

**INSTITUTIONAL FRAMEWORK
FOR CDM CAPACITY
BUILDING**

**UNIDO'S CDM CAPACITY BUILDING
PROGRAMME FOR FRANCOPHONE
AFRICAN COUNTRIES**

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UNIDO's CDM Capacity building programme for Francophone African Countries

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FORWARD

This report was prepared for the United Nations Industrial Development Organisation (UNIDO) in the framework of its “Demonstration Project for 10 African Francophone Countries on the Clean Development Mechanism”. The project was kicked started with a project technical meeting at UNIDO’s Headquarters in Vienna (Austria) on 19-20 September 2005. The project will last until end December of the same year during which countries reports will be drafted encompassing *inter alia* CDM activities including capacity development and CDM Project Idea Notes (PINs) from each of the 10 countries.

The immediate objective of this project is to provide the national government counterpart to the UNFCCC (or DNA where in place) and one representative from the private sector in each of ten sub-Sahara Francophone countries with training, advice and assistance to i) upgrade their knowledge of the potential for increased flows of FDI and technology under the CDM; ii) improve their capacity to handle the processes related to the CDM project cycle; iii) enhance their ability to identify, develop & prepare industrial CDM projects to a level where they could be picked up by investors (Project Idea Note).

This report is part of the documentations prepared in the light of the 3-days training course benefiting the Francophonic participants which was held back-to-back with the aforementioned project technical meeting in Vienna. The report deals on the process of the enabling environment development. This approach was successfully applied in previous CDM capacity building activities of UNIDO in Africa and ASEAN in the period 1999-2001.

This paper is based on the document by Jan van den Akker and Pim Kieskamp which was prepared for UNIDO in October 1999².

² Capacity Mobilisation to Enable Industrial Projects Under the Clean development Mechanism in Africa. A framework for CDM-relevant capacity building and project development in Ghana, Kenya, Nigeria, Senegal, Zambia and Zimbabwe. UNIDO Workshop “Capacity Building Framework: Options for Industry in Africa under the CDM”, UNIDO, Vienna, Austria, 6-8 December 1999

1 INTRODUCTION

1.1 The Kyoto Protocol and CDM

On February 16, 2005, the Kyoto Protocol finally entered into force, nearly seven years after extensive negotiation. Agreed the Conference of Parties in Kyoto Japan (1993) the Protocol sets in place a framework for legally-binding reductions of greenhouse gases (GHGs) by 38 industrialized countries, each of which agreed to reach a specific reduction target during the period of 2008 to 2012. In the years thereafter, the details of Kyoto's implementation were elaborated through subsequent agreements, with highlights as the Bonn Declaration (CoP6) and the Marrakech Accords of 2001.

One of the most remarkable elements of the Kyoto Protocol is the establishment of three market mechanisms designed to help industrialized countries achieve their Kyoto commitments. These instruments are the two project based mechanisms, joint implementation (JI) and the clean development mechanism (CDM). The first one is aimed to implement projects between industrialised and Eastern European economies the so called Annex I countries) while the second one is mend for cooperation between Annex I countries (AI) and developing countries (the Non-Annex I countries (NAI)). The third mechanism is the (international) emission trading to allow trading of assigned amounts between Annex I counties. In more detail, the clean development mechanism (CDM) is defined and elaborated in Article 12 of the Kyoto Protocol as a mechanism between Annex I and Non-Annex I parties. With this mechanism Annex I countries are able to use emission reductions from project activities in Non-Annex I countries for their own compliance with their greenhouse gas reduction targets. On the other hand, the projects must help developing countries in achieving sustainable development, providing material, equipment and technology.

CDM projects are to be validated by both Annex I countries and the host countries. The reductions achieved must be additional to those that would have happened anyway. The obtained emission reductions will be certified and are termed certified emission reduction units (CERs). Private and public funds shall be channelled through the CDM to co-finance projects in developing countries through the sales of CERs. The emission reduction achieved from 2000 until 2008 can be banked and credited towards industrialised countries' obligations in the first budget period. Part of the proceeds from the project activities will be used to cover administrative expenses of the CDM the level was subject of discussion during the Conference of Parties/Meeting of Parties at Montreal, Canada (2005). Another share of proceeds (2%) will partially feed the adaptation fund that is established to assist developing countries in meeting the costs of adaptation to a changing climate. A brief description of the institutional set up and CDM project cycle are give hereafter.

