familiarity with CDM guidance, procedures and discussions around the methodologies is crucial for avoiding any potential misinterpretation of Executive Board decisions. Without intimate knowledge of the CDM, it may well happen that both project developers and validators are guided by rumours and opinions rather than by the actual CDM Rules.
 - Set clear deadlines for PDD development.
 - Avoid or minimise bureaucracy or internal approval or review procedures for the release of CDM documents, the start of validation, and other project milestones.
 - Make clear agreements with the validators on response times and define internal responsibilities that enable you to quickly react to queries from the validator.
 - Ensure continuity of staff working on the development of the CDM aspects. Loss of specific project knowledge between PDD drafting, validation and registration creates loss of valuable time.
 - Ensure the high quality and accuracy of CDM documents in order to avoid reviews and discussions during validation, registration and verification.
-

This method is, therefore, particularly useful if there are populations with natural groupings of subjects with large differences between the various subpopulations. Populations with different building types are an example.

The last method is Cluster Sampling, which applies when there are natural groupings within the population. In contrast with Stratified Random Sampling, sampling here occurs at group level rather than on the individual units. An example provided in the CDM Rules is where energy efficient motors are installed in buildings. In this case, sampling at building level is more efficient than randomly sampling all motors. The difference with Stratified Random Sampling lies in the kind of natural groups. A clear example of a population in which Cluster Sampling works well is a population that is geographically dispersed. In this instance, sampling geographical clusters will save travel time and costs of sampling. This method is, for example, applied in the Nepal biogas programme, in which participating households are dispersed all over Nepal.

The verification and issuance of credits is less time-sensitive than, for example, the inclusion of a new CPA. Once generated and monitored, emission reductions can wait for their verification and issuance. The financial incentives and obligations under the carbon sales contract often determine the frequency of verification and issuance. Large projects, generating over a million CERs per year, tend to verify and issue more than once a year. Most programme developers opt for annual verification. This is also common practice for medium-sized and small projects of less than 500,000 CERs per year.

PoAs can include numerous CPAs, each consisting of a bundle of many subprojects. Sampling is allowed to avoid the need to verify all the reductions from each CPA individually. The Executive Board has indicated its intention to develop new guidelines for statistically sound verification techniques and methods. Since the PoA-DD requires a “description of the proposed statistically sound sampling method/procedure to be used by validators”, it is important to closely monitor developments on this topic

and any implications for the PoA since all PoAs, including those registered before the adoption of this guideline, will have to comply with the new criteria at the point of verification.

3.10. Efficiency in the project cycle

Developing a PoA takes time. The time needed for validation and registration differs per programme, but tends to take at least 18 months. Delays in validation and registration can be especially problematic for programmes involving small or micro size activities with a relatively short implementation and construction time. For these project types, technology dissemination and construction might be a matter of days or weeks, implying that incorrect timing can result in a loss of creditable emission reductions. This is because prior to programme registration under the CDM, no carbon credits can be generated. It is therefore crucial that the registration process is carried out quickly and effectively.

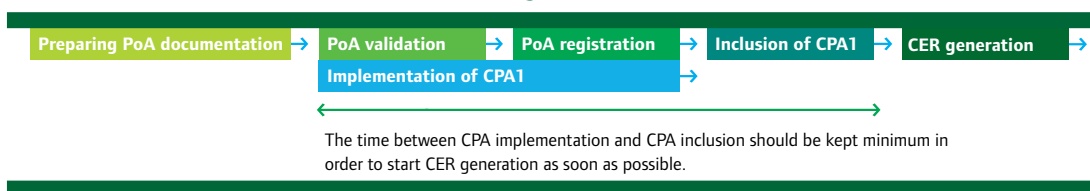
For many PoA developers, the start of the drafting of the CDM documents marks the beginning of a race to register the programme before the equipment in the PoA is commissioned and starts generating emission reductions.

Although the CDM development aspects can be outsourced, practitioners also need internal capacity to deal with CDM-related questions and ensure that the PoA does not violate CDM Rules that can impact the amount of carbon credits generated and when you receive them. It is important to assign a person who is responsible for overseeing all CDM aspects, and who has an overview of deadlines and milestones, in particular when there is a carbon credits sales contract in place. Using software that gives early warnings on deadlines is recommended.

The time for the inclusion of a CPA should also be kept as short as possible. This inclusion should happen a lot faster than the time needed for validation and registration. A CPA can only generate CERs when it has been



Figure 3.7
Timelines for PoA registration and CPA inclusion



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included²⁴, and, as a result, emission reductions generated before the CPA has been filed or while the CPA is undergoing scrutiny by the validators during its inclusion, will not become carbon credits and will be lost.

3.11. Further reading

The information provided in this chapter is largely based on the CDM Rules, in particular the guidance documents and decisions made by the Executive Board. It is important to stay informed about the decisions made by the Executive Board and to always check that the guidance document you apply is still the latest available. Relevant CDM Rules can be found at: <http://cdm.unfccc.int/Reference/index.html>.

In addition, there are rulebooks available that try to make the rulings of the Executive Board more accessible. These include the CDM Rulebook by Baker & McKenzie, available at: www.cdmrulebook.org, which includes a separate section on programmatic CDM. When using this rulebook, do take note of the latest Executive Board meeting from which the Rulebook has been updated. This is indicated with “Current to Executive Board [No]” on the front page of this website. A JI Rulebook can be found at www.jirulebook.org.

Another valuable source of information is UNEP Risø which publishes a series of Guidebooks with titles like “PDD Guidebook: Navigating the Pitfalls”, “Baseline Methodologies for CDM Projects” and “A Primer on CDM Programme of Activities”. These Guidebooks are available at: <http://cd4cdm.org/Guidebooks.htm>. In addition, UNEP Risø has made the wealth of methodologies previously approved by the Executive Board accessible through a Methodology Selection Tool, available at <http://cdm-meth.org/>. Finally, UNEP Risø publishes an up-to-date overview of CDM and JI projects that have started or moved beyond validation. This pipeline of project is available at: <http://cd4cdm.org/CDMJIpipeline.htm>.

²⁴ Annex 38 to EB meeting 55, Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities (Version 04.1), paragraph 7(c).



A person in a blue robe is leading a camel across a vast desert dune landscape at sunset. The scene is captured in a wide-angle shot, showing the undulating sand dunes and the warm, golden light of the setting sun. The person and camel are positioned in the upper right quadrant of the frame, moving across the dunes. The overall atmosphere is serene and evocative of a traditional desert setting.

The Role of the Programme Manager





4.1. Key recommendations

- The programme manager is responsible for bringing together the various financial, legal and carbon aspects in a coherent structure.
- Create a clear business plan for the programme.
- Work according to a roadmap, set deadlines and avoid delays.
- Be the focal point for all matters related to the PoA.
- Assign all tasks, varying from sourcing financing to securing carbon standard compliance and promoting the programme.
- Train relevant staff on carbon methodologies and procedures.
- Make sure that qualified staff are available for all tasks required.
- Secure political support and organise meetings to provide updates on the status of the programme.

4.2. Programme management

The CDM registration alone will not generate the emission reductions that form the basis for the production of CERs. It is necessary to effectively manage the whole programme, bringing all financial, legal and carbon aspects together in a coherent structure. This is the responsibility of the programme manager. The programme manager coordinates the entire programme throughout its lifetime – taking care of programme design, financial aspects and arranging for emission reduction generation and monitoring – and serves as the focal point for all matters related to the programme. As programmes typically consist of numerous subprojects that may have separate owners, developers and financiers, there is a need for a clear focal point that is responsible for the overall managerial and operational aspects of the PoA.

A PoA needs to be led by a person or entity that is responsible for designing and managing the programme and acting as the main focal point for all entities involved. The programme manager is responsible for coordinating all the legal, technical and financial issues associated with a programme. These issues comprise the development, operation and maintenance of the programme, including sourcing finance, validation, registration, programme unit inclusion, performance and maintenance of programme units, monitoring and database management, carbon credit issuance, carbon credit marketing and revenue distribution/management.

The tasks of the programme manager are not defined under the CDM, but defining and carrying them out effectively is of crucial importance for a successful programme. The most important involve building the trust needed amongst the programme's stakeholders, providing support for bringing together the human, institutional, and financial resources for successful programme implementation, and effectively promoting the programme to attract future participants.

The programme manager is not necessarily directly involved in the implementation of the subprojects, but rather operates a structure and platform for the programme units to be included in the programme. Accordingly, the programme manager plays the crucial role of leading, administering and monitoring the programme units within a programme under one management umbrella.

Programme management brings carbon, legal and financial management together (see Figure 4.1). The entity that takes care of programme management can delegate and outsource elements of the management as long as the overall coordination is guaranteed. The entity managing the programme does not necessarily need to be the same as the entity that coordinates the CDM aspects, generally referred to as Coordinating Managing Entity or CME. This job can be outsourced. The responsibilities of a CME are defined by the CDM Rules and are limited to the registration of the project, its approval, and the verification of emission reductions.

Tasks under a programme are many and varied (see the checklist in Figure 4.2). Whether the programme manager or a third party takes up the requisite responsibilities depends on the abilities and preferences of the programme manager, and the organisational set-up. A programme manager will analyse the strengths and weaknesses of his organisation, and identify which tasks he will manage and which ones he will outsource to others.

Figure 4.1
Programme management integrates legal, financial and carbon management

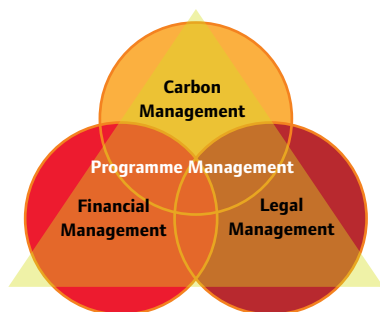


Table 4.2
Checklist of tasks that need to be performed under a PoA

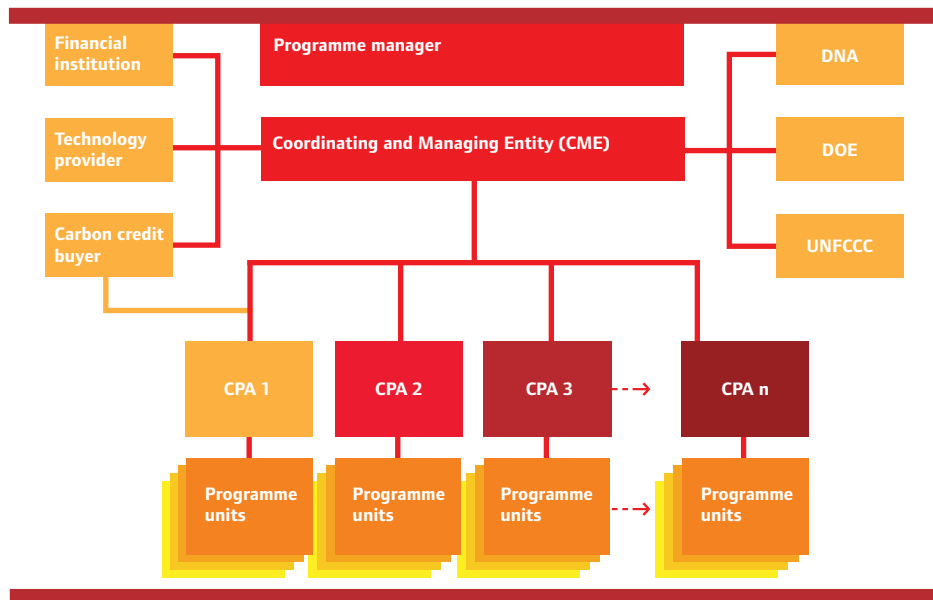
Design and promote the programme
Design the programme
Draft a solid business plan
Draft a roadmap that provides guidance to all actors relevant to the programme
Manage the carbon aspects
Develop in-house or acquire external CDM expertise
Draft and submit the POA-DD, CPA-DDs and monitoring reports
Obtain letters of approval and authorisation
Coordinate the issuance of CERs
Develop and manage the operational structure
Manage and organise contracts and agreements among stakeholders and participants
Set-up and manage a central database of project information
Expand operational capacity as the programme develops
Fund raising and financial management
Take on the responsibility for arranging finance for the programme, and/or support individual CPA developers with sourcing financing
Promote the programme
Develop and implement an incentive scheme that will attract participants, e.g. through applied grants, subsidies or loans
Secure ownership of carbon revenues and arrange for their distribution or use
Technology distribution and maintenance
Ensure access to technology and related services
Ensure long-term compliance of the technology with design criteria and requirements defined in the CDM documents
Arrange for technology distribution, installation and maintenance and repair services
Coordination and communication with stakeholders
Meet the responsibilities associated with direct communication with the carbon regulating entity
Organise stakeholder meetings and integrate suggestions or address concerns in the programme design
Coordinate between all actors involved, including financiers, technology providers, programme participants, validators and relevant host country authorities
Develop an in-house network of staff or well-recognised set of local partners that support with programme dissemination



The programme manager will engage in communication with the stakeholders to ensure effective programme functioning based on clearly defined roles and responsibilities of each actor in the programme. Figure 4.3 illustrates the flow of communication within a programme. Relations indicated

with a solid line are to be formalised in cooperation agreements. Optional relations are necessary only if the organisational or financial structure of the programme so requires.

Figure 4.2
Communication channels within a PoA



“Don’t underestimate the business component”

“The challenge of developing a PoA is not the technical part but the management of the business. The success of a PoA depends on lean and professional management which should cover all aspects in an integrated manner, including the carbon aspects, project financing and expansion of the programme.”

PoAs are complex structures that place a lot of tasks and responsibilities on the shoulders of the programme manager. All CPAs should be able to rely on standardised procedures and monitoring approaches to avoid management costs running out of hand as the number of CPAs increases. That is important since the PoA can only be successful if the number of CPAs increases rapidly.”

(Christoph Sutter, CEO of South Pole Carbon Asset Management)

The CME role

The Coordinating and Managing Entity (CME) is the entity that manages and oversees communication with the validator, the Executive Board and the UNFCCC secretariat. In most cases, the programme manager responsible for the carbon management of the programme assumes this role. There can be situations where a programme manager prefers outsourcing the tasks of the CME, depending on, inter alia, the specific characteristics of the programme, the country in which it is located and the overall legal set-up.

Obtaining the letter of approval (LoA) for the PoA is of crucial importance since it authorises it to be an official project participant in the PoA, and it is a requirement for the PoA to be registered under the CDM. The CME will need to contact the local DNA and present and discuss the PoA; approaching the DNA at an early stage is recommended. It is important to build a trusting relationship and share all information wherever possible to ensure that the PoA contributes to the country’s sustainable development criteria. It is important to note that a LoA is required for the PoA, but not for each individual CPA under the programme.

Tasks of a CME in the CDM

- Creating PoA documentation (the CDM-POA-DD and CDM-CPA-DD)
 - Obtaining a Letter of Authorisation from each host country
 - Obtaining a Letter of Approval from each host country and the Annex I party involved
 - Coordinating and communicating with the validator and the EB
 - Drafting monitoring reports for all CPAs in accordance with the methodology outlined in the POA DD
 - Requesting the UNFCCC to issue CERs into a registry account of the CER buyer(s)
-

“Seek Public and Political Acceptance”

“Ensuring that your programme gathers enough support to reach the required critical mass of participants is one of the key elements in designing a successful PoA. Under the Bachat Lamp Yojana (BLY) scheme, compact fluorescent lamps (CFLs) are distributed by CPA implementers to grid-connected residential households in exchange for their existing incandescent lamps (ICLs) and a small fee.

There were three key elements to success. Firstly, the programme was discussed with stakeholders in five meetings across the country, organised by Greenpeace as a credible independent actor. This helped the CME and the Bureau of Energy Efficiency design a robust PoA. Secondly, to ensure public support, press and media kits with detailed documentation and short press briefs were handed out to the public. This helped build public pressure on governments to implement the programme. Finally, BEE, a statutory body of the Government of India, has undertaken the role of CME, and has emphasised that the programme serves the public objective of promoting energy efficient lighting in the household sector.”

(Manu Maudgal, GIZ)



4.3. Examples of Programme Managers

Programmes have long time frames and, moreover, the programme manager must be involved over the whole life-time of the PoA. The programme manager can be a public entity, a commercial entity, a not-for-profit organisation, or even a natural person. The programme manager should have strong regional presence, so that it can coordinate the programme efficiently. This can be done directly through the presence of regional offices, or indirectly through a network of partners that facilitate local outreach. Established connections with technology providers, financial institutions and regional governmental bodies are key to setting up the programme in a competent manner. There are no clear comparative advantages over which type of entity is most suited to running a type of PoA; basically anyone can do it according to its special circumstances and interests.

Public entities

Depending on the nature of the PoA, development banks, state banks and governmental organisations are excellent candidates for assuming the role of programme manager.

Currently, there are various PoAs in the CDM pipeline where the programme manager is an agency within a ministry or other public body. One example of a programme coordinated by a public entity is the Biogas Support Programme in Nepal. The programme manager is the Alternative Energy Promotion Centre (AEPC), a local government agency responsible for promoting the application of renewable energy through educational and incentive programmes. Besides performing the CDM-related tasks and assuming the role of CME, the AEPC has taken on the role of administering the subsidy funds allocated by the government. The AEPC has the capacity to manage funds as it has prior

The importance of a central coordinating body

“Establishing the appropriate programme manager is a prerequisite to successful PoA development. First and foremost, not every entity is fit to become a programme manager, and suitable programme manager entities will differ by programme type. Project developers or technology providers may possess the necessary technical skills to operate a project efficiently, but may not have the necessary skills and capacities to assume the role of Programme manager. It often pays to engage a third party that possesses the necessary capabilities or to set up a separate entity that will deal with either the carbon component or the organisational issues behind the programme.

Due to the complexity of running a PoA, the programme manager should have experience with, or at least a solid understanding of, how the CDM works and what requirements need to be met to succeed in programme registration and credit issuance. The programme manager will not always have the time or the capability to arrange local capacity building and training sessions, and this can be supported by knowledge institutes. Partnerships with technology service providers and distributors can significantly speed up the roll-out of the programme.

Finally, the programme manager should be flexible and open to innovation. Large institutions with a bureaucratic decision-making process may not be as efficient in controlling operational and monitoring costs as a more flexible entity can be.”

(Renat Heuberger & Paul Butarbutar, South Pole Carbon Asset Management)



experience with coordinating financing schemes to stimulate renewable energy generation. Furthermore, it is involved in the coordination of the monitoring plan and acts as a focal point between all the stakeholders involved in the programme.