1.2 CDM institutional set up

The CDM Executive Board (EB) has been established by the UNFCCC to manage the CDM. They are the interface between the UNFCCC and the CDM projects globally. They are mandated to make recommendations to the Convention (at the CoP/MoP) on any changes that may be required with regard to the CDM.

The CDM Executive Board is supported by the designated operational entities (DOEs) and several panels of experts. The tasks of the DOEs are to validate CDM projects in accordance with the guidelines established by EB, to verify of emissions reductions, and to certify emissions reductions, etc. Support structures have been established of which the expert panels are the most important ones. The panels assist the EB in issue as methodologies for baseline and monitoring for both source related projects as sink-related projects. A panel on accreditation provides advice on accreditation issues.

Host countries, where the projects are implemented, have an important role to play in the CDM process. Firstly, for being eligible to participate in the CDM the country government should ratify the Kyoto Protocol. Secondly, host country governments have to provide a letter of endorsement stating that the proposed CDM projects is in line with sustainable development objectives of the country. To facilitate the process, each country needs to set up a National CDM Authority called the Designated National Authority (DNA). Host country DNA can set up guidelines for project developers to ensure that the national CDM projects satisfy the twin objectives of GHG emissions reduction and contribution to the sustainable development priorities, goals and objectives of the host country.

The Clean Development Mechanism has come into effect from January 1, 2000. As such, emission reduction projects that have commenced operations on or after that date are theoretically eligible for qualification as a CDM project. In the following section the process of developing a CDM project is briefly discussed.

The Executive Board is responsible for developing guidelines for establishing baseline methodologies to aid project participants in project preparation. These guidelines:

- elaborate the CDM's rules
- promote consistency, transparency and predictability
- ensure that net reductions in emissions are real and measurable
- ensure that net reductions are an accurate reflection of reality
- ensure applicability of baselines in different geographical regions and to different eligible project categories
- address additionality requirements

The Executive Board also gives specific guidance in the following areas:

- the definition of project categories that show common methodological characteristics for baseline setting
- setting accurate baseline methodologies
- methodological tools to ensure that the most appropriate methodologies are selected

- standardization of methodologies to allow a reasonable estimation of what would have occurred in the absence of a project activity
- determination of project boundaries
- consideration of national policies circumstances
- the scope of the baseline

1.3 The CDM Project Cycle

The CDM project cycle can be divided into two phases: the first phase is aimed at designing of the CDM project, including construction activities up to (commercial) operations, while the second phase is the operation itself until the end of the crediting period (the lifetime of the CDM part of the project).

The CDM project cycle has the following key elements³:

Project Design Document (PDD) Preparation - At this stage the project is designed as a CDM project. A PDD has the following components:

- development of baseline and estimation of baseline emissions,
- estimation of project emissions,
- contribution to sustainable development (this is in accordance with host country guidelines)
- Monitoring and Verification Protocol (M&VP)
- report on EIA
- report on Stakeholders participation
- letter of endorsement from host country government

Validation - The methodologies, values and results mentioned in the PDD have to be validated by an OE before the project can be registered with the CDM Executive Board.

Registration - A project validated by OE is registered as CDM project with the CDM Executive Board

Implementation and Operation - Of the underlying project

Verification and Certification - An OE based on the M&VP undertakes verification of the claimed emission reduction by owner of the CDM project. On verifying the claims, OE issues a note to CDM EB to issue certificate for emission reductions, which are termed as CERs. The project promoter can sell the CERs to the investor as per the agreement between the two entities.

³ The elements are briefly described in this paper. More information can be found in the many manual on CDM e.g. those developed by UNEP Riso. Also during UNIDO's workshop and training (Vienna Austria 19-23 September 2005) these elements are extensively discussed.