Another example is the Bachat Lamp Yojana CFL Programme in India, which is managed by the Bureau of Energy Efficiency (BEE), a government organisation engaged in developing policies and strategies to promote energy efficiency and renewable energy in India. The BEE decided to limit its involvement to purely organisational aspects and has not been involved in sourcing financing or technology for the programme; this is left to the individual CPAs.

Commercial entities

Commercial entities that commonly act as programme managers include energy supply companies, utilities, technology providers, CDM consultants, and engineering and construction companies.

The first registered PoA, CUIDEMOS Mexico, is being managed by Cool nrg, a private entity that promotes energy efficiency and provides consultancy services in emission reduction projects. Acting as the CME, Cool nrg provides organisational leadership, has established a network of CFL distribution centres and engages, both directly and through partnerships, a trained workforce that assures effective programme implementation and monitoring. Having previous experience with disseminating energy-saving CFLs in the UK and Australia has proved advantageous in terms of assuring effective implementation of the first CPA and securing financing.

“A programme manager must have high credibility”

“The Bureau of Energy Efficiency (BEE), a statutory body of the Government of India, has been assigned as the CME of the BLY Programme, the first registered PoA in India.

High credibility as a professional organisation and the decision to have no commercial interest in the PoA are the key factors that make the BEE a successful programme manager. Being mandated by the Indian government to promote energy efficiency, BEE can build trust amongst stakeholders and act as an intermediary between power distribution companies and participants.

The BEE is also the CME of the programme. It is intimately familiar with both national regulations and CDM guidelines, but hired specialists from GIZ for technical assistance.

Being well positioned in the public-private sphere, having access to public funding and possessing the relevant technical know-how has allowed the BEE to effectively bring together all the parties that make the programme happen.”

(Saurabh Kumar, Secretary, Bureau of Energy Efficiency, Ministry of Power, Government of India)



Another example of a programme coordinated by a private entity is the Climate Action Response Enterprise (CARE) for Energy Efficiency in Chiller Plants, to be implemented in Singapore. This programme is currently under validation. The programme manager and CME, Climate Resources Exchange (CRX), is a local carbon advisory company that has teamed up with an affiliated bank to initiate the programme. CRX is promoting the programme through active engagement with local building owners and energy efficiency services companies, but is limiting its involvement to the organisational and CDM-related aspects of the programme. Technology and financing is being arranged by individual CPA managers, with CRX acting in an advisory and coordinating role.

Not-for-profit organisations

Not-for-profit and non-governmental organisations (NGOs), including foundations and social and environmental charities, implement PoAs to improve social and environmental conditions in developing countries. There are currently numerous PoAs in the CDM pipeline that have NGOs as programme managers. For example, a non-profit subsidiary of Grameen Bank (a non-commercial bank owned by and run for the poor of Bangladesh), the Grameen Shakti, is developing a programme for the installation

of solar home systems throughout rural Bangladesh. Grameen Shakti has the capacity and local outreach to assume responsibility for all aspects of the PoA and also assumes the role of CME. With several hundred offices and a number of Grameen Technology Centres, the programme manager has a local network that provides access to millions of potential programme participants. Grameen Shakti also provides micro-finance loans that enable participants to purchase the solar water heaters. At the beginning of the programme, the technology will be imported, but the programme manager is considering setting up a joint venture for the production of solar panels in Bangladesh. This example shows that the programme manager can take full ownership over all aspects of a programme.

Another example of a programme being coordinated by a non-profit entity is the Programme for Sustainable Swine Production (the 3S Program), which aims to install over 1,000 biodigesters in five provinces in Brazil. This programme is being coordinated by the Instituto Sadia de Susten-tabilidade, a non-profit entity affiliated to Sadia, a large producer of chilled and frozen foods. The main reason behind its creation by Sadia was to take on the overall management responsibility for this PoA and, accordingly, the role of the CME has been outsourced.

How to distribute one million CFLs in one month?

The Luz Verde Programme is the first registered PoA. The programme aims to replace 30 million incandescent light bulbs with CFLs across Mexico. Designing an effective distribution model was key to managing both the CDM and financial risks of the project. Cool nrg, the CME, staged a pilot involving the distribution of 1,000 energy efficient light bulbs or CFLs under the same rules and conditions as the first one million bulbs. This allowed the model to be tested and improved, and for staff to be trained on the ground.

“We had to distribute one million energy efficient light bulbs in one month, since every additional day added to the costs. Before the implementation of the actual CPA, an extensive media campaign targeting low-income households was designed to entice 250,000 households. With over 100 distribution points, facilitated through Cool nrg’s retail partners, the dedication and strength of communication between the partners was crucial to meeting deadlines within the project budget.”

(Emma Jenkin, Cool Nrg)



4.4. Further reading

For an overview of organisational models that can be used for PoAs, the PoA Blueprint Book from KfW (Frankfurt, 2009) provides a useful and interesting read. The book provides organisational blueprints for a broad range of PoAs, varying from household stoves to industrial boilers. Another interesting guide has been published by UNEP Risø, the “Primer on CDM Programme of Activities” (Roskilde 2009) that provides an overview of the role of the CME and various actors involved in the development of a PoA. It presents various organisational models and some PoA project examples.

Carbon revenues for different types of programme managers

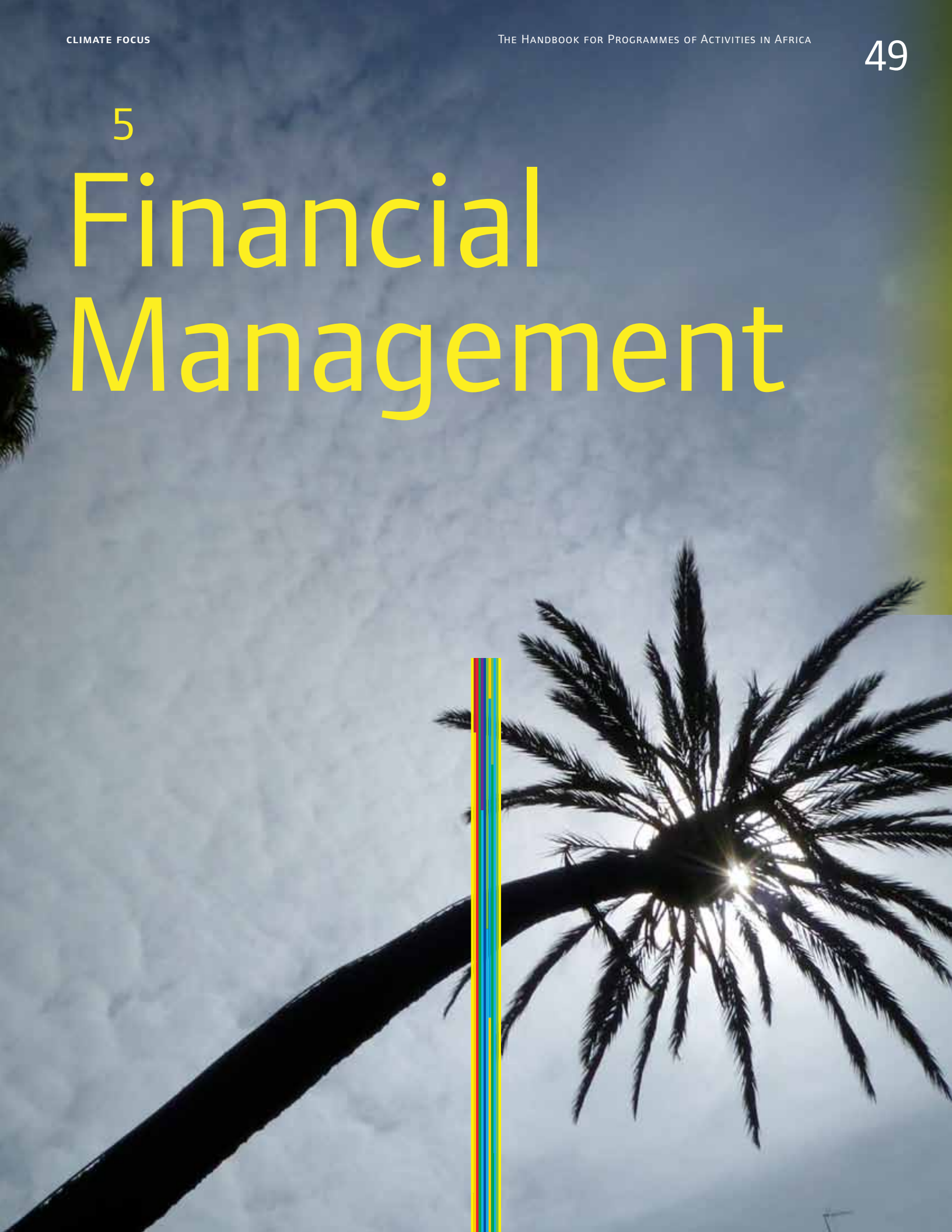
- Commercial entities will see carbon as an additional form of revenue that increases future profit potential and makes the venture financially more attractive.
 - Non-profit organisations will often focus on the social and environmental benefits of the programme. Nonetheless, they will also consider it a success if the programme becomes financially independent, thus reducing its dependence on donors.
 - Governmental institutions generally find carbon revenues attractive since they can reduce a programme’s reliance on grants or subsidies from the state budget.
-





5

Financial Management





5.1. Key recommendations

- In financial terms, emission reductions are a project asset.
- Develop a solid business plan and conduct a solid risk analysis.
- Understand the risks threatening the success of the programme.
- Leverage your carbon asset when sourcing other financing.
- Understand the benefits and risks behind different strategies of monetising carbon assets.
- Combining different sources of funds reduces risks.
- Share the proceeds.

5.2. Emission reductions as an asset

A PoA turns emission reductions into income that can support the activities under the programme at different stages. The carbon revenue stream may encourage and incentivise participants to join a programme because, for example, it allows the technology provider to offer a discount on its products, or because the carbon revenues make the investment economically more attractive. Having access to finance is a precondition for the growth of a PoA, and understanding the specificities of carbon finance and the opportunities it offers is therefore critical in putting together a successful programme.

“...a good business plan...”

Once the basic PoA has been designed, the development of a CPA is a typical management task. The programme manager must have a solid plan for promoting the programme. He is responsible for conducting outreach activities to potential participants and increasing the number of CPAs to the target level. Furthermore, it is crucial that the programme manager provides strong incentives for local partners in order to ensure timely and correct implementation and expansion of the programme. Finally, having a solid business plan will help convince financial institutions that targets for the expansion of the programme can be met.

Finding a financial partner that has sufficient understanding of carbon finance can be challenging. Most banks, private equity firms, investment funds and other organisations that may provide finance for the programme have limited understanding of carbon finance and engaging them in a programme often requires convincing and training.

For a programme manager seeking a financial partner, it is crucial to understand how investors evaluate the risks associated with a programme and how carbon finance can be used to leverage finance. Only then will a programme manager be able to source start-up capital, negotiate a financing agreement and secure financial closure for the programme. This requires a thorough understanding of the merits of carbon finance and the ability to convey this understanding to financiers.

5.3. What does carbon finance offer you?

Investors will analyse the business model of a PoA and analyse its financial viability by assessing whether the anticipated future revenues are likely to materialise. This requires a risk analysis. The future income stream generated by the sale of carbon credits presents a valuable security, often in hard currency that makes the programme more attractive for investors.

Carbon finance can do three main things for your project:

1. Carbon finance can provide an incentive to all stakeholders to participate in a programme

Carbon finance brings an additional source of revenue to an initiative, which can make a significant difference in viability and profitability. This is particularly true for programmes that reach out directly to consumers and for those that target methane emissions from farm waste. Energy efficient lighting, cooking stoves and solar water heaters are examples of the first category; implementing manure digesters is an example of the latter. Potential applications of carbon finance include:

- Subsidising the sale of the product to the end-user/lowering the retail price. A good example of this can be illustrated with lighting projects, where the consumer/end-user can purchase an energy efficient lamp at a discount, or even receives the lamp for free.
- Covering programme costs: dissemination, service and maintenance, programme coordination, monitoring and reporting. Household biogas programmes often use carbon finance to cover the extensive programme costs, while the actual purchases of biogas digesters are either subsidised from other sources or simply purchased on a commercial basis.

When carbon finance is the sole or most important source of revenue, it is essential to share the proceeds in a transparent and equitable way among the participants. Inequitable distribution of CDM proceeds has proven to be a major reason for project failure in bundled regular CDM projects and will equally be a time bomb under a programme.

2. Carbon finance can help kick-start the programme by attracting upfront capital in return for future delivery of carbon credits

The first activities that need funding are drafting feasibility studies, developing a sound business plan, preparing CDM documents, the validation and the ensuing registration by the Executive Board. During this initial



“Do not make an initial forward sale of carbon credits”

Avoid taking up debt. The Uganda Carbon Bureau advises developing PoAs based on donor and grant funding. Attracting donor funding in Africa may be easier than in some other parts of the world but the company strongly recommends that you avoid debt and avoid forward sale of the carbon credits: “as a CME you can’t sell CERs that do not [yet] belong to you”.

The Uganda Carbon Bureau relies solely on funding from development organisations and its own equity. This has consequences for timing. Since donor funding comes in very slowly and is uncertain, you should submit applications early. In the meantime, you should be willing to use your own equity.

(Bill Farmer, Uganda Carbon Bureau)

“Micro-finance institutions are generally too small”

“An adequate institutional set-up with a centralized management structure, coupled with seed funding, is a condition for a PoA’s success”. Noting a common misunderstanding regarding PoA development, Felicity Spors from the World Bank, argues that “[t]here is a misconception about [the] usefulness of micro-finance in PoA development. Micro-finance institutions are usually small and can rarely include all CPAs under a PoA due to their need to hedge risk as well as in terms of investment, operation, monitoring and carbon credit management.”

(Felicity Spors, World Bank)

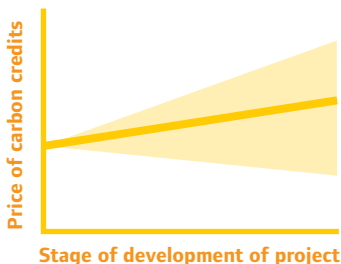
phase, the uncertainty surrounding the financial viability of the programme is highest, since the programme only exists in concept and typically lacks collateral to secure capital.

Where the programme needs upfront investment, the programme manager may solicit advance payments from the buyer of the future carbon credits. The buyer’s willingness to provide an upfront payment depends on the perceived risks and market conditions. A clear business plan coupled with a financial or parent company guarantee will normally be a prerequisite for an upfront payment. Typical upfront payments may cover the costs of developing the carbon component: drafting a PDD, hiring a validator and registering the PoA at the UNFCCC. Other than that, upfront payments may cover setting up the management structure, initial legal costs, marketing and technology purchase. However, the latter typically requires more than a carbon purchase agreement. In return for offering capital upfront, buyers require a discount on the carbon credit price.

As the price discount can be significant, the programme manager needs to assess whether the costs of the upfront payment transaction are actually balanced by the opportunity cost of selling the carbon credits at a later stage. The more advanced the project is, the lower the risks; the better the negotiating position of the seller, the higher the price of the carbon credits that can be attained. On the other hand, waiting to sell exposes the programme manager to the price volatility of the market (see Figure 5.1).

When deciding to sell the carbon credits at a later stage, a programme manager can sometimes rely on non-commercial sources of seed funding. The PoA concept has been embraced by development banks and development organisations that have created funds to provide grants or loans at preferential conditions. This is especially the case for projects in Least Developed Countries.

Figure 5.1
Trade-offs between contracting a buyer for the carbon credits now or once the project is further advanced



Financing for the Luz Verde PoA

Dutch banking group ING Bank financed the first registered PoA, the Luz Verde Programme in Mexico. This was done through a loan covering the distribution of one million energy efficient lamps (Compact Fluorescent Lamps or CFLs). Getting the right partners on board was a prerequisite for ING Bank to get involved in the programme.

CFL distribution programmes offer no assets that ING Bank could consider as collateral. For this reason, ING Bank was careful in getting engaged in the Luz Verde PoA. As a condition, it required that a CER buyer be found that would be willing to buy both pre-2012 and post-2012 CERs at a fixed price. Eneco Energy Trade B.V, the buyer of the Gold Standard CERs from the first CPA from Luz Verde, agreed to these conditions. This completed the partnership and allowed the project developer, Cool nrg, to start with programme implementation.

Aside from securing the financial flow of carbon revenues, ING Bank also carefully assessed the experience and capacity of Cool nrg, the programme’s CME. Prior to setting up the Luz Verde PoA, Cool nrg had been involved in a range of energy efficiency programmes, including the distribution of light bulbs. Cool nrg’s own experiences, its access to a network of local distributors in Mexico and having an equity stake in the programme, gave ING Bank the confidence that Cool nrg was the right entity to act as the CME and guide the programme to a success.

(Stephen Hibbert and Stirling Habbitts, ING Bank)

3. Carbon finance can assist the programme manager to access other types of financing

Capital providers will base an investment decision on both financial and non-financial aspects. Lenders and equity investors in the regular financial markets focus their investment decision on the financial attractiveness and associated operational risks, while grant agencies, development banks and charities are likely to incorporate and reward sustainable development benefits in their decision-making process.

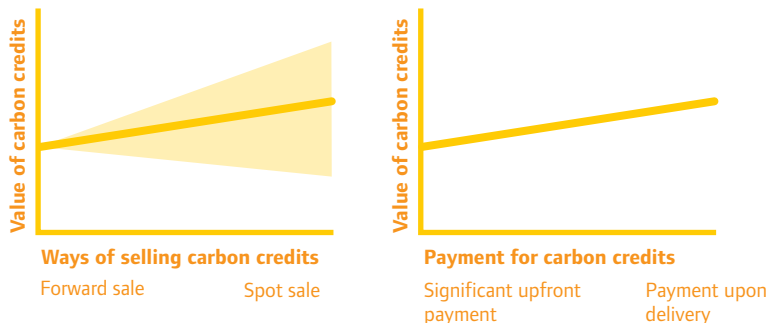
In some programmes, such as the distribution of energy efficient lamps or efficient cooking stoves, the revenue received from the sale of generated emission reductions may be the only source of revenues generated by the activity. In programmes where renewable energy is generated and sold, carbon revenues increase the activity’s internal rate of return²⁵ and serve as a catalyst for attracting investors. In either case, the programme will face a

financing gap at the inception phase since carbon revenues will only come in once the first subprojects under the programme are operational.