Since 1997, considerable effort has been undertaken at the national and international level to develop and prepare for implementation of the CDM. Capacity has been built to establish Designated National Authorities (DNAs), Formats for Project Design Documents have developed and numerous PPD have been drafted, and set sustainable development criteria. Furthermore, the CDM Executive Board (EB) and Methodological Panel have been established, a range of methodologies for baselines and monitoring have been developed, and the first CDM projects have been registered. As of this writing almost 100 projects are moving through the formal process of approval. Through these efforts, the ground work has been laid for implementation of the CDM.

The success of the CDM will be a key factor in ensuring the success of the Protocol itself, enabling industrialized countries to reach their emission reduction targets, and in turn helping to achieve the objective of the UNFCCC. As the primary avenue through which developing countries participate in the Kyoto Protocol, a successful CDM could provide these nations with a means of leapfrogging to modern technology, achieving their development objectives, and preparing for the anticipated carbon constrained economy of the future. However, if the CDM does not provide developing countries with the sustainable development benefits they are expecting it will limit the success of the mechanism, and negatively affect the future development of the international climate change regime.

From the investment perspective, the CDM provides a cost-effective means for Annex B Parties and their industries to meet their GHG reduction commitments under the Kyoto Protocol. If the CDM is not able to effectively deliver such reductions in a sufficient quantity, reaching these targets may prove to be too difficult to achieve for many Annex B Parties, throwing into doubt both the effectiveness and legitimacy of the Kyoto Protocol regime.

2 THE NEED FOR NATIONAL SUPPORT SYSTEMS FOR CDM PROJECTS

2.1 Introduction

Many countries in Africa do not have the infrastructure and institutional practices needed to encourage and support foreign investment or sufficient capacity to deal with the economic, technical and environmental issues that must be addressed in order to effectively participate in CDM projects. This is reflected *inter alia* in the list of registered projects and projects presently subjected to validation. This list is composed by projects from Asia and Latin America and is lacking projects from the African continent with exception of 1 project in South Africa and 3-4 projects from Morocco that secured the interest of projects developers and CER buyers.

This indicates urgent attention needed to a range of capacity building measures that will identify and eventually remove barriers to the transfer of climate-relevant, environmentally sustainable, technologies.

The international community is already providing assistance to African countries that are signatories to the UNFCCC. Most of this assistance has been related to awareness raising (workshops), development of tools and methodologies (to determine emissions and sinks) and information provisions (preparation of the first National Communications). From the aforementioned remarks on registered projects and project subjected to validation, it is clear that these activities have not been very effective until now. With some exceptions, such preliminary assistance has been directed to the National Focal Points of the Convention and has not included support to the (industrial) companies or services enough. Clearly, industry and other stakeholders need to become involved in order to be in a position to benefit from technology transfer that will occur through CDM projects.

2.2 Capacity building activities

Already from 1997-1998 onwards several CDM capacity building activities aimed on Africa have been implemented. Some examples are given hereafter.

UNIDO started in 1999 with a CDM capacity building programme for 6 African countries. After a successful first phase a second phase was implemented and more countries joined the programme. The aim of the project was to develop a institutional framework (so called enabling environment) at one hand and to identify and develop potential CDM projects on the other. The key elements of the approach that has been used in these programmes is described in the subchapters hereafter.

SUSAC

The fundamental aim of CDM SUSAC was to kick start the CDM process in African, Caribbean and Pacific (ACP) countries by building CDM capacity (ability of institutions to make and implement decisions and to identify and solve problems in an effective and efficient way) within Senegal, Uganda and Zambia through the process of working with stakeholders to identify, develop and promote CDM projects. Capacity Building in CDM Susac was recognised as comprising of three elements that are strictly interrelated and need to be developed in co-ordination in order to assure long lasting results: skill/expertise training, institutional development, framework in which institutions and skill/expertise evolve

CDM for Sustainable Africa

The proposed action under this EU funded project (2003-2004) intended to contribute to create the most appropriate framework enabling to implement CDM activities in five Sub-Saharan African countries, mainly from the SAHEL (meaning the Sahara desert boundary) and the SADC (Southern Africa)

regions, presenting the greatest diversity of resources and facing crucial development problems at all levels.