The business plan is the basis for marketing the programme to external investors. The primary aim of the business plan is to present the programme as a bankable venture. The carbon component of the programme strengthens the business proposition, as the emission reduction potential will be turned into a source of income that will increase the financial attractiveness of the proposed activity. If fixed-price carbon sales have been arranged, revenues under such a contract can be regarded as long-term cash flow that is exposed to no or limited price fluctuation, a security valued by investors. Additionally, as the purchase and payment of carbon credits is usually agreed in hard currencies (generally USD or EUR), currency risk is minimised. This allows programmes situated in countries with low and volatile exchange rates to offer revenues in hard currency, a security and collateral appreciated by investors.

Figure 5.2

Trade-offs between spot versus forward sale of carbon credits and between attracting upfront payment versus payment upon delivery



25) The internal rate of return is means to determine the profitability of an investment.



Forward versus spot sale of carbon credits

If you do not seek upfront payment on the carbon value, there are two ways in which you can monetise the emission reduction potential of your programme:

Future delivery and future payment

A forward contract is an agreement that defines the terms and conditions of a future transaction between the buyer and seller of carbon at a pre-defined price (fixed or variable). Forward contracts are used by both parties to define the price of the future carbon credits. The agreed transaction price of future emission reductions depends on the level of risk the buyer associates with the programme. This risk is defined by the exposure to carbon risk, technology risk, country risk and organisational risk.

The price you will be able to secure for your carbon credits depends on whether you or the buyer accepts the delivery risk. By internalising the delivery risk and offering a “guaranteed delivery”, you can negotiate a higher transaction price. In case the programme underperforms and fails to deliver the contracted volume of carbon credits, you need to compensate the shortage by sourcing carbon credits elsewhere at a different price. When delivery risk is accepted by the buying party, delivery is ‘non-guaranteed’ and the transaction price will be discounted to reflect the probability of under-performance.

The price of the carbon credits can be floating or fixed. A floating price implies fluctuating future cash inflows that are benchmarked against the development of the price of carbon. Although this arrangement may turn out beneficial in a scenario where the future price of carbon appreciates, it may also have disastrous consequences for the programme if the odds turn. A fixed price, on the other hand, secures a steady inflow of revenue and facilitates better financial planning.

Spot delivery and payment

When you’ve secured financing for the development, implementation and operation of the programme capitalisation of the carbon credits can wait until they are generated and issued. Issued carbon credits represent small delivery risks and thus have a higher market value than carbon credits sold on a forward basis.

Choosing this model does not necessarily guarantee the best return since carbon market uncertainties and fluctuations can bring the price up or down. This implies that the future spot price of guaranteed delivery can be lower than the current forward price of non-guaranteed delivery.

Finally, you don’t have to sell all carbon credits under one contract but can also decide to sell part of the carbon credits upfront and part of them under a spot transaction.

5.4. Understanding the risks of a PoA

Investors will analyse the risks that a programme is exposed to in order to estimate future carbon revenues. Risks can reduce the amount or delay the delivery of carbon credits. Understanding how capital is put at risk throughout the programme lifetime allows the programme manager to recognise the demands and expectations of investors. Furthermore, being aware of these risks allows the programme manager to minimise risk exposure by taking pre-emptive measures.

Carbon risk

Registration under a carbon standard is a precondition for any programme to earn carbon credits. With the exception of a few specialised carbon investors, many financiers have difficulties assessing the programme and registration risk of various standards, since it is very specific for carbon transactions.

Carbon risk relates to the procedure the programme needs to complete to be registered under a carbon standard and to have its reductions verified. Generating carbon credits consists of several steps, beginning with drafting a PDD and ending with the issuance of credits by the CDM Executive Board. The further a CDM project is in the development cycle, the smaller the risks. Once the programme is registered, the programme developer will have a stronger negotiating position, opening an opportunity to settle with a higher CER value.

Technology risk

Capital providers will assess the efficiency of the proposed technology. A key concern is the capacity of the installed equipment to perform according to specifications and generating the anticipated emission reductions. Proven technology is best, while complex technologies that are difficult to disseminate are considered high risk. Providing data on the performance of the technology or setting up a pilot project allows the investor to determine the



Positive side effects of a CDM programme

Under the Biogas Support Programme in Nepal, households install a digester and cooking stove, allowing them to cook on gas from cattle manure rather than firewood. In Nepal, the massive use of firewood by households is an important cause of deforestation. Participating households typically save a lot of time on firewood gathering. This time could be used to develop small businesses, send children to school, etc. This way, the carbon revenues contribute to sustainable development. These positive side effects of a programme are highly valued by donors with a development objective, making it easier to attract grant funding.

Risks related to the generation of carbon credits

Approval or endorsement of the Designated National Authority (DNA) of the CDM project

- Has a designated national entity been established? Has it already approved CDM projects or even PoAs? Does it function properly?
- How long does it take to obtain an approval?

Validation of the PoA and inclusion of CPAs

- Can you substantiate that you have the capacity and experience to guide the project through validation and the CPAs through the inclusion procedure?
- Do you have a contract with the validators with clear deadlines?

Registration of the PoA

- Does the project rely on a technology and methodology that is common practice under the CDM?
- Are there precedents of issues that other projects have faced during registration that may apply to this project as well?

Verification of emissions reductions

- Is the monitoring system robust?
 - Is a contract with an experienced verifier in place?
-

emission reduction potential and subsequent carbon revenues more accurately. This is relevant for innovative technologies and proven technologies alike, since for both their performance should be demonstrated in local conditions. Including maintenance services and training for operators and construction companies reduces the technology risk further.

Technology risk	
High risk	Innovated, not tested
Medium risk	Uncertain performance
Low risk	Proven technology

Organisational risk

Effective organisation is important. Investors need confidence that the programme manager and the supporting organisations have the capacity and necessary experience to implement and operate the programme. A key uncertainty of a programme is its organisational ability to achieve the targeted level of project dissemination. Programme dissemination will have a direct relationship with the volume of emission reductions to be achieved by the PoA and will be a risk that potential financiers will look at closely. Most programmes rely on the adoption of a certain technology by a large

number of end-users, households or small companies and there should be a plan in place on how to inform, engage, and incentivise these end-users to participate in the programme. How this level of dissemination can be achieved and the availability of distribution channels should be substantiated in the business plan.

Organisational risk	
High risk	Brand new structure with undefined roles
Medium risk	Roles not defined or cooperation not tested
Low risk	Cooperation with good track record

Country risk

Investors are reluctant to invest in countries with high political and business risk. The PoA concept was supported by the notion that it would improve the geographical coverage of carbon finance. In response, many programme managers have indeed targeted countries with little or no CDM activity to date, even when these countries lack political stability or have weak legal systems. Attracting capital in these countries is difficult. Investors will seek evidence of governmental support for the programme and its development under a carbon standard.



Risk profile of JI projects

The risk profile of JI projects and voluntary projects differs from CDM projects. The key JI risks are with unpredictability of host countries, whereas the key CDM risks are with the unpredictability of the CDM governance at the UNFCCC.

The CDM project cycle is characterised by lengthy procedures to secure project registration and obtain CERs. The role of the host country in these procedures is limited to the issuance of a Letter of Approval prior to submission of the project for registration. After that the host country can only intervene by requesting a review, through investigation by the UNFCCC, on the validation of a project or on the verification of emission reductions. To date no host country has ever used its right to request a review. The carbon credits from CDM projects are issued by the UNFCCC directly to the buyer. For a JI project the carbon credits are transferred from the host country to the buyer. This requires action by the host country government. As a result, the architecture of JI makes the mechanism more sensitive to political changes in the host country.

Operational risk

Finally, the key risk parameter remains the stage of development of the programme. A programme with issued credits has demonstrated that it can overcome all relevant hurdles. A programme that is in the inception or

concept stage faces the challenge of convincing an investor of its experience and capacities, and demonstrating that the programme is robust and well designed.

How pilot studies can convince financiers to get on board

A key challenge for the Luz Verde PoA was the financing of the programme. The first CPA served as a pilot project that provided 'proof of concept' for the remaining CPAs under the programme. Eneco worked closely with Cool nrg in the discussions with potential financiers and finally played not only a role as buyer of the credits, but also as guarantor to the financier.

Distribution was identified as a complex and critical step in this project. In order to convince financiers and to get more comfortable with the programme, Eneco sponsored a "Little Luz Verde" pilot project. This project was launched to test and correct assumptions on distribution times and processes, improve the system, observe the impact of local promotional activities and materials, judge the capacity of personnel, evaluate customer experiences, and polish internal control procedures. The aim of "Little Luz Verde" was to exchange incandescent light bulbs for CFLs in the same manner as Luz Verde was planning to do. 1,000 CFLs were bought, 1 booth was set up, 1 laptop was rented, 1 wireless internet card was bought, 1 employee was hired and trained, and 2-day local promotional activities were carried out. The expectation was that the exchange would take up to a week, but by the second day 1,000 exchanges had already taken place.

The "Little Luz Verde" results reflected the robustness of the distribution and co-ordination process pioneered by Cool nrg, giving its partners confidence in a successful roll-out. The first CPA (Luz Verde Puebla) took place in the state of Puebla between 31 October and 30 November 2009, successfully exchanging one million energy-saving lights bulbs.

(Jan-Willem Beukers, Eneco)



Types of debt finance

The cost of loans depends on the exposure of the programme to defaults. The higher the perceived risk of the programme, the higher the interest rate charged. The seniority of a loan and extent of collateralisation are other factors affecting the interest rate.

Senior vs. junior.

Senior debt is the highest-ranking form of debt and is associated with the lowest risk. This class of debt is the first in line for repayment in the event that the programme manager defaults. Senior debt represents the cheapest source of capital in terms of interest payments, but may involve collateral and debt covenants that limit the programme manager’s capacity to operate its assets or proceed with certain investment decisions. Junior debt is subordinate to the senior and will only be paid once the holders of senior debt have been satisfied. This debt is often unsecured and comes at higher interest rates.

Secured vs. unsecured.

A loan is deemed “secured” when collateral is pledged. This means that the loan is asset-backed and, in the event of default, the lender can claim the pledged assets from the programme manager to make up for the default on debt payments. Unsecured loans are loans that are not secured against the borrower’s assets. These present a higher risk to the lender and require higher interest payments than secured debt.

Country risk	
High risk	High corruption, political instability
Medium risk	Weak governance
Low risk	Investor friendly, strong government

Operational risk	
High risk	Programme in concept stage, before/under validation
Medium risk	Programme being implemented and registered
Low risk	Project with issued credits

5.5. Types of finance

The financial and developmental aspects of a programme will determine the type and terms of financing available for the implementation of the programme. Types of finance include debt, equity, grants and subsidies. Programme managers seeking financing may seek any of these options, or alternatively use a mix.

Equity

Equity describes the ordinary share capital provided directly by shareholders. Shareholders include external financiers (venture capitalists, private equity investors, CDM developers) and the programme manager itself.

Investors that provide equity are rewarded by dividends and in the long run by increased value of the share capital, but run the risk of losing their entire stake if the programme fails. Equity represents a residual claim, and can only realise a return once other providers of finance have been satisfied.

Investors will weigh up a range of criteria before engaging in a programme, including the experience and capacity of the programme manager, the risks related to technology performance, and the emission reduction potential. Funds are typically provided through periodic capital injections based on successful achievement of pre-determined milestones.

Equity can play an essential role in the start-up phase of the programme, where the risks associated with the activity are high and debt may be inaccessible. Most programmes rely on a mix of equity and debt, as shareholders generally welcome debt financing’s ability to allow investors to realise a higher rate of return due to its leverage effects.

Debt

Debt finance refers to loans provided by development banks, commercial banks and micro-finance institutions. Loan capital is provided based on terms and conditions, including the required interest payments (representing the cost of borrowing those funds) and a repayment schedule. To attract debt capital, the programme manager needs to provide comfort to the prospective lender that there will be enough money to service and repay outstanding debt. Forward sales contracts for carbon credits can be used as collateral for debt.

There are different types of debt that programme managers can apply to (co-) finance the programme. Their availability depends on the specifications of the programme and its application. Programmes that rely on capital-intensive technology can attract debt financing from development and commercial banks. These institutions can provide large loans, backed by collateral and with long-term tenure. Programmes that rely on small equipment, like energy systems at community or household level, are more likely to arrange financing through micro-finance institutions. Micro-financing allows for the issuance of small loans directly to the end-users of the technology, rather than accruing debt at a central level.

Using debt allows the programme manager to access funding while maintaining ownership of the programme. On the flip side, debt financing implies a contractual obligation to meet periodic interest payments. Lenders condition the cash flow available from carbon revenues to be used to pay the outstanding debt. These terms and conditions can limit the possibilities of the programme manager of optimally using this capital.



Grants and subsidies

Grants and subsidies do not need to be repaid. A grant is an amount of money given, usually by governments, development agencies, NGOs, or philanthropic foundations, to fund activities meeting specified terms. Grants may be available for sponsoring pilot studies or facilitating the

start-up of a PoA. Subsidies tend to be long-term financing schemes that provide co-financing for a programme. Usually provided by governments, subsidies constitute money made available to stimulate activities that contribute to certain policy objectives.

Market context: supply and demand for CERs

PoAs offer advantages over classic CDM projects, but is there also a demand for the carbon credits they generate?

Carbon credit buyers and investors generally lean towards projects that carry higher environmental and social credentials. They anticipate these can be re-sold at premium. PoAs often provide for these benefits.

The EU Emissions Trading Scheme (EU ETS) is a case in point. The EU ETS caps the emissions of large emitters by allocating installations a fixed number of tradable emission allowances. An installation that is expected to emit more than permitted can invest in emission reductions on site, purchase allowances from other covered installations, or buy carbon credits from the Kyoto mechanisms: CDM and JI. From 2013 onwards, however, the rules related to the use of carbon credits from the Kyoto Protocol mechanisms under the EU ETS will change. In the absence of an international climate agreement or bilateral agreements being in place, carbon credits from CDM projects registered after 31 December 2012 will only be valid for compliance under the EU ETS if they are implemented in Least Developed Countries (LDCs). Since LDCs typically present low carbon-intensive economic activity, the aim is to promote sustainable development and decentralised energy supply. These are natural focus areas for PoAs. So far, however, PoAs have had limited success in reaching LDCs. This seems to be because of the difficulty in developing projects, not to mention large programmes, in these countries.

There also exists potential future demand stemming from other domestic emissions trading schemes. In the US, several regional and state level cap-and-trade regimes have emerged, some of which accept CERs and ERUs provided that certain conditions are met. At the federal level, there has been long debate in the US Congress over the creation of an economy-wide cap and trade programme. Most of these bills, though failing to reach legislative consensus, contained provisions regulating the use of international offset credits from developing countries. Other countries have also either implemented or are currently considering adopting an emissions trading scheme with links to international offset credits, including New Zealand, Australia and Japan. These emerging emissions trading schemes may look favourably to offsets generated by PoAs targeting poorer communities and regions in developing countries.

Developments on both the supply and demand sides show that there is room for growth of emission reduction activities following a programmatic mode. Since the EU ETS has trade volumes that far exceed those of any other carbon credit market, its focus on LDCs is likely to increase demand for PoAs. On the supply side, the ability of PoAs to shorten the time needed for a project to gain approval under the CDM, as well as their growth potential, may stimulate additional interest in the CDM and create additional supply.



5.6. Examples of financing schemes for PoAs

There are numerous ways of backing up your programme financially, ranging from dependence on subsidies and grants (where available) to more typical project finance structures combining debt and equity. Key characteristics of the PoA – such as the number and type of participants involved, the location, and the technology used – will determine which financing solution will best fit your programme. The examples presented below describe possible financial structures for PoAs.

Example 1: Subsidy financing

This model is applicable to programmes where subsidy capital made available by a governmental entity partially or fully covers the investment costs of the PoA. The programme manager is either the governmental institution itself, or an independent entity that facilitates the use of subsidy funding. Carbon finance can make an existing subsidy scheme more attractive by reducing the required upfront investment.

By linking the programme activity to carbon finance, the programme manager can use generated carbon revenues to increase the subsidy level, improve outreach and fund maintenance and repair activities to stimulate further adoption of the technology and ensure its long-term operation. The role that the subsidy capital plays depends on the specific conditions and scale of the subsidy.

In programmes where the subsidy covers a majority of the required investment costs, carbon revenues can suffice in closing the financing gap. However, in most cases government funds will only partially cover the expected costs (10% - 50%), meaning that the rest of the financing will

need to be arranged by the programme manager – through debt or equity – or needs to be supplied directly by the individual programme participants (those who integrate the programme as CPAs or as a subproject within a CPA). Involving participants financially in the programme is important as it creates a feeling of ownership and increases the probability that the applied technology will be taken care of.

Example 2: Equity financing

Under the equity model, the programme is sponsored through one or several equity investors. Equity capital may come directly from the programme manager or be offered by outside investors, such as specialised CDM investors, utility companies or institutional investors. These can be either from international or local investors.

An advantage of using equity is that revenues, including those from carbon credit sales, can be retained within the programme as no capital is diverted to service debt payments to loan providers. In programmes entirely financed by equity, generated financial returns and carbon credits are shared among the capital providers. Certain investors, such as international utility companies, will be interested in the resulting carbon credits that can be used for their domestic compliance, while others expect to capitalise on the carbon credits by selling them on.

In return for giving away the ownership rights over the generated emission reductions, a programme manager expects support. A programme manager can lower the financial burden carried by the participants in the programme by, for example, offering the technology at a discounted price. Providing installation and maintenance services at no cost will enhance the attractiveness of the programme, while at the same time improve the overall performance level.

Figure 5.3
The subsidy model

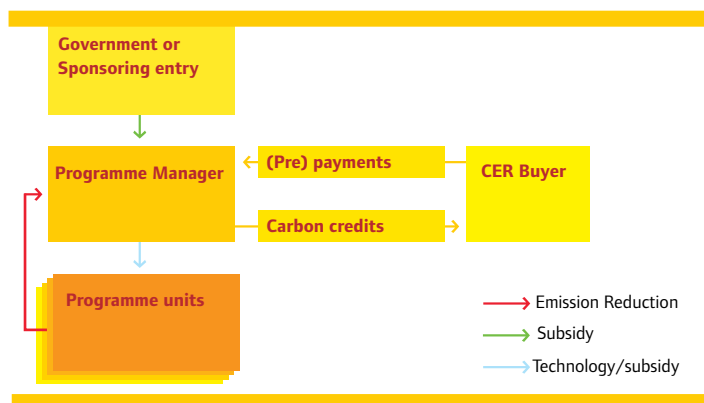


Figure 5.4
The equity model

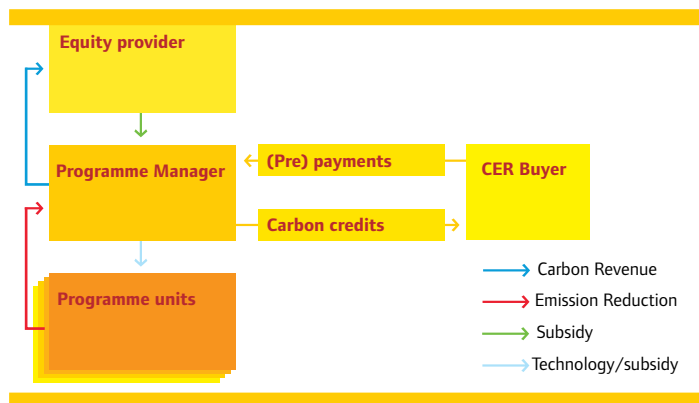
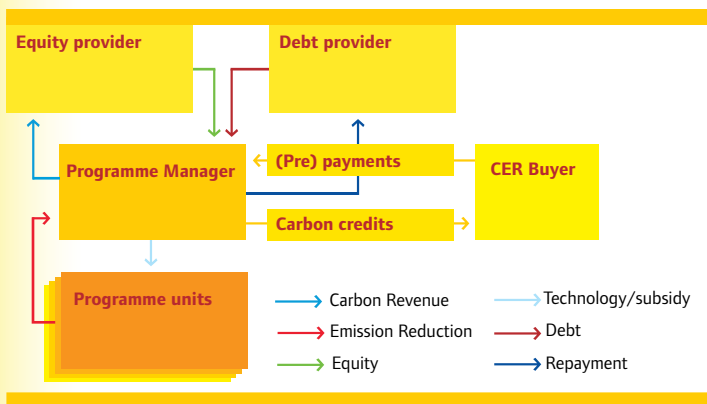
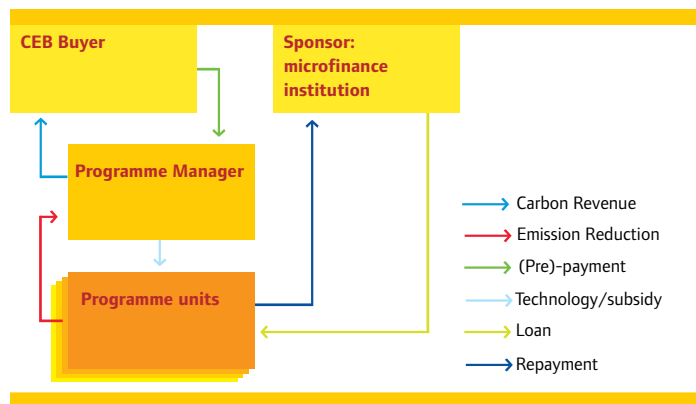


Figure 5.5
The equity/debt model



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Figure 5.6
The micro-finance model



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Example 3: Equity and debt financing

Equity and debt financing can be combined. Equity capital will often be the only available source of finance in a programme's early stage of development, as debt providers will be reluctant to engage in a programme that has little or no collateral to offer. This implies that attracting debt capital before securing a buyer of the carbon credits can be difficult, especially for programmes that apply technology of minor or no collateral value, such as efficient cooking stoves or CFLs. Programmes involving significant physical assets, such as large hydro or wind projects, will find it relatively easier to source debt finance, as the risk-return trade-off will be more attractive given the higher collateral value.

When providing a loan, debt providers want to see that the programme generates sufficient cash flow to service the interest payments and repay the outstanding debt. Long-term power purchase agreements, letters of credit and fixed price carbon sales are what debt providers like to see, and will allow the programme manager to bring down the cost of capital.

As part of the future generated cash flow will be needed to service debt payments, programme managers need to keep in mind that not all of the revenue generated by the sale of carbon credits will remain within the programme or become available to equity partners.

Besides ensuring sufficient cash flow and collateral is available, debt providers often require a minimum level of equity capital before engaging in a PoA in order to ensure ownership and active participation by the organisation acting as programme manager. Although average debt-to-equity ratios tend to be around 7:3, determining the best financial mix for a programme needs to be assessed on a case-by-case basis.

Example 4: Micro-finance

Programmes lacking significant upfront capital investment costs per participant and involving a large number of participants are associated with specific risks that many regular debt providers will avoid. Technologies like small biogas digesters or efficient cooking stoves offer little collateral, and due to the number of participants involved, managing and monitoring repayment needs to happen on the ground.

Micro-finance institutions have the local expertise and outreach to serve the financial needs of many participants that need financial support to purchase particular equipment and join the programme. Typical micro-finance loans are short-term and are meant to allow the participants to repay the outstanding debt within weeks or months. As the name indicates, the value of the loans is also limited, and tends to be limited to several hundreds of dollars per borrower. To make the programme more accessible to participants, the programme manager can offer additional support by providing the particular equipment below market price, thereby allowing even the poorest participants to join. The value of future carbon revenues, given that their ownership is secured by the programme manager, can be used as security, allowing for more attractive loan conditions.

5.7. Further reading

A valuable source of information regarding financing emission reduction projects is the "Guidebook to Financing CDM Projects" prepared by CD4CDM and Ecoscurities. The guide provides an overview of the types of finance available and provides insights into the financial assessment of projects.



— A single PoA can generate large numbers of legal relationships. In the context of multiple actors, the importance of a robust and consistent set of contracts cannot be underestimated. A well-designed network of contracts (one in which the rights and obligations of the multiple actors involved are clearly defined and enforceable) creates a robust framework for the implementation and operation of the PoA. When adequately drawn up, PoA contracts not only satisfy general expectations of legal security, but also guide the proponents through the different stages of the PoA implementation and contribute substantially to the programme's success.

Legal Management

6



6.1. Key recommendations

- Ensure that a complete set of contracts covering all relevant relationships is in place.
- Ensure a clear allocation of carbon rights by securing a meticulous chain of title to credits.
- Identify focal point(s) for communication with the CDM Executive Board.
- Keep end-user agreements simple – simplicity and ease of communication are key.
- Clearly define an appropriate incentive structure

6.2. General legal notions

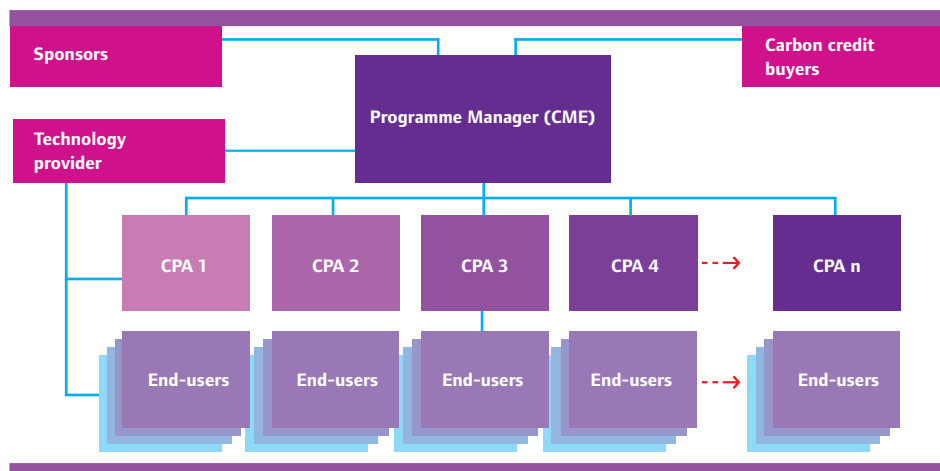
A PoA consists of a potentially large number of CPAs, each of which can in turn contain a potentially large number of individual subprojects and end-users. Most of the interactions between the entities involved are governed by formal legal rights and obligations. Legal relationships to be established under a PoA are necessary for, inter alia, the sale and purchase of carbon credits, the financing by sponsors and investors, the purchase or lease of the applicable technology, installation and maintenance of equipment, and the agreement for the participation of end-users in the programme. The multiplicity of potential actors in a PoA (and their relationships) is illustrated in Figure 6.1.

Note that in this section, unless otherwise specified, we assume that the programme manager also exercises the role of CME. For more information about the distinction between programme manager and the CME see Section 4.2.

While in theory it is possible to set up a PoA without a single written contract, practice shows that verbal agreements, especially if there are many and legal arrangements are closely linked, tend to lead to uncertainty and misunderstandings about the exact nature of the rights and obligations of the relevant actors. It is, therefore, advisable that formal written legal arrangements are established at an initial stage in the process of setting up a PoA. These formal legal arrangements should clearly spell out the responsibilities of the actors involved in the programme, the time frames for fulfilling obligations, and define the incentive mechanisms for each actor to perform according to the agreed timelines and obligations.

The central entity in a PoA is the programme manager who will usually be a party to most contracts associated with a PoA and, thus, be able to rely on the relevant contractual provisions to ensure timely performance of the obligations of the different actors involved in the programme. Where it is not, it is important to assess what the implications of the contract in question are for the overall performance of the PoA.

Figure 6.1
Actors and relationships in a programme



Initial rights to carbon

Carbon credits generated under the Kyoto Protocol are created under international law between the countries that have ratified the treaty. As treaties are agreements between countries, these carbon credits are owned and held initially by the countries party to the treaty themselves. However, the Kyoto Protocol clearly envisions the participation of non-state entities in the CDM. Companies and NGOs, therefore, may receive a government authorisation to participate in a CDM project. This authorisation is required under the Kyoto Protocol for non-state entity participation and is seen as the transfer of rights to CERs to the entity developing and implementing the project.

While under international law carbon credits are “sovereign assets”, when it comes to the implementation of projects at the domestic level, the rights to CERs and other types of carbon credits (outside the Kyoto context) are determined by national laws. As very few countries have enacted laws that clearly define ownership of carbon credits, national principles and laws related to commercial transactions will typically apply. In most jurisdictions, it is generally understood that the entities that own the greenhouse gas-abatement activity or process are also presumed to be the original owners of the carbon credits. These original owners may contractually transfer title and ownership to carbon credits to other entities.

tion are for the overall performance of the PoA. In a situation in which the programme manager cannot claim rights under a PoA contract, it will have difficulties in showing to potential investors and sponsors that the responsibilities agreed to under this contract will be timely executed. Therefore, depending on the particular case (and applicable legislation), it may be appropriate for the programme manager to be given direct third party rights or other safeguards under such a contract so as to ensure the programme manager’s ability to enforce the contract, and therewith securing the progress of the PoA.

Two legal issues that will normally have to be dealt with at an early stage by programme managers are financial support and title to carbon credits. The development of PoAs often requires upfront capital for preparing the necessary project documentation and engaging end-users and technology providers. Any entity agreeing to pre-finance a programme is likely to undertake a detailed assessment of the capacity of the programme manager (and other relevant PoA actors) to timely perform the tasks assigned to it. In addition, unless the programme manager is able to show that it has in place an adequate contractual tying up of the various ends of the PoA implementation and operation process, the chances for securing start-up finance will be slim.

Initial clarity over ownership and title to carbon credits is also crucial. Typically, more attention is required from project developers and investors to sort out carbon ownership issues in the context of PoAs than in regular carbon projects. In a regular carbon project, the original rights holder is generally presumed to be the project owner, i.e. the natural or legal person that designs, registers and executes a project in its own name. The project owner will usually resort to third parties like consultants, technology providers and loan providers, at several stages of the project cycle. Yet this leaves the general responsibility for, and ownership of, the project untouched.

In a PoA, by contrast, there are many entities that can potentially compete for the ownership of the carbon credits flowing from the PoA. This includes the programme manager that organises the programme and arranges for registration of the PoA; where applicable, a separate entity that supervises the implementation of CPAs, which could be, for example, a retailer, an

insurance company or a utility (referred to here as the “CPA developer”); technology providers who may lease, donate, or sell the technology for the programme; and the end-users who will normally be directly responsible for the day-to-day use and application of the selected technology. In many instances, there are also third parties that may have an interest or claim over the carbon credits generated by the programme, including micro-finance loan providers, governmental or public entities offering subsidies to the development of the PoA, co-sponsors and others. In the absence of domestic laws or clear contractual guidance, any of the above-mentioned actors may eventually claim a right to the carbon credits generated by the PoA. To avoid such competing claims and potential liabilities, and to secure a legally robust programme framework, the conclusion of contracts between the various proponents, with a clear allocation of carbon rights, is paramount.

6.3. Legal steps

Mapping out the players and relationships

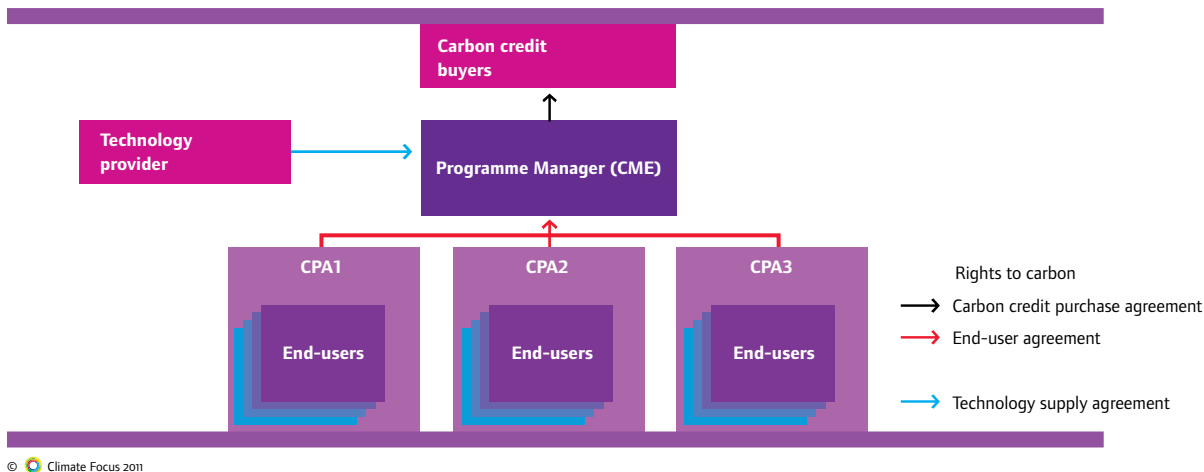
The first step for the programme manager will be to identify the different entities that will be involved in the programme and assess whether, and between whom, a contract will be needed. The two primary concerns are organisational coherence of the PoA and legal certainty (including certainty about who can claim the carbon credits).

At the design and project approval level, the programme manager will normally be the interface with validators, DNAs, the Executive Board, the UNFCCC secretariat. At the implementation level, legal relationships will typically be formalised with foreign carbon credit buyers and investors, end-users (i.e. at the household or installation level), technology providers, and other intermediaries that may play a role in reaching out to end-users.

Depending on the experience and capacity of the programme manager with carbon offset project development, a specialised carbon consulting company may also be engaged for preparing the PoA-DD and CPA-DDs and responding to the questions and concerns raised by the UNFCCC auditors and bodies.



Figure 6.2
Rights to carbon



Defining the incentive structure

Once all relevant players have been mapped out, it is important to define the incentive structure for the participation of the various actors. Questions that usually need to be answered at this stage are: How are end-users going to benefit from the programme (i.e. a price discount, tax rebate, subsidies, energy savings, etc)? Is the technology being leased, sold or donated to end-users? How are technology providers and intermediaries being remunerated? Who will be the entity responsible for marketing and selling the carbon credits?

Of vital importance in the context of a PoA is that a complete set of contracts is put in place, ranging from the entity that is closest to the GHG abatement activity (the end-user) to the carbon selling entity. When the programme manager is the entity responsible for marketing and selling the carbon credits to international buyers and investors (see Figure 6.2), it is crucial to make sure that all agreements entered into with end-users and technology providers expressly assign all rights to the programme manager in relation to GHG reductions and carbon credits generated under the programme.

When public subsidies are available, the programme manager is also well advised to clarify (through a memorandum of understanding or other legal

instrument) the issue of ownership of carbon credits with the relevant public agency financing the activities under the programme.

If a programme manager relies on third parties to access end-users (such as a CPA developer or another intermediary), contractual provisions clearly allocating rights to carbon credits would be needed in both relevant agreements: that between the end-user and the intermediary company; and between the intermediary and the programme manager. For instance, a PoA whose objective is to replace old inefficient refrigerators by new, more efficient models, could use an electricity supplier as an intermediary between the programme manager (in this illustration, a technology provider) and the end-user (the beneficiary). In this case, the agreements between the electricity supplier and the beneficiary would expressly state that the rights to emission reductions are thereby transferred to the electricity supplier and that the beneficiary has no claim towards any climatic benefit arising from the operation of the new refrigerators. Similarly, the agreement between the programme manager and the electricity supplier would also specify that all rights to emission reductions associated with the operation of the refrigerators are assigned to the programme manager. Figure 6.3 illustrates this scenario.