The action was designed to contribute to the assessment of barriers for CDM investments, creating endogenous capacity for the removal of these barriers, and to avoid or minimise future emissions on development scenarios by promoting environment-friendly technology transfer. These elements should have built an appropriate framework for CDM project implementation and facilitate CDM related investment.

CD4CDM

Reflecting the needs of developing countries, UNEP is implementing a 4-year project on Capacity Development for the CDM with funding from the government of the Netherlands. The main objectives of the project are i) to generate in participating developing countries a broad understanding of the opportunities offered by the CDM, ii) to develop the necessary institutional and human capabilities to formulate and implement projects under the CDM, iii) to help ensure the early success and efficacy of the CDM through creating national capacity to implement the CDM in 12 developing countries among which are five countries in Africa.

CF-SEA

In 2005, UNEP/URC started the project Using Carbon Finance to Promote Sustainable Energy Services in Africa (CF-SEA) in a joint effort with the World bank to assist selected sub Saharan African countries to fully engage in the global carbon market through providing institutional and project development support.

In order to benefit from the CDM African countries need national support systems that will encourage the inflow of (industrial) CDM projects. This will require the creation of an 'enabling environment', i.e., a system of national support of capacity building activities and policy measures, aimed at the removal of barriers to technology transfer and the enhancement of capacity to manage a range of methodological, technical, economic, financial and legal processes that will surround these projects.

3 A FRAMEWORK FOR CAPACITY BUILDING AND TECHNOLOGY TRANSFER

3.1 Introduction

Climate-relevant technologies are a specific category of 'environmentally sound technologies'. 'Technology transfer' is a process results in the acquisition, introduction and operation of such technologies, available in a country, to other countries and to facilitates. Transfer of technology involves various steps:

- Awareness creation, i.e., to inform stakeholders on the need for climate relevant technologies;
- Obtaining information and assessment of options, i.e., obtaining information on the cost and performance of technologies and to assess their technological, environmental, economic, financial and social impacts;
- Development of the capacity for effective transfer, implementation and dissemination of the technology; and
- Optimising the structures and processes which are related to the implementation and operation of the technology.

An attempt to group the various actors involved in technology transfer through CDM projects is presented in Figure 1. Implementation of CDM projects by industry results in the acquisition, introduction and operation of 'hard' and 'soft' technologies conducive to the mitigation of industrial emissions of gases. Here the creation of an 'enabling environment' is paramount to the successful transfer of climate-relevant technologies, i.e., a system of national support of capacity building activities and policy measures:

- Capacity building activities, undertaken to create the technological, institutional and managerial capacities in industry, industrial support services and the government to create an 'enabling environment' for CDM projects;
- Policy measures, taken by the national or local government and governmental agencies to prepare, implement and enforce regulations (e.g., product standards, environmental legislation or financial incentives) conducive to dissemination of climate-relevant technologies and behavioural change.