Figure 6.3
Transfer of rights to carbon

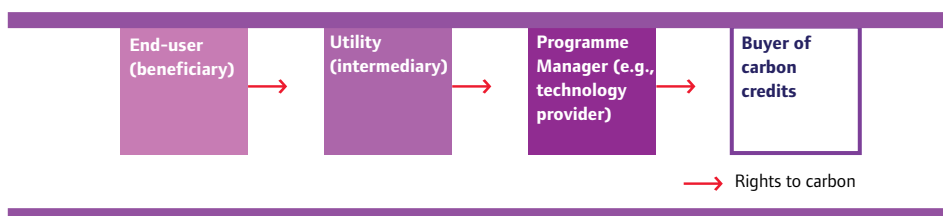
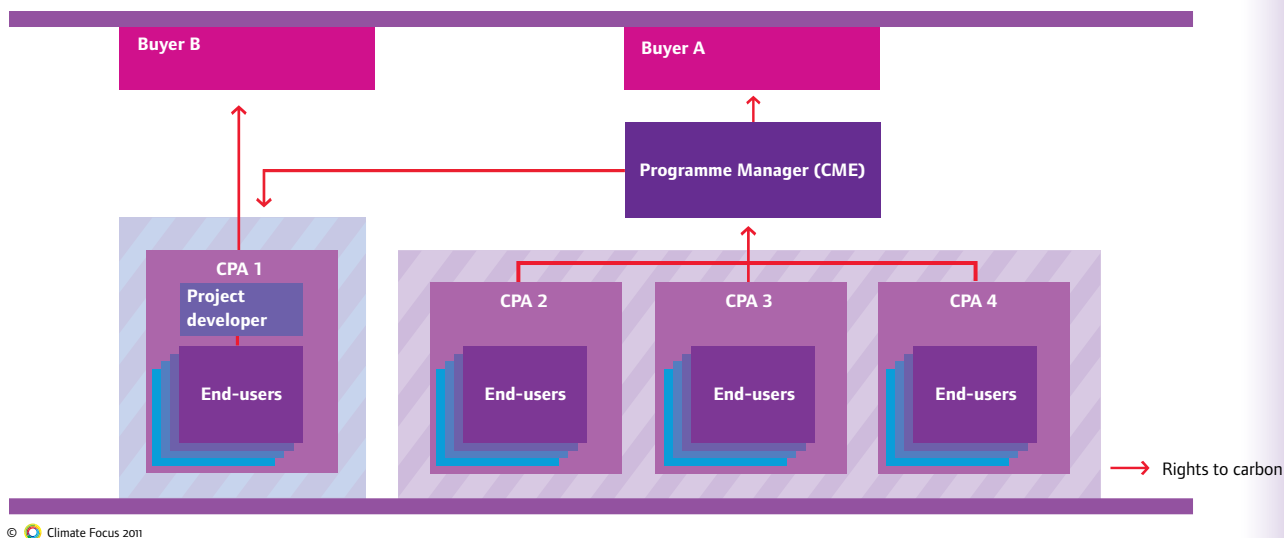


Figure 6.4
Transfer of rights to carbon when the owner of the CPA acts semi-autonomously



The entity fulfilling the role of programme manager will also normally be the entity selling and marketing the carbon credits. In these situations, the programme manager must also retain all carbon rights under the PoA. The reasons for having the programme manager as the seller of carbon credits are:

- The entity entitled to sell the carbon credits and benefit from the associated payments should have some control over the programme in order to give the carbon purchaser the confidence that the seller is able to live up to its contractual obligations;
- The programme manager is normally the entity exercising the role of CME²⁶. This is important because under the CDM, the CME is a mandatory project participant (and focal point) who has first-hand control over any issued carbon credits; and
- Buyers of carbon credits perceive the transaction and delivery risks to be higher if there are several entities involved in the process, as this may lead to coordination problems and competing claims.

However, this is not to say that other structures cannot exist under PoAs. It is possible that a PoA is organised so as to have each CPA managed individually with only a loose link to the overall programme. Where CPAs are large (also in carbon output) and require a complex micro-management, the decentralised approach may indeed prove an attractive alternative to the centralised approach.

Another possible scenario is one in which an innovative PoA developer opens its PoA to project developers across one or more countries without necessarily assuming the role of overseeing implementation or procuring the carbon transactions (as discussed in Section 2.2).

²⁶ As mentioned above, although we assume under this section that the role of programme manager and CME are combined in a single entity, this does not need to be so. When the programme manager and the CME are not the same entity, however, the programme manager will have to regulate issues such as, *inter alia*, appointing an entity to exercise the role of the CME, defining the obligations of the CME consistent with CDM Rules and establishing the duties of the CME vis-a-vis the programme manager and buyers of carbon credits.

In this case, the project developer would retain the carbon rights associated with its individual project or CPA and sell the resulting carbon credits direct to a buyer. For that purpose, an agreement between the project developer and the programme manager would be required in order to clearly define and allocate these rights to GHG reductions and carbon credits. In turn, the project developer will probably have agreed to pay the programme manager for PoA coordination services. Figure 6.4 provides an illustration of this potential structure.

Note, however, that the merits of such decentralised schemes are, in most cases, limited. This is because the amount of available carbon credits in one entity may be substantially reduced, ultimately increasing the transaction costs. In addition, a carbon buyer interested in large amounts will have to contract with several different project developers instead of one single programme manager. This adds costs and increases the efforts needed to ensure contractual enforcement.

In addition, it is also important to consider some of the complexities associated with the official communication between the programme manager and the CDM Executive Board. According to the CDM Rules, the CME must be the entity acting as a focal point for all communications with the Executive Board. Although the CDM allows for this role to be exercised jointly with another entity, buyers of CERs generated by the PoA will generally perceive the inclusion of additional focal points and project participants as an additional delivery risk. In turn, if a distinct project developer is the entity selling the carbon credits (as illustrated by CPA 1 in Figure 6.4 above), it will have an interest in jointly assuming the role of focal point with the CME (in particular in connection with the procedures related to the forwarding of CERs). The buyer of the CERs generated by the relevant project would also likely have an interest in being listed as a focal point in the PoA so that it can monitor and approve the forwarding of CERs to its account. All these issues may be hard to conciliate in a manner that pleases all participants.

Issuance of credits and forwarding under the CDM: Particularities of PoAs

To prepare the issuance of credits (CERs) from a PoA, the verifying validator needs to submit an issuance request to the CDM Executive Board identifying each CPA for which issuance is requested. The issuance request is assessed by the Executive Board's Registration and Issuance Team (RIT). If the RIT's vote is positive, the appropriate quantity of CERs is issued into the pending account of the Executive Board and notification is sent to the focal point.

The CME is the mandatory focal point of the PoA (alone or jointly with others) and as such the CME needs to submit a forwarding request to the Executive Board. Forwarding is possible, either into so-called "holding accounts" in the CDM registry or into accounts in (Annex I countries') national registries. However, the CDM registry administrator will only forward CERs into national accounts if the country in question has approved the account holder's participation in the programme.

Drafting and concluding agreements

After the relevant actors have been mapped out and the incentives for their participation in the programme defined, the programme manager will draft, negotiate and conclude the contracts needed. The timing for concluding these contracts will largely depend on the stage of development of the PoA, the accessibility of contractual partners, various administrative needs, and the prospect of obtaining finance (where needed). Negotiations of the various contracts may be time-consuming and can stretch over weeks, if not months.

While there is no fixed rule on which agreement must be negotiated first, PoA developers will typically want to first secure the financial sustainability of the programme. This primarily involves negotiating and drafting agreements related to PoA finance (equity, loan, carbon sale, etc.). On the other hand, financiers

and buyers of carbon credits will generally want to see some progress on the ground before committing to any upfront payment or firm purchase of carbon credits. For this reason, financing and carbon sale and purchase agreements will typically include milestones for financial assistance and conditions precedent (i.e. conditions that must be met before a contract becomes fully operational). These may include, for instance, the elaboration of the PoA-DD and its positive validation, the inclusion of the first CPA-DD under the PoA, or the conclusion of a management agreement with any CPA developer (where applicable) (see sample provisions below). In most cases, the various contracts will be drafted and negotiated in parallel with each other.

Some of the most relevant contractual arrangements to be put in place for the implementation of a PoA are discussed in the following section.

Sample provision - Conditions Precedent and Milestone Payments

Conditions Precedent

The obligations to Deliver and Purchase CERs and the obligations related to the Advance Payment will not take effect until all of the following conditions precedent have been fulfilled:

- a) The Buyer has notified the Seller that it has completed and it is satisfied with the results of its Due Diligence;
- b) The Seller has notified the Buyer that it has completed and is satisfied with the results of its Due Diligence of the Buyer;
- c) The PoA has achieved Registration by [date];
- d) The first [number] CPAs have achieved commissioning and are capable of generating CERs by [date];
- e) At least [number] CPAs have been included in the PoA by [date].

Milestone Payments

The Buyer agrees to pay the Seller an Advance Payment to the amount of [sum] towards the future Delivery of the Contracted CERs.

The Advance Payment will be paid to the Seller in 3 (three) installments (each such installment a "Milestone Payment") upon the achievement of the following Milestones:

- Milestone 1 – The participation of at least [number] End-Users to the PoA, as evidenced by the relevant executed End-User Agreements;
 - Milestone 2 – The first [number] containers of LED Lighting Systems having been ordered by the Seller;
 - Milestone 3 – The Registration of the PoA with the CDM Executive Board.
-



6.4. Relevant contracts

Having emphasised the need for a continuous chain of contracts to properly formalise the different relationships under a PoA, this section provides an overview of the most relevant contracts which will need to be entered into by the programme manager, starting with the relationship with end-users and ending with the final sale and purchase of carbon credits with a foreign buyer.

End-user Agreements

The end-user agreement links the ultimate beneficiaries of the programme (households, installations, single users, etc.) to the PoA. This agreement will often be between the programme manager and the end-users. However, if a CPA under the PoA is managed by a CPA developer, the end-users can contract with the CPA developer, which in turn will engage with the programme manager. As the emission reductions are ultimately generated at the end-user level, a close integration of the end-users into the PoA is key to the success of the programme as a whole.

Simplicity and practicality

The main challenge for the end-user agreement relates to size and practicability. For many project types, each end-user generates very small amounts of emission reductions (the programme, by contrast, may combine tens of thousands of end-users). End-users will only participate if integration into the programme is not cumbersome. Reading through long contracts and signing up to a detailed list of “do’s and don’ts” may, at times, not be realistic. In cases such as the Bachat Lamp Yojana Programme, for example, a CPA developer handles up to 600,000 compact fluorescent lamps for incandescent light bulb transactions which may take place in local shops, schools, retail outlets, etc.

In such a situation, the programme manager needs to find efficient communication channels. The specific method of communication needs to be checked against the legal situation – including the respective consumer protection regime – in the jurisdiction(s) in which the PoA is implemented. Posters and printed hand-outs may be appropriate solutions. Easily accessible graphical depictions can help educate recipients and influence behaviour.

As a general rule, whether a formal contract is signed by the end-user or other forms of communication are used, any agreement should be written in local and self-explanatory language with an easily accessible structure, and should be as short as possible. Essentially, the end-user agreement will contain (i) a clear reference to the programme; (ii) an acknowledgement of voluntary participation; and (iii) an unequivocal statement regarding the transfer of carbon rights. Some contractual provision may also be required to prevent the same household or unit from participating in different emission reductions programmes (which could lead to double-counting of emission reductions) (see sample provision below). Depending on the structure of the programme, the end-user agreement may have to include provisions on programme revenues and revenue distribution. Unless the programme manager or another intermediary makes full upfront payments, the end-users will often have to cover initial costs for which they will obtain compensation by way of carbon revenues, energy savings, and/or subsidies over subsequent years. In this case, the itinerary of payments, the amounts and the level of certainty need to be clearly addressed in the end-user agreement. If upfront payments have been made by the programme manager, it may be prudent to include a liability clause permitting the programme manager, or other intermediary entity, to claim compensation (or establish a penalty) for breach of the terms of the agreement which results in a shortfall in carbon credits.

Sample provision – Prohibition of Participation in Other Similar Programs

The Beneficiary hereby agrees not to allow the received [Solar Water Heating System (SWHS)] to be used in any other similar programme or activity aimed at generating GHG emissions reductions without prior consent from [the Donor].



Transfer of rights

For the transfer of rights to carbon credits, a proper contract is paramount. This could include an assignment of carbon rights from the end-user to the programme manager. If there is a CPA developer contracting with end-users, provisions regulating these rights are required in both contractual relationships, i.e. (i) between the end-user and the CPA developer; and (ii) between the CPA developer and the programme manager. A sample provision is provided below:

Sample provision – Title to Emission Reductions in End-User Agreements

The [Beneficiary] fully understands and agrees that, by accepting to participate in the [title or reference to the programme], he or she will transfer all rights associated with the climatic benefits arising from the [name or reference to the programme], including the full ownership rights in and to any Emission Reductions, to [name of the programme manager or CPA developer].

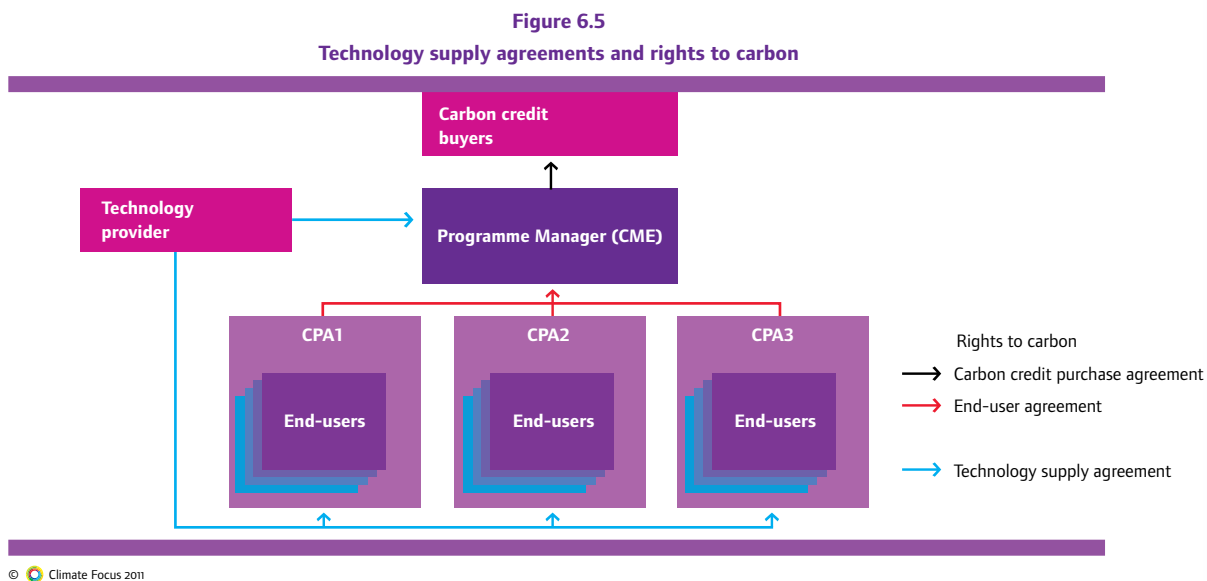
For the purpose of this Agreement, “Emission Reductions” mean any right, interest, credit, entitlement, benefit or allowances to emit (present or future) arising from or in connection with any greenhouse gas reduction achieved by the [insert name or reference to the programme], and includes any right that may be created under any regulatory or legal regime as a result of these greenhouse gas reductions whatsoever.

Other issues

For the sake of clarity and simplicity, programme developers sometimes agree to a level of risk exposure that could be prevented through detailed contractual provisions. A solar water heater programme, for instance, may involve the participation of households. Assuming that houses, at least in some countries, change their owners every couple of years, the situation arises in which a solar water heater that is part of a certain PoA remains in a house which has a new homeowner who may never have heard of the programme, and who may not be willing to abide by to the programme procedures. The contractual way to mitigate the risk would be to impose an obligation on the

former homeowner to transfer the house with specific obligations attached to the solar water heater. However, homeowners are not likely to accept such a requirement and adding provisions of this sort to an end-user agreement creates a complex contract, which may slow down the roll-out of the programme and the successful implementation of its operations. In this instance, programme developers may simply accept the risk and go ahead without addressing it in a contract. In the hierarchy of provisions, those on transfer of rights to carbon credits and proper usage are the most important ones, and a project developer can often content itself with dealing with the current end-users and not their successors in rights.





Management Agreement – Programme manager and the CPA developer

Where a CPA is made up of a number of end-users organised by a separate entity (CPA developer), the core programme contract is the one between the programme manager and each CPA developer. The management agreement will serve to define the role of the programme manager and lay out the different tasks of the CPA developer. The CPA developer may be given an implementation target (for instance, the inclusion of a fixed number of activities by a certain date). Depending on the programme or technology applied and the details of the programme structure, the role of the CPA developer may be limited to sale and distribution, or it may include monitoring tasks and even give it a role in seed financing the programme (see

sample provision below). In any event, in these cases the CPA developer is the gateway through which to reach the end-users and the programme manager must insist on stringent mechanisms to ensure that the CPA developer integrates the end-users according to the programme objectives, that the technology distribution cycle runs in a stable manner, and that the data transmitted from the CPA developer to the programme manager is accurate. This latter point is crucial for any financial (or pre-financing) agreement. It will most likely be linked to the scaling up of the PoA over time. The end-users are ultimately the source for emission reductions, and their accurate integration into the PoA is paramount to the programme's success.

Sample provision – Obligations of the CPA Developer

The [CPA Developer] shall be responsible for

- a) Implementing, operating and maintaining the CPA (and each project activity within the CPA) in conformity with sound financial, administrative, engineering and environmental practices, including, if relevant, the collation of environmental impact assessments, and the preparation of feasibility studies necessary to define the technical, financial and legal feasibility of the CPA;
- b) Developing the CPA Design Document;
- c) Liaising with End-Users;
- d) Monitoring emissions reductions from the CPA in accordance with the PoA Monitoring Plan and preparing the CPA Monitoring Report;
- e) Reporting about the progress of the CPA (and each project activity within the CPA) to [Programme Manager] at quarterly intervals as of the date of this Agreement ("Progress Reports"); and
- f) Covering all costs and expenses associated with the activities above.

The CPA developer, for its part, will wish to receive safeguards that the programme manager performs its duties related to the programme cycle with the utmost care, including the fulfilment of all obligations towards the validators, the Executive Board and the UNFCCC secretariat in order, ultimately, to generate carbon credits from the PoA.

Regarding carbon rights, the contract between the programme manager and the CPA developer should stipulate whether the rights generated are vested in the CPA developer or vice versa. As discussed above, a careful appraisal of the programme is needed to determine for each individual programme

which is the better model. In any event, the most important point is that a choice is made and that it is clear and transparent from the terms of the contract whether it is the programme manager or the CPA developer who has acquired the carbon rights. What the programme proponents need to avoid by all means is a situation in which the legitimacy of the carbon credit ownership is not clear.

Below, we provide a sample provision in which the CPA developer transfers the carbon rights to the programme manager.

Sample provision – Title to Emission Reductions in Management Agreements

[The CPA developer] agrees to transfer to the [Programme Manager] full ownership rights in and to any Emission Reductions generated by the [PoA], including all rights, title and interest in, and other associated benefits in relation to those Emission Reductions. [The CPA developer] hereby waives any assertion of rights in relation to the title or ownership of the Emission Reductions generated by the [PoA].

To keep in mind when drafting PoA management agreements:

- Define clearly the roles of programme manager and CPA developer;
 - Decide on minimum amounts/guarantees; and
 - Make a clear choice on carbon title.
-

Technology supply and support agreements

PoAs frequently distinguish between the participation of technology companies in a number of ways. Their involvement will often be as:

- Providers of the technology needed for the PoA (for example, the firm producing solar cooking stoves, fluorescent light bulbs, digesters etc.); or
- Firms that provide important parts of the PoA infrastructure, i.e. national electricity agencies that transmit and distribute payments from and to end-users in monthly electricity bills, insurance companies that replace electric boilers with solar water heaters thereby integrating households into a PoA, or micro-finance institutions that supply CPA developers with upfront money to purchase the technology necessary for participation in a PoA.

As the roles for these supply and support firms vary, a substantial number of different kinds of contracts will govern the different PoAs. In technology

supply contracts, for instance, there is the scenario where the programme manager buys from the provider and the provider delivers the technology to the CPA developer, who then distributes it among end-users; alternatively, there is the case where the provider has a contract with the programme manager but delivers directly to end-users. Another option is that the end-users (with or without a financial contribution) buy the products direct from the technology provider.

These agreements may be simple sales agreements, simple service agreements, or they may include elements of both. The technology provider, for instance, may also install the device and procure the execution of the end-user agreements. It may also play a role in monitoring and other project cycle activities.



The general rule should be that if the technology or service provider has a genuine part to play in the execution of the programme, there should be a contract with the programme manager or the CPA developer (if applicable) containing provisions on the transfer of all carbon rights.

Agreements with validation and verification entities

A CPA can be included in a registered PoA at any time during the lifetime of a PoA. There is no formal registration at the CDM Executive Board level required. Rather – under the CDM – the validator scrutinises the CPA for conformity with the PoA-DD and, if the assessment is positive, formally includes the CPA via a simple upload on the UNFCCC website. Apart from the power to conduct spot checks, the Executive Board does not confirm, cross-examine or otherwise interfere in this process.

Although the general liability of validators for irregular credits was recognised under the Marrakesh Accords, the issue has become a subject of much dispute in the context of CPA inclusions. The Executive Board has held that, if a CPA inclusion proves erroneous, validators “shall acquire and transfer, within 30 days of the exclusion of the CPA, an amount of reduced tonnes of carbon dioxide equivalent to the amount of CERs issued for the PoA as a result of the CPA having been included, to a cancellation account maintained in the CDM registry by the Executive Board”. More recently, the Executive Board introduced certain dates after which the liability of validators can no longer be invoked²⁷. The scope of damages, however, remains unchanged.

Wary about their direct liability, validators will usually seek to shift their economic responsibility to their contractual partners. Programme managers, in turn, will be interested to limit their contractual exposure to fraudulent or

grossly negligent behaviour, leaving validators with those risks that could have been detected through diligent scrutiny. Carbon buyers for their part will seek to stay out of this liability issue altogether. The validation contract, therefore, needs to be closely examined and carefully negotiated. While the issue is not resolved satisfactorily at the international level, programme managers are advised to negotiate the liability clause with validators so that at least the risk and financial liability are shared in a balanced and equitable manner among the contracting parties.

Emission Reduction Purchase Agreement

The central element of the contractual relationship between the carbon buyer and the programme manager is the sale and purchase of carbon credits or, as commonly referred to by practitioners, the “Emission Reduction Purchase Agreement” (ERPA). An ERPA, whether for a programmatic CDM or conventional project, needs to clearly define the type of credit being sold and purchased, the payment and delivery mechanisms, and all relevant obligations surrounding the implementation of the project/programme and its evolution under the CDM approval cycle.

The entity that figures as seller in an ERPA needs to hold all relevant rights or have comprehensive powers to transfer these rights to the buyer. The ERPA will contain clauses warranting that the seller has complete and unencumbered title over the carbon credits being sold and specifying the moment at which such title passes on to the buyer. This issue deserves particular attention in the case of PoAs because, as discussed above, many entities may be involved and the potential for contradicting claims is high. Below, we provide a sample provision in this regard.

Sample provision – Representation and Warranties

The Seller represents and warrants that it has full, unencumbered and undisputed legal ownership rights in and to any Contract CERs and has not sold, transferred, assigned, licensed, disposed of, granted or otherwise created any interest in such CERs. At the time of each Delivery of the Contract CERs, the Buyer will receive good, unencumbered and undisputed title to the Contract CERs, free of any mortgage, charge, pledge, lien or encumbrance of any kind whatsoever or other security interest in favour of any person or entity. For that purpose, the Seller shall obtain from all relevant persons and entities (including, without limitation, End-users) irrevocable waivers of all rights in all CERs and Emission Reductions generated under the Programme.



Specific to a PoA (and distinct from a classic CDM project) is the fact that the exact size of the PoA is not known. During the entire lifetime of the PoA, new CPAs that fulfil the requirements for inclusion can be added at any time. This brings a level of uncertainty into the contractual relationship that needs to be addressed through a particular set of provisions. This is all the more important where advance payment is negotiated. The ERPA should, in these cases, include milestones which are an incentive for the programme manager to scale up the size of the programme, and which allow the buyer/investor to have an overview of the growth rate as well as to exit from the investment if the rate of growth differs significantly from that estimated. In addition, the buyer providing an advance payment will likely want to ensure that the anticipated income is actually used for the development and advancement of the programme or to the benefit of end-users.

The seller and the buyer will also need to pay particular attention to some common legal definitions normally used in ERPAs. These definitions may require some adjustments to cater for the particularities of the CDM programmatic model. This is the case, for instance, with the definition of “commissioning” which, under the Programme, may refer to the starting of operations and the generation of emission reductions by the first CPA officially added to the programme. The definition of “crediting period” will

also need to make reference to the crediting period of each CPA included in the programme. Finally, additional attention may be required with regard to the contracting parties’ rights to act as project participants in the PoA and communicate with the Executive Board. Not all CPA participants need (and neither is this desired) to be included as project participants in the PoA. Moreover, in accordance with the CDM Rules, the CME is a mandatory focal point for all communications with the CDM.

The ERPA should also demonstrate that (a) the programme is based upon a robust infrastructure; and (b) the chain of title over the carbon is meticulously secured. Even more than in the classic ERPA approach, the PoA ERPA should be used as an anticipated form of programme due diligence. It may include a listing of the various implementation contracts needed for the roll-out of the programme; it may even contain model contracts or model clauses that the programme manager needs to use throughout implementation. Conceptually speaking, the ERPA should shape the programme and not constrain itself to the anticipated off-take of a certain amount of carbon credits. These credits need to be produced first, and there are too many potential hurdles involved in the production process for the carbon buyer/investor not to take extra care that the programme is drawn up in a resilient and robust way.

To keep in mind when drafting a PoA ERPA:

- Include milestones for the roll-out of the programme;
 - Secure a robust architecture and the infrastructure for implementation; and
 - Secure a meticulous chain of title.
-

6.5. Further reading

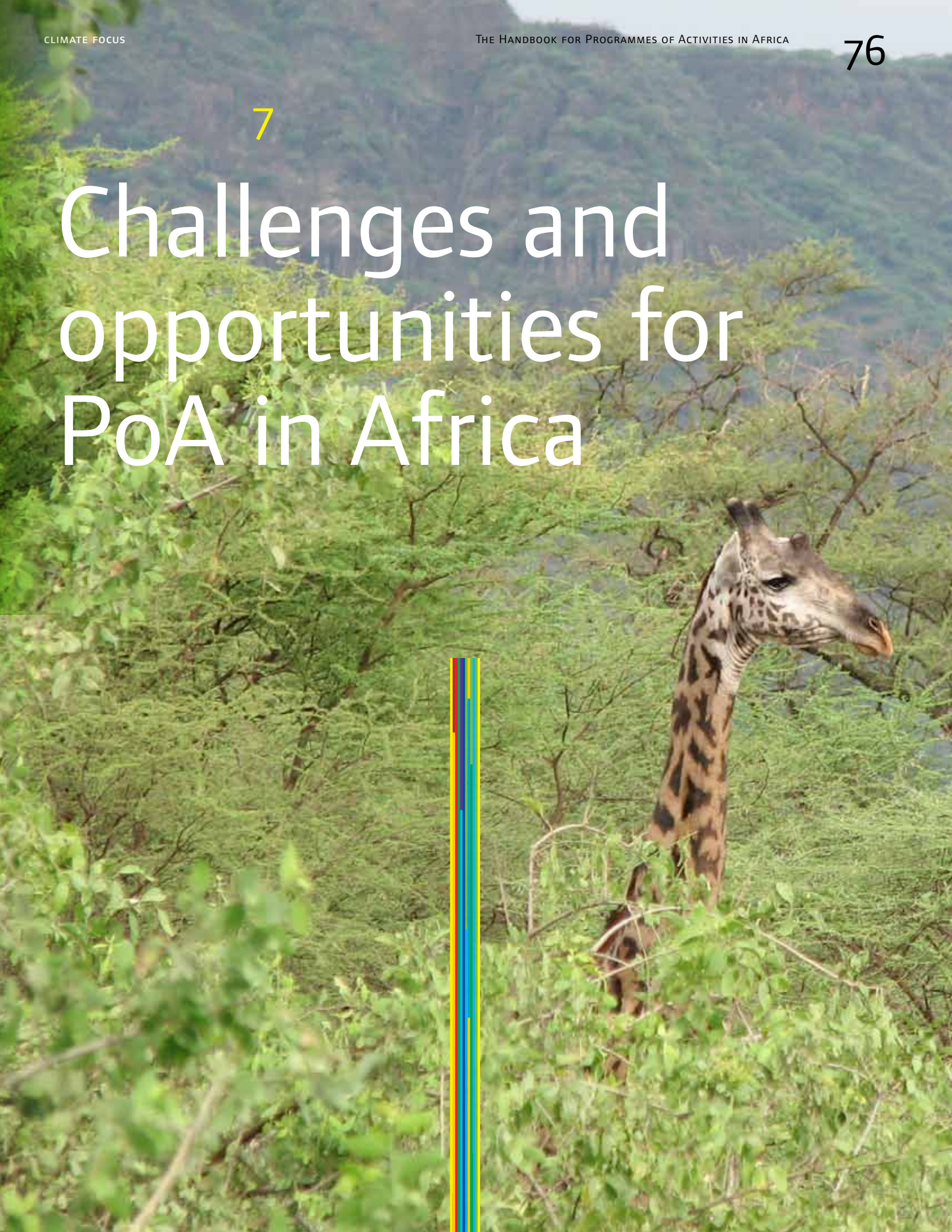
For general legal aspects relating to offset projects under the CDM, the following publications of the CD4CDM programme may be accessed online: “Implementing CDM Projects: Guidebook to Host Country Legal Issues” and “Legal Issues Guidebook to the Clean Development Mechanism”. For legal aspects and PoAs, refer also to “PoA Blueprint Book, Guidebook for PoA coordinators under CDM/JI” (2nd Revised Edition, Frankfurt and Main, 2010).





7

Challenges and opportunities for PoA in Africa





7.1 Key Recommendations

- To tap into the full potential of PoA in Africa: developers, international institutions and national governments need to creatively work together in sourcing financing and ensuring adequate institutional and technical capacity.
- DNAs must be efficient in developing approval procedures tailored to PoA.
- National authorities should use PoAs as instruments to implement national development and energy policies. African countries should also explore the development of PoA as an instrument on which Nationally Appropriate Mitigation Actions (NAMAs) can be built.
- National and regional authorities should support the development of regional PoA frameworks in order to allow replication amongst African countries.
- Support and promote public-private partnerships for PoA implementation.
- International donors and development organizations must provide up-front finance that support PoA development and their replication; support promotion, awareness and capacity building among NGOs and microfinance institutions to conceive PoAs.
- African project developers can find technical and financial support through international partners to set-up the managerial, technical and legal aspects of the programme.

Figure 7.1: Overview of Africa's CDM registered project types

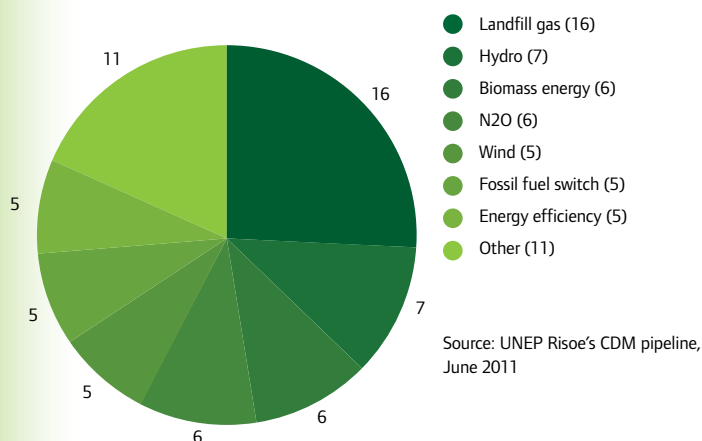
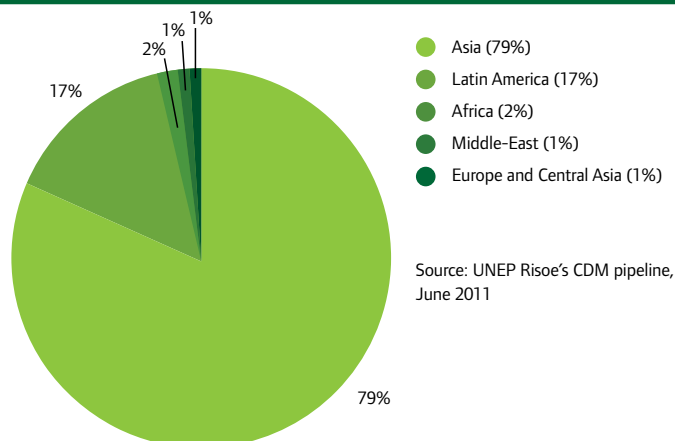


Figure 7.2: Registered CDM projects per region



7.2 Introduction

Over the last decade the CDM has effectively supported investments in mitigation action in developing economies. While a large amount of capital has flown into Asia and Latin America, the impact of the CDM in Africa has fallen far short of its full potential. The issue of partial geographic distribution has been a key deficiency of regular CDM activities, placing most of Africa outside the scope of project developers and the broad investment community. Despite efforts to expand CDM in Africa, the continent, and particularly sub-Saharan countries, have lagged behind. Considering the severe impacts of climate change predicted for Africa, the continent has a lot to gain from implementing projects that promote sustainable development and mitigate climate change.

Programmes of Activities have been introduced to facilitate geographically and temporally dispersed emission reduction activities to gain access to international carbon markets. The intrinsic characteristic of a PoA (focusing on dispersed small-scale activities such as solar water heaters, efficient cooking stoves and light bulbs, etc.), make the PoA a mitigation instrument particularly tailored to the African environment and presents an opportunity for Africa to play a more prominent role in climate change mitigation. Furthermore, PoAs can support measures and policies to decrease poverty and accelerate Africa's development priorities, such as facilitating access to energy for rural and peripheral urban communities. The onset of this programmatic approach, as well as the emerging interest by investors in African CDM projects, and increasing regulatory support for Least Developed Countries (LDCs) is expected to significantly increase the contribution that PoA CDM will make to Africa's sustainable development and ambitions to transition towards low-carbon economies.

7.3 Africa's struggle with the CDM

Of the 3,000+ registered CDM projects to date, merely 61 (2%) have been implemented in Africa. Of these registered projects, almost half are located in South Africa and Egypt, leaving sub-Saharan Africa with a considerable scarcity of CDM project development.

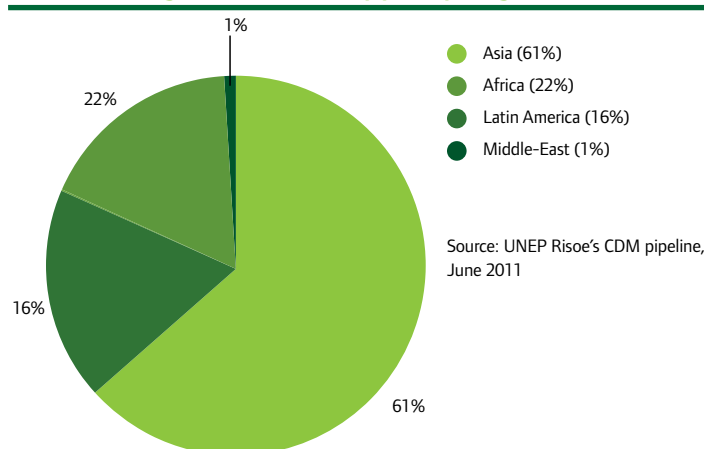
One fundamental reason for limited CDM action in Africa is that most countries in the continent have very limited emissions in the first place. The type of emissions produced by African countries do not fit well with the original design of the CDM, which was primarily aimed at large, single sources such as electricity generation and industrial production. Furthermore, the high upfront costs for developing a CDM project only justify project development where the emission reduction potential per project exceeds 20,000 tCO₂e per year. Due to low industrialization in most African countries, large abatement opportunities that can be covered under a single CDM project are scarce and most 'low hanging fruit' involving activities like methane capture from landfills or industrial gas destruction have been picked at an early stage, leaving few attractive investment opportunities remaining. Due to the large abatement opportunities elsewhere, countries like Brazil, Mexico, China, and India have attracted most of the CDM investments.

Other limiting factors for CDM development in Africa relate to the nominal involvement of the private sector and restricted access to funding. Low creditworthiness of many African host countries, poor institutional and technical capacity, and elevated risk of social unrest and political instability have forced international investors to focus on investments elsewhere or only consider association with African projects at a later stage of development. The lack of start-up finance necessary to conduct initial feasibility studies and develop PDDs has restricted the quest for mitigation opportunities, while the unavailability of financing at later stages of the development cycle has prevented the realization of some projects with a real business case. A further cause of the lack of CDM development in the continent derives from the scarce engagement of African countries' authorities in promoting regulatory frameworks to attract CDM investment.

Finally, CDM in Africa has suffered from the absence of appropriate CDM methodologies that reflect the reality of African projects. The first years of the CDM focused on large-scale CDM methodologies targeting countries with higher degrees of industrialization. Only recently CDM methodologies tailored to the realities of rural areas in Africa have been approved. The traditional CDM's preference for large scale emission reduction activities, the perception of higher risk associated with investing in Africa, and the late deployment of CDM methodologies tailored to the African environment,



Figure 7.3: PoAs in the pipeline per region



have defined the continent's struggle with the CDM and limited the number of activities registered to date.

7.4 PoAs: The time for Africa

Recent developments have seen the removal of barriers and risks for carbon market development on the African continent. Firstly, the establishment and consolidation of the PoA model, coupled with the appeal of PoAs to international investors has removed significant obstacles. Secondly, the evolving UNFCCC decisions that strengthen and provide more clarity to the PoA regulatory framework, and the on-going and increasing approval of methodologies and their combinations applicable to PoAs have significantly improved matters. The introduction of the PoA model enables the total emission reduction potential to reach financially attractive levels that justify transaction costs, an issue that previously posed a barrier for many small scale initiatives in Africa. While this barrier mostly relates to individual project activities, it can also apply to entire countries that alone would not have had a business case in implementing a project under the CDM.