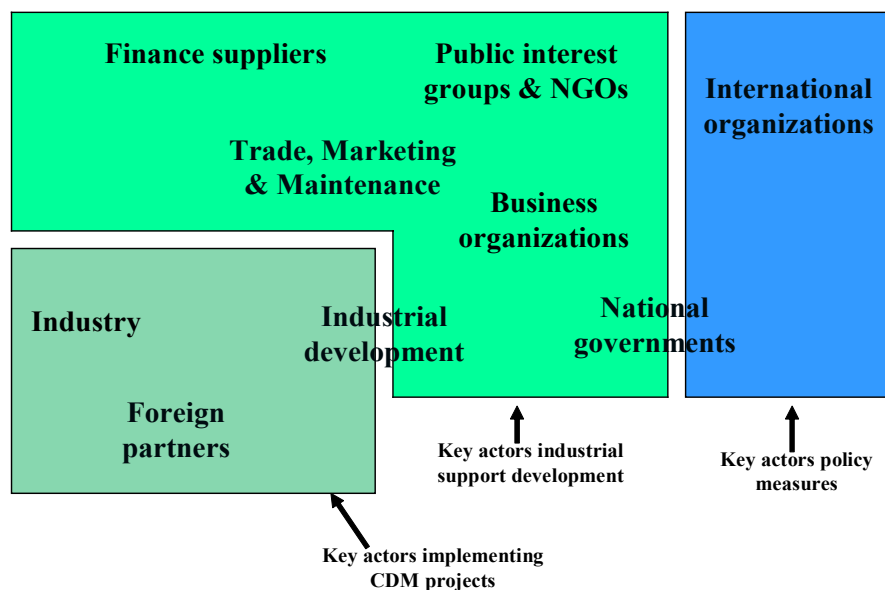


Figure 1. Schematic representation of potential actors in a CDM project

The boundaries between groups of actors are not sharp; actors may take various actions at various levels. The government, for example, takes policy measures (e.g., tax

incentives) but can also implement a CDM project (e.g., a pilot project on cleaner fuels in public transportation) or provide extension services to small industries (e.g., industrial estates).

Capacity building and technology transfer projects (such as CDM) are most likely to be successful if these are based on a solid assessment of the needs of the host country and if this needs assessment is endorsed by the most important actors (stakeholders). Several of such 'national needs assessments' have been carried out in various sectors. The evaluation of such studies has been used by IVAM Environmental Research, based in Amsterdam, The Netherlands to develop a framework for the application of needs assessment for the preparation of climate-relevant capacity building actions and technology transfer projects. This methodology has been modified and adapted to technology transfer through CDM projects with industries (in Africa and Asia).

For most developing countries, climate change is not a priority, so the effective transfer of climate-relevant technologies may require the implementation of measures that are primarily designed to achieve other development goals. This involves a series of relevant ministries, agencies, local government, non-governmental organisations, the private sector and the public (as presented in figure 1) in the planning process. Their active involvement will be necessary to secure the support and resources needed for CDM projects. The various stakeholders have to be engaged into a participatory capacity building process for CDM technology transfer.

The planning and implementation of CDM initiatives is a continuous, iterative process, based on five components (see Figure.2) :

1. **Mobilisation of stakeholder's participation.** Gathering information on the basis of initial surveys of the present situation (sources of emissions, carbon sinks), projections of trends and developments and the perception of main actors (stakeholders) regarding climate change issues, and on the basis of identification of the stakeholders and creating favourable conditions amongst those through communications and awareness creation;
2. **Identifying and prioritising CDM mitigation options.** Carrying out a needs and opportunities assessment through data analysis and consultation with the stakeholders, resulting in a portfolio of prioritised mitigation options, including CDM technologies and project opportunities, capacity building activities and policy measures;
3. **Identifying and prioritising CDM capacity building needs.** Carrying out a needs and opportunities assessment through analysis and consultation with the stakeholders, resulting in a list of prioritised capacity building activities and policy measures;
4. **Creation of a national support system.** This consists of the prioritised CDM capacity building activities and prioritised policy measures, organised in 'programmes';

5. **Implementation of CDM projects.** Starting with the implementation of CDM projects. Review and evaluation of the results of the projects and the support programme and dissemination thereof in a national dialogue with the stakeholders in order to sustain the continuous process of assessing needs and implementing o