PoAs also offer the possibility of engaging in multinational PoAs. Through multinational PoAs, relatively small emission reduction potentials per country can be aggregated into volumes that justify the upfront investment required to get a programme registered. It is not by coincidence that many multinational PoAs currently under development take place in Africa and that many African project developers consider the possibility of scaling-up to other countries. Additionally, adding CPAs over time allows project proponents to expand into regions and countries without strictly defining the amount and precise location of units that will be implemented throughout the programme's lifetime. Multinational PoAs in Africa can also enable the convergence of national policies on which PoAs are based, into regional policies in sectors such as energy and agriculture that could help strengthen the economic and political cooperation structures already initiated by some regions in Africa.

28) 2/CMP3, paragraph 31

A shift of investors' priorities in the carbon markets presents an exciting opportunity for African PoAs. There is an emerging international trend moving from the current project-by-project approach, towards programmatic, sectoral and policy-based models that will be consolidated in the years ahead. Additionally, the African CDM market is expected to experience further growth in the coming years due to the fact that the third phase of the European Union Emissions Trading Scheme (EU ETS), the largest and most important source of demand for CERs globally, will only accept credits from CDM projects registered after 2012 if these projects are implemented in LDCs. LDCs will still be able to register PoAs after the deadline of 31 December 2012, and have their carbon credits enter the EU ETS extending up to 2020. As home to 33 of the world's 48 LDCs, Africa is in a good position to benefit from this shifting investor interest. The increased interest in CDM projects developing in LDCs is already reflected in current valuations of post-2012 CERs, and the premium for these types of projects is expected to continue as long as there is sufficient demand from the compliance market. As the 2012 deadline for registration approaches, investors will increasingly turn towards LDCs to secure CERs for long term compliance. This implies that not only will there be demand, but also the potential for capitalising on future emission reductions earlier through upfront payments provided by buyers or facilitated access to loans by collateralising signed ERPA's. Appetite for CERs resulting from African PoAs is already palpable and several European buyers have established facilities supporting PoA in order to ultimately acquire PoA carbon credits. One example is the KfW PoA Support Centre or funds created for the acquisition of carbon credits from PoA or LDC such as EIB-KfW Carbon Programme II.

A number of decisions made at international level over the years have signalled increased support for the CDM in Africa. During its third meeting the Parties to the Kyoto Protocol (COP/MOP) decided to abolish the registration fee and share of proceeds at issuance for CDM project activities hosted in LDCs²⁸. While this has not delivered sufficient incentive to encourage investments in traditional CDM projects, the measure does eliminate part of the financial burden associated with high transaction costs. COP15 held in Copenhagen decided that projects hosted in LDCs can prove additionality through the simplified modalities for demonstrating additionality, opening up new opportunities for small-scale project activities of up to five mega-

Table 7.1: African CDM PoA pipeline as of June 2011

PoA	Country	Status	CME type	Project type
Uganda Municipal Waste Compost Programme	Uganda	Registered	Public	Landfill composting
SASSA Low Pressure Solar Water Heater Programme	South Africa	Registered	Private	Solar water heating
New Energies Commercial Solar Water Heating Programme in South Africa	South Africa	At Validation	Private	Solar water heating
Promotion of Energy-Efficient lighting using CFL Bulbs in rural areas in Senegal	Senegal	At Validation	Public	Lighting
Solar Water Heater Programme in Tunisia	Tunisia	At Validation	Public	Solar water heating
Heat Retention Cooking in South Africa	South Africa	At Validation	Private	Stoves
Egypt Vehicle Scrapping and Recycling Program	Egypt	At Validation	Public	Scrapping old vehicles
South African Solar Water Heater (SWH) Programme	South Africa	At Validation	Private	Solar water heating
Landfills' gas capture, flaring and use program in Morocco	Morocco	At Validation	Public	Landfill power
Distribution of fuel-efficient improved cooking stoves in Nigeria	Nigeria	At Validation	Private	Stoves
Improved Cook Stoves for East Africa (ICSEA)	Burundi, Kenya, Rwanda, Sudan, Tanzania, Uganda	At Validation	Private	Stoves
Improved Cooking Stoves for Nigeria Programme of Activities	Nigeria	At Validation	Public	Stoves
Fuel Efficient Stoves in Zambia	Zambia	At Validation	Private	Stoves
LED's kick-off	South Africa	At Validation	Private	Lighting
Efficient Cook Stove Programme: Kenya	Kenya	At Validation	Private	Stoves
Standard Bank Low Pressure Solar water heater Programme for South Africa	South Africa	At Validation	Private	Solar water heating
Lift-off! The Illumination Project to Replace Kerosene lamps with Solar LED Lamps	Tanzania	At Validation	Private	Lighting
Promoting Efficient Stove Dissemination and Use in West Africa	Senegal, Gambia, Burkina Faso, Togo	At Validation	Private	Stoves
Green Steam Low Pressure Solar Water Heater Programme for South Africa	South Africa	At Validation	NGO	Solar water heating
Improved Cook Stoves programme for Rwanda	Rwanda	At Validation	Private	Stoves



Landfills' gas capture, flaring and use program in Morocco

Morocco is developing a landfill gas capture, flaring and/or utilization (electricity/heat) PoA. It is currently at validation stage and will initially cover 11 landfill sites. The PoA is implemented as a measure under the solid waste management plan in Morocco and will therefore help to advance the objectives included in the national solid waste strategy.

This PoA is an example of how public sector institutions can promote PoAs and shows also how central and local institutions can involve the private sector in advancing PoAs. FEC (Fonds d'Équipement Communal), a state owned bank in charge of financing local investment projects, acts as the coordinating managing entity. Its knowledge and involvement with the local sector makes FEC the ideal institution to manage a PoA that touches on municipal services, as in the case of solid waste management treatment. Aside from assuming all CDM related tasks and the programme's CME, FECs will make available financial support to the municipalities covered by the PoA and will support municipalities with technical assistance during the implementation of CPAs. FEC will also be in charge of the sale of PoA CERs.

One of the most crucial issues of this PoA was the settlement of a proper contractual arrangement acceptable to all PoA stakeholders. For this purpose two lines of contractual agreements were established: one, between FEC and the municipalities, and the other between FEC-municipalities and the private companies that hold waste management concessions for the landfills included in the PoA. Accordingly, one of the main tasks for FEC has been the definition of proper contractual structures that include strong incentives for the municipalities and the economic operators of the landfills to reach the objectives of each CPA.

Development of the PoA contractual framework was preceded by a deep analysis of the existing legal relationships between economic operators of the landfills and municipalities, such as the landfill management concessions. From the very first moment of PoA development, FEC perceived that such concessions contained legal and financial terms that would condition the content of the PoA contractual arrangements and especially the sharing of the financial benefits derived from the carbon credits.

Table 7.2: Main features of African PoAs

Feature	Explanation
Predominance of small-scale methodology applications	In general PoAs in Africa are mostly developed using small-scale emission reduction methodologies.
Geographical distribution: scarce activities in Western Africa	Most of the PoAs in Africa currently on the pipeline are concentrated in Maghreb countries, Eastern African and South Africa. Western and Central Africa are absent from PoA development.
Large role of public institutions/international donor engagement	Barriers to accessing up-front finance at the start of the project make public funds and international donor support crucial for the success of POA in Africa.
Predominance of renewable energy and energy efficiency	Most of the POA projects in development in Africa target decentralized renewable energy (i.e. installation of solar panels) or energy efficiency (cooking stoves).
Public PoA linked to public policy strategies	Most of the public PoAs in Africa are implemented under the framework of adopted public policies. This is the case of the Landfill PoA in Morocco, adopted as an instrument to implement the Moroccan Solid Waste Management Strategy. Another example of a PoA linked to public policies is the PoA Rural Electrification in Senegal that intends to execute the Senegal Rural Electrification strategy.

watts that employ renewable energy as their primary technology and for energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year²⁹. The continent can benefit considerably from this exemption. Finally, COP16, held one year later in Cancun, confirmed the agreements made in Copenhagen concerning the setup of a loan scheme that supports CDM development (PDD drafting, validation,

29) *Guidelines for demonstrating additionality of micro scale project activities.*

http://cdm.unfccc.int/Panels/ssc_wg/meetings/030/ssc_030_an12.pdf

30) COP16: *Further guidance related to the CDM. Annex 3*

31) *A list of already approved combinations can be found in paragraph 11 of the "General Guidelines to SSC CDM methodologies, version 16 (Annex 23 to EB meeting 58, paragraph 11)*

32) *UNEP Risoe's CDM pipeline: <http://cd4cdm.org>*

first verification) in countries hosting less than 10 registered CDM projects³⁰. Many African project developers may use this loan facility to access the necessary start-up finance to go forth with the CDM.

Furthermore, the possibility of combining small scale CDM methodologies to cover diverse types of emission reduction activities is critical for PoA development in Africa, in particular those related to the abatement of methane and the generation of electricity or heat³¹.

7.5 Current state of PoA in Africa

The fit of the PoA model with Africa is reflected in the PoA pipeline³², which shows that African programmes currently account for approximately one-fifth of all PoAs under development.

Multinational cook stove PoA in East Africa

The 'Improved Cook Stoves for East Africa' (ICSEA) program is one of two multinational African PoAs currently under validation. The PoA aims to promote the use of improved cook stoves in Uganda, Kenya, Tanzania, Rwanda, Burundi, and Sudan. The Uganda Carbon Bureau is behind the initiative, and through ICSEA Ltd. acts as the CME of the programme. ICSEA has been liaising and coordinating in open dialogue with the different DNAs to obtain the necessary Letter of Approval.

The PoA encourages a decentralized approach to cook stove dissemination that enables adoption to regional circumstances. The PoA provides an open source carbon platform for anyone who wants to participate and complies with specific Fair Trade criteria on carbon transactions, based on the premise that the owner of the credits is the owner of the cook stove and the originator of the emission reductions and carbon revenues should be shared on an equitable basis throughout the value chain.

Proponents of individual CPAs will arrange for the purchase of their technology, financing and carbon credit sales. They will receive support from ICSEA on request. While each CPA developer is free to arrange a suitable financing structure and supply model, the programme encourages the dissemination of cook stoves at below-market prices to guarantee affordability. CPAs receive free-of-charge training offered through a Stove Support Facility funded by international donors. The programme envisages the use of mobile phone technology for both carbon transactions and programme monitoring.

An interesting feature of this PoA is the fact that the CME has been predominantly sponsored through donor funding. While the CME charges annual commercial fees to each CPA developer, these are low as the programme had good access to concessional finance, translating into minimal amortized costs from the start-up phase. The CME has taken the strategic choice to refrain from taking any commercial stake in the carbon revenues generated by the PoA in order to avoid any conflict of interest with the CPAs and maintain focus on its role as carbon access service provider. [Bill Farmer, Uganda Carbon Bureau]

Scattered throughout ten different countries, the programmes primarily target the promotion of small scale technology that is highly geographically dispersed and involves numerous households, such as improved cook stoves, solar water heating and improving access to energy for poor communities. To date, two African PoAs have been successfully registered. Of the PoAs listed in Table 7.1 only the landfills gas capture, flaring and use program in Morocco uses a large scale methodology while all the rest use small scale methodologies.

7.6 Challenges of developing PoAs in Africa

Although certain obstacles previously preventing project developers from tapping into the CDM have been removed through the introduction of the PoA model, other challenges related to doing business in Africa continue to affect PoA development.

Technical challenges

Limited experience with conventional CDM projects to date has resulted in a negligible transfer of project development skills and a small number of best-practice case studies that project developers can learn from. While the introduction of simplified procedures for small scale projects has led to shortened procedures and lower transaction costs, it has not taken away the need for technical knowledge and lengthy preparation time. Many project developers are struggling to meet expectations set forth in monitoring plans outlined in their respective PDDs due to lack of experience and sufficient local expertise, leading to delays in issuance or lost opportunities to capitalise on potential emission reductions. This could be even more relevant to PoAs which can be more complex and time-consuming than conventional CDM projects, especially when such activities span internationally. The general lack of expertise relating to the CDM has also limited the development of new methodologies tailored to Africa's circumstances, restricting the scope of suitable project activities.

While CDM capacity building in Africa is needed to increase the technical capacity to design and develop successful PoAs, further efforts in simplifying the modalities are necessary to incentivise small scale project activities to pursue the CDM. Initiatives such as the adoption of simplified guidelines for demonstrating additionality for micro scale project activities are the measures that will facilitate Africa's participation in the CDM and incentivise the development of PoAs.

Financial challenges

Apart from a lack of knowledge and familiarity with the CDM requirements, a major obstacle for successful PoA development in Africa is the lack of private investment capital. Most PoAs currently in the pipeline are developed with support of international donors that provide technical and institutional support or provide concessional loans or grants (see table 7.3). This can be observed in many of the PoAs launched by private African entities that rely on international funding to kick start their PoA operations.

Some programmes also rely on public funds to support the activity through the initial stages of programme development, hoping that private sector investors will find the confidence to seek involvement at later stages where registration risk is minimized or eliminated. Against this background, local financial institutions in Africa tend to be risk averse, and often fail to take into account carbon finance in assessing funding proposals, viewing it as an intangible asset associated with a high degree of price uncertainty.

In the African context, microfinance institutions may play a significant role in engaging in PoA activities. The prevalence of small scale activities coincides with microfinance institutions (MFIs) modus operandi which aims to provide financial services to rural communities with scarce capacity to pay. The organizational structure of a MFI is a natural basis for PoA development. MFIs can thus make use of its working frameworks, existing distribution channels, experience and networks to operate PoA activities. Additionally MFIs enjoy a reputation of reliability and have the capacity of structuring and operating



Uganda Municipal Waste Compost Programme

“The two most challenging aspects we have had in structuring and developing the Uganda Municipal Waste Compost PoA are: a) elaborating the CDM PoA documentation, and b) the uniformity established in the PoA does not reflect the reality of the diverse nature of the municipalities (CPAs) included in the PoA.

The first challenge was overcome thanks to the technical and financial assistance of the World Bank. We did not have the sufficient capabilities to thoroughly elaborate the documentation and most of the data was not readily available and had to be gathered. Delays in validation also occurred as DOEs are still reluctant to engage in African PoAs. The second challenge is an ongoing one; different municipalities have different conditions and CPAs and are not uniform. Therefore, additional capital has been necessary to enable them to adjust to the POA requirements. Also, the municipalities do not have the same capacity to run such a project, as some have required more technical assistance than others. Support through NEMA’s physical presence in each of the municipalities has been crucial.

Furthermore, carbon finance has not supported the PoA as carbon revenues have not yet arrived. The first 3 years of operations have been funded through a loan from the World Bank to the government of Uganda, and through domestic public funding.”

[Mr. Gerald Sawula, NEMA Uganda]

programs that carbon buyers are looking for. The carbon revenues generated by a PoA can substantially support the loan schemes that MFIs apply by (i) lowering interest rates; (ii) expanding the outreach of the programme; (iii) and improving the financial feasibility of the project.

There are, however, specific characteristics of microfinance loans that might be incompatible with the life of a CDM PoA, such as the short repayment time of microfinance loans. Still the main challenge for MFIs to engage in PoA is the lack of knowledge about PoA CDM technical issues and the opportunities offered by the mechanism. This is why awareness and capacity building programs for MFIs operating in Africa are needed to engage this type of institution in PoA development.

The challenge of strong public-private partnerships (PPPs)

It is interesting to observe that many of the PoA areas launched by governmental actors in Africa focus on sectors where public-private partnerships exist. This is the case of the landfills PoA launched by FEC in Morocco, in which private companies with previous administrative concessions for landfill waste management are directly involved in the implementation of the PoA. It is also the case of the Rural Electrification in Senegal-Program of Activities where private electricity companies that have been awarded concessions to implement the national Rural Electrification Strategy are also involved in the implementation of the distribution of energy saving light bulbs. In both cases, a crucial question in the design of both PoAs has been the involvement of the existing concessionaire and the definition of its exact role in the PoA implementation, as well as the benefits that those private entities will derive from participating in the PoA.

Under the Senegalese PoA, the authorities impose upon concession operators the distribution of CFLs in rural areas providing in parallel a subsidy to the concession operator to cover the costs of installing CFLs in order to avoid that the concession operator’s participation in the PoA does not

entail economic prejudices for the concessionaire. In the case of the PoA landfill in Morocco the implementation of the CPA is mainly realized by the concession operators running the landfills. As such, FEC as the managing entity will provide directly or indirectly incentives so that CPA implementation costs for concession operators do not suffer financial prejudices derived from its participation in the PoA.

PPPs can thus play an important role in the development of a PoA, and African authorities should reflect on how their existing or future PPPs could accommodate potential PoAs.

Institutional challenges

Countries wishing to participate in the CDM must designate a National CDM Authority (or Designate National Authority – DNA) to evaluate and approve the projects, and to serve as a point of contact. While most African nations have set up local DNAs and adopted general procedures for CDM approval, others still lack clear selection criteria for approving proposed PoAs. When adopting specific guidelines for the approval of PoAs, DNAs should not prevent PoA opportunities. For instance, given the possibilities of multinational PoAs in Africa, DNAs should not impose the extra burden on the CME for approving a multinational PoA. To this effect, it could be interesting to see African DNAs coming together as a region in coordinating procedures for the approval of multinational PoAs.

African national governments should support PoAs along with other climate change instruments such as NAMAs. In this regard, African countries can explore how experiences with PoA could represent the basis for establishing future NAMAs in such a way that current PoAs could be scaled up to a NAMA scope. This would be a worthwhile development considering the need for African countries to appraise methods of engaging in NAMA readiness and attracting NAMA fast start finance.



Table 7.3: Overview of a few development organisations involved in supporting African PoAs

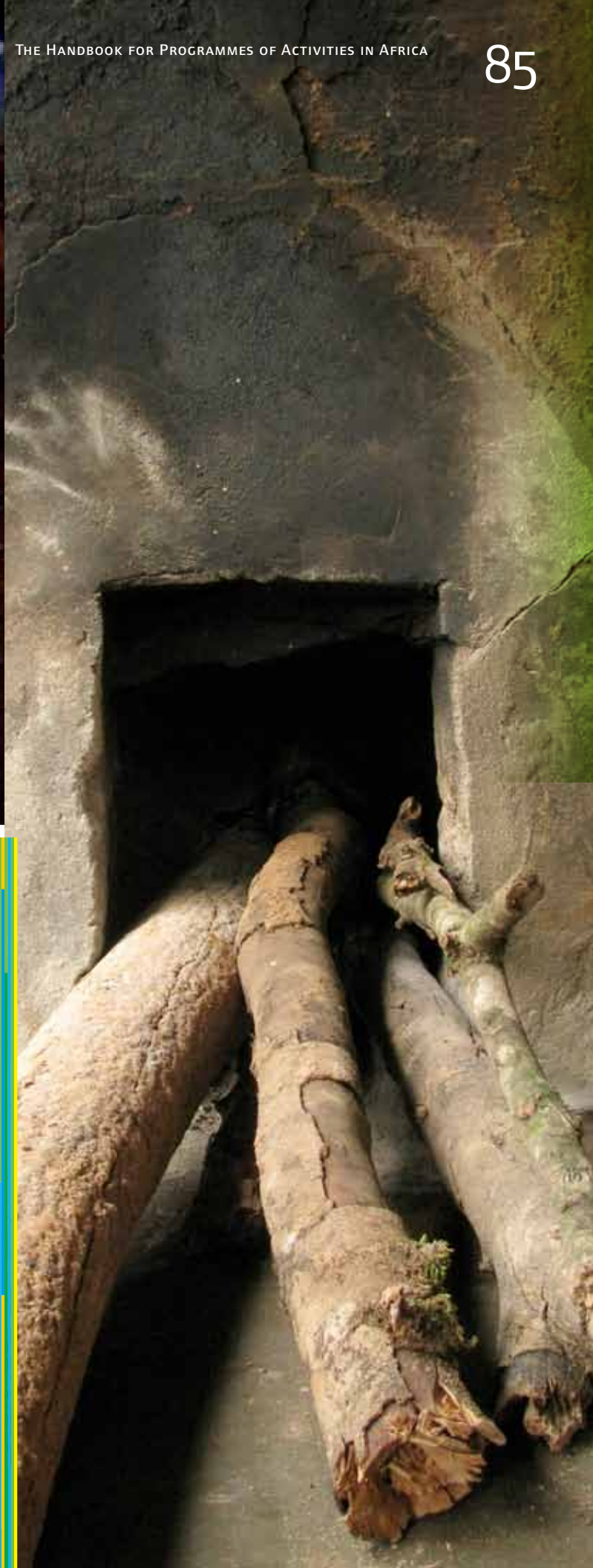
Potential Source of Funding	Details
African Development Bank	The African Carbon Support Programme provides technical assistance designed to promote access to carbon finance. PDD preparation assistance, support for grid emission factor development and supporting the commercial carbon potential of projects are key objectives of the programme.
Belgian Technical Cooperation (BTC)	BTC is launching a CDM support programme for Uganda, providing both financial support and knowledge transfer
World Bank	Offers both technical and financial support to PoA developers. Ensuing carbon credits can be purchased by the Community Development Carbon Fund.
KfW	KfW's Carbon Fund has set up various purchase programmes for CERs. Through its PoA Support Centre, KfW offers advisory, structuring and assessment services for programme proposals as well as financing and grants to cover the preparation of concepts, PDDs and monitoring plans.
Nordic Climate Facility	The Nordic Development Fund (NDF) grants finance for mitigation and adaptation activities, mainly for technical assistance and investments. The NDF focuses on low-income countries and grants normally constitute a part of the whole programme financing.
The French Development Agency	Has provided finance for the development of CDM projects and other infrastructure projects with carbon reduction potential.
The European Investment Bank (EIB)	Established a Climate Change Financing Facility (CCFF), providing long-term loan financing to companies developing CDM projects. The Bank also has a Climate Change Technical Assistance Facility (CCTAF) to provide upfront funding for project-based carbon asset activities.
Economic Community Of West African States	African investment fund which proposes various financial instruments for CDM projects in West Africa, including: loans from commercial banks; purchasing carbon credits upfront; and African companies assuming delivery risks.
The Central African States Development Bank	Has a financial strategy for CDM projects. Its aim is to facilitate access to funding.
The Millennium Development Goal Carbon Facility	The Facility assists the development of CDM projects and the marketing of the carbon credits generated by these projects.
Danida (Danish International Development Agency)	Established a Climate and Development Action Programme. The Ministry of Foreign Affairs will purchase carbon credits in accordance with the government's climate strategy and the national allocation plan.
UNDP-UNEP Partnership on Climate Change	This programme is explicitly designed to address the capacity and technical needs of CDM stakeholders in Africa. UNDP and UNEP offer joint support in helping to develop a carbon market in Africa and open up the development opportunities offered by the CDM.

7.7 Further Reading

A useful study commissioned by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) done by the Wuppertal and GFA Envest may be accessed online: "The CDM Project Potential in Sub-Saharan Africa with Focus on Selected Least Developed Countries", and the background information on the underlying research project can also be found online: http://www.jiko-bmu.de/english/service/host_country_information/doc/996.php

A publication on policy design options for NAMAs has been elaborated by Climate Focus and can be found online here: http://www.climatefocus.com/documents/design_options_for_namas_and_their_regulatory_framework





Final words

8



Programme of Activities hold the potential to significantly reduce greenhouse gas emissions worldwide. The aggregate structure of PoAs brings carbon finance to the farms, households, and small enterprises around the globe. Encouraged by the potential of PoAs, project developers, governments and international regulators have entered into a dialogue to further enhance the PoA procedures and accelerate PoA development. At the political level, PoAs are regarded as a stepping-stone to new and enhanced mitigation strategies at a sectoral level.

Implementing and operating a PoA to reduce greenhouse gas emissions is a challenging endeavour that requires bringing together financial, legal, operational and carbon aspects within one coherent implementation framework. A PoA consists of a potentially large number of project activities, each of which can contain a large number of individual subprojects, involving many different end-users and stakeholders. The focal point and driving force of a PoA is the programme manager, who needs a long-term view and a clear business plan that includes taking care of managerial, financial and legal efforts. The interaction between the entities involved in a PoA needs to be smoothly organized while recognizing and assigning legal rights and obligations that provide the right incentives to promote the participation of end-users in the programme.

This PoA guide facilitates the comprehension and familiarisation with the PoA concept and provides practical and logistical recommendations for its implementation. Drawing on the experience in implementing PoA to date, it summarises recommendations for programme managers and other entities involved on how to successfully organise the programme and provide hands-on guidance on how to deal with the most common technical and legal challenges.

Key lessons include that programme managers should familiarize themselves with procedures and project precedents of the relevant carbon standard before starting the development of the programme. Standards differ in their scope and application which makes it important to select the appropriate standard from the outset. The previous chapters introduce a number of the existing standards, but it is recommended to closely follow regulatory developments as additional carbon and climate finance opportunities may become available.

At least as important as the appropriate standard, is the development and implementation of a clear business plan and roadmap with clear and realistic deadlines. In addition, since PoAs involve many different stakeholders, support from the general public and government is crucial.

The financial aspects of PoA development come with a number of trade-offs between receiving upfront financing and exposing the value of the carbon assets to the volatile carbon markets. Another trade-off exist between selling the carbon credits on a forward basis or waiting for premiums to accumulate on the value of the future carbon credits as the project moves beyond important CDM milestones. To ensure that PoAs are legally well founded, it is crucial that the programme's organisational structure has a clear contractual basis that defines all relevant relationships and allocates the carbon rights.

It is impossible to anticipate all challenges a PoA may face. Yet, we hope that the guide contains useful recommendations and solutions that enable the smooth implementation of future programmes maximising the benefits of programmes to local stakeholders while yielding sustainable and lasting global climate benefits.



Annex I: Basic Definitions

Additionality. The notion that greenhouse gas reductions would not have taken place without the JI, CDM, GIS or voluntary measure. Only projects with proven additionality are eligible to participate in these mechanisms.

Annex I Countries. All countries listed in Annex I to the UNFCCC and considered developed countries. The larger countries on this list are the EU member states, USA, Russia, Ukraine, Australia, New Zealand, Canada and Japan. Annex B countries also have an emission target defined in Annex B of the Kyoto Protocol. All Annex I countries are also Annex B countries, with the exception of Belarus (the USA has a target inscribed in Annex B, but is not bound to follow this target as it has not ratified the Kyoto Protocol). Dedicated UNFCCC bodies monitor whether the countries listed in Annex B are taking sufficient action to meet their emission targets.

Baseline and Credit. By contrast with Cap and Trade, Baseline and Credit systems define the “baseline”, or “business as usual” emissions of a project, sector, or economy, and reward deviations below that baseline with tradable credits. Examples of baseline and credit systems are CDM, JI and various voluntary schemes such as the VCS or Gold Standard.

CDM (Clean Development Mechanism). A project-based trading mechanism under the Kyoto Protocol that allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (a so-called Annex B country) to implement an emission-reduction project in a developing (non-Annex I) country. Certified emission reduction (CER) credits earned from a CDM project can be counted towards meeting the Kyoto target of the Annex B country.

CDM Rules. Refers to the relevant modalities and procedures of the CDM as adopted by Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) as set out in the Annex to Decision 3/CMP.1, as well as any other relevant decisions by the CMP and rulings and decisions by the CDM Executive Board.

CER (Certified Emission Reduction). Trading unit of the CDM. One CER equals a monitored and verified reduction of one metric tonne of CO₂ equivalent (CO₂e).

CME (Coordinating or Managing Entity). The key private or public entity responsible for the operational and management arrangements of a PoA in the CDM, for the drafting of PoA documents, and monitoring of emission reductions. The managing entity also acts as a focal point for all communica-

tions with the Executive Board, JISC or other relevant body regarding the PoA. Under JI, or in the different voluntary standards, the CME has a different name. In this Handbook we refer to the CME.

CPA or JPA (CDM Project Activity or JI Project Activity, in this Handbook also referred to as C/JPA). Individual project units that can be added to a registered PoA under the CDM or JI. A C/JPA can consist of a single project or a bundle of projects. When registering a C/JPA that consists of a bundle of projects, the exact number of projects bundled needs to be stated. There is no possibility to change this number during the crediting period of the C/JPA.

Crediting Period. The period in which the C/JPA generates emission reductions that are eligible for the production of emission reduction credits³³.

EB (Executive Board). The Executive Board is the regulatory body that oversees the operation of the CDM. The Executive Board is responsible, amongst other things, for the registration of CDM projects, approval of methodologies for the calculation of emission reductions and their monitoring, and the approval of the independent third parties responsible for checking documents and calculations from project developers (known as “Project Validators”).

ERU (Emissions Reduction Unit). Trading unit of JI. One ERU equals one metric tonne of CO₂e.

GIS (Green Investment Schemes). GIS have their basis in IET. GIS are voluntary commitments by countries involved in an IET transaction to link the transaction volume to actually achieved greenhouse gas emission reductions or commit to investing the revenues from an IET transaction in projects that reduce greenhouse gas emissions. Since GIS have no legal basis in the UNFCCC or the Kyoto Protocol, they are not bound by monitoring requirements, project-level procedures or methodologies defined by the UNFCCC.

³³) Annex 29 to the report of EB meeting 47, paragraph 5c.



IET (International Emissions Trading). International Emissions Trading allows Annex B countries to trade the emissions rights (“assigned amount units”, or “AAUs”) allocated to them under Annex B of the Kyoto Protocol. Countries that emit less than their maximum allowance may therefore sell off excess AAUs, and parties that emit more must buy AAUs in order to meet their emission reduction/limitation commitments.

JI (Joint Implementation). Similar to the CDM, JI is a project-based trading mechanism under the Kyoto Protocol which allows a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B country) to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in a developed (Annex I) country which can be counted towards meeting its Kyoto target.

JISC (Joint Implementation Supervisory Committee). The regulatory body responsible for overseeing JI. The JISC performs for JI tasks similar to those performed by the Executive Board for CDM.

Methodology. A methodology describes the way in which the emission reductions of a PoA should be calculated, its additionality demonstrated and emission reductions monitored.

PoA (Programme of activities). An umbrella structure including a number of CPAs or JPAs, which can be registered as a single project under the CDM or JI. During the “lifetime” of a PoA, the number of CPAs or JPAs included in the PoA can increase (without limitation).

VER (Voluntary Emissions Reduction). Trading unit of the voluntary market. One VER equals one metric tonne of CO₂e.



Annex II: Estimated Costs of a PoA

The table below provides an overview of the total steps in the project cycle of a PoA and an indication of the costs at each step. The information is based on data gathered from different project developers and assumes that the drafting of CDM documents is outsourced to a specialised consultant. Prices vary depending on the complexity of the project, travel expenses and whether the consultant or validator is based in the host country or not.

The initial costs for project development vary between EUR 70,000 and EUR 170,000. In addition, upon registration the project developer pays a registration fee based on the average expected amount of CERs. This fee is equal to 0.10 USD/CER for the first 15,000 CERs expected to be issued annually, and 0.20 USD/CER for the remainder. For a PoA, these fees are calculated according to the amount of CERs expected in the first CPAs submitted alongside the request for registration. There is no fee for the subsequent inclusion of CPAs after registration of the project³⁴. When assuming

the first CPA will deliver 20,000 CERs per year, the registration fee would be USD 2,500 or EUR 1,942, a negligible amount compared with the costs for the PoA documentation and validation. Annual costs vary between EUR 17,000 and EUR 55,000.

PoA projects registered to date have yet to begin actually generating carbon credits. Therefore, the costs of verification and the potential benefits from economies of scale when verifying emission reductions from various CPAs are still unknown.

Finally, the PoA framework has been developed with the intention of making the CDM more effective in African and Least Developed Countries (LDCs) which have so far benefited little from carbon finance. Since LDCs are exempted from payment of the registration fee, many PoA projects are expected to benefit from this exception³⁵.

Table A. II.1
One-time expenses for the CDM aspects of a PoA

One-time step in project development	Minimum price in Euro	Maximum price in Euro
Drafting the PoA documents	30,000	70,000
Validation of the project	40,000	100,000
Total	70,000	170,000

Table A. II.2
Annually returning expenses for the CDM aspects of a PoA

Repetitive steps in developing emission reductions	Minimum price in Euro	Maximum price in Euro
Drafting an additional CPA-DD	2,000	10,000
Costs of inclusion, per CPA	8,000	20,000
Monitoring report of emission reductions	2,000	10,000
Verification of the emission reductions	5,000	15,000
Total	17,000	55,000

34) EB 33 Report (extract) Paragraph 60, Payment of a registration fee for a Programme of Activities (PoA).

35) See paragraph 4 of Annex 29 "Guidelines on the registration fee schedule for proposed project activities under the clean development mechanism (Version 02)". An updated list of LDCs is available at: www.unohrrls.org.



Annex III: Overview of CDM and JI PoAs

Table A.III.1
Overview of PoA projects per country

Country	PoAs	C/JPAs	Type
India	8	8	CDM
Germany	7	9	JI
China	6	6	CDM
South Africa	4	4	CDM
Vietnam	4	4	CDM
Bangladesh	3	3	CDM
Indonesia	3	3	CDM
Philippines	3	3	CDM
South Korea	2	2	CDM
Singapore	2	2	CDM
Mexico	2	2	CDM
Other	12	12	CDM
Total	56	56	CDM

Table A.III.2
Overview of PoA projects per project type

Project type	Projects CDM	Projects JI
Agriculture	2	
Biomass energy	2	2
EE households	22	3
EE industry	4	1
EE own generation	2	
EE service	6	1
Energy distribution	6	
Hydro	7	
Hydro, Wind or Biomass	1	
Landfill gas	6	
Methane avoidance	22	
Reforestation	2	
Solar	14	
Transport	2	
Total	98	7





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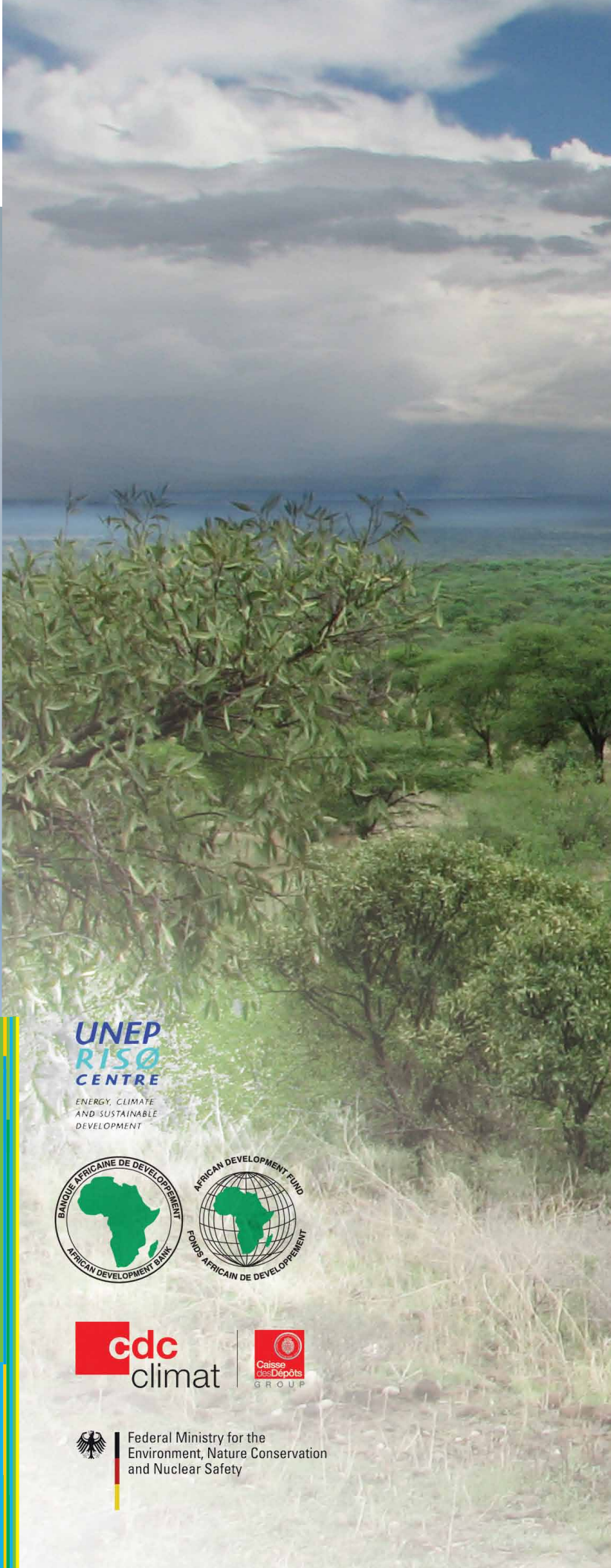
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