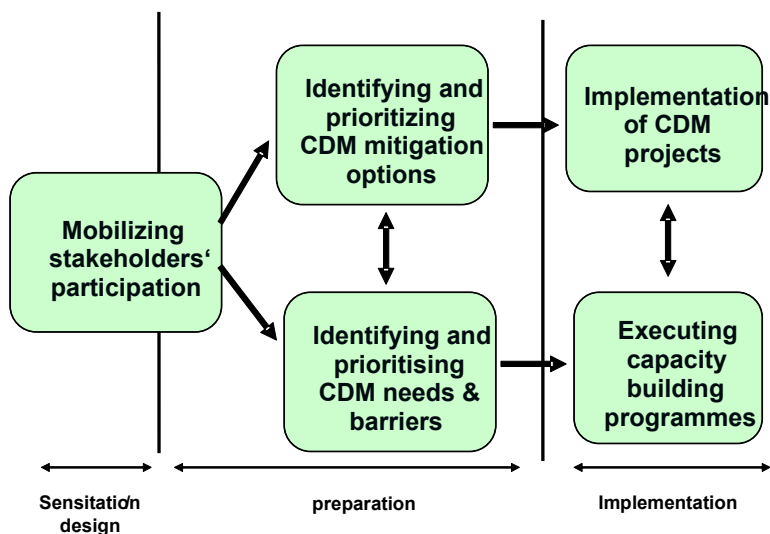


Figure 2. The planning and implementation of CDM initiatives

Figure 2 also shows the inter-relatedness between the four components in the above-sketched participatory approach to technology transfer through CDM projects. The desired outcome of the whole process is the improved utilisation of climate-relevant technologies and the creation and strengthening of climate-change-related capacities and policies.

The Framework Convention calls on Parties to prepare a National Communication on the Parties' national policy regarding climate change. Such Communications contain typically:

- a national inventory of anthropogenic emissions by sources and removals by sinks;
- a description of steps taken to implement the Convention;
- a detailed description of the policies and measures taken for mitigation of greenhouse gases and adaptation to climate change;
- a specific estimate of the effects of these policies and measures on emissions.

Annex-I Parties are obliged to draft such National Communications to prove that their policies adopted are sufficient to meet the emission reduction targets set in the Convention. Non-Annex-1 Parties are not obliged, but encouraged to draft National Communications. To meet the information requirements under the Convention, various 'enabling studies' may be undertaken:

- emission inventory, an estimate of the anthropogenic emissions by sources and removals by sinks of all greenhouse gases, using a comparable methodology as agreed upon by the Conference of Parties (CoP);
- mitigation assessment, an inventory of available strategies and measures to reduce emissions by sources and increase removal by sinks of all greenhouse gases and a quantification of the effects of these measures;
- vulnerability and adaptation assessment, an estimate of the physical and economic impacts of predicted changes in the climate system and an inventory and socio-economic evaluation of the available measures and strategies to adapt to these impacts (not shown in figure 2.2, as this paper only deals with mitigation options).

These studies can be integrated into a 'national action plan', a portfolio of mitigation and adaptation measures accepted for implementation under the Convention. The preparation and implementation of CDM initiatives coincides with the development of policies and strategies as laid down in the 'enabling studies' in an interactive way. CDM initiatives should be included in the assessment studies and the action plan, while these studies will support the planning of CDM projects.

3.2 Mobilising the stakeholders' participation

The key tasks in creating an enabling for the active participation of the actors (stakeholders) involved are:

- selection of priority areas within industry for climate relevant technology transfer through CDM projects, by means of assessment of the present and future levels of greenhouse gas emissions, of the energy use and supply and of the status of technology use in the industrial sub sectors.
- identification and obtaining the involvement of the stakeholders in industry, industrial support services and the government.

The outputs of these two tasks are:

- improved insight in the priority of sub sectors for mitigation options and potential benefits and in the capacity network for implementing such options;
- enhanced dialogue with the main actors in an operational structure on the need for mitigation options.

Most often, the energy, transportation and industry sectors are recognised as the most important sectors for technology transfer. However, in African countries, with a comparatively low level of industrialisation, the contribution of 'land-use' related emissions, involving agriculture, forestry and fuel wood collecting will be relatively important. In this context, implementing measures such as dissemination of efficient wood and charcoal stoves can be regarded as an effective mitigation option, in which 'industry' is involved as the producer of such stoves. Such analysis has the emphasis in the first task, starting with a review of climate change country studies, national economic and fiscal policies, infrastructure plans, demographic surveys, forestry programmes, industrial (subsectoral) development plans, waste management strategies and agricultural plans.

This goes alongside the next task, the identification of stakeholders in the prioritised sub sectors, creating awareness and building alliances with these stakeholders. Actors are not necessarily formal institutions, but can be found in the 'informal' sector as well. An overview of possible stakeholders in industry and the industrial support system is given in Figure 2. Apart from just knowing 'who is who', it is important to get an overview of:

- the perception of each organisation regarding climate change issues, its involvement in capacity building actions and past experiences with technology transfer projects.
- the structure and functioning of the whole network of stakeholders, i.e., an analysis of the relationships amongst these groups, an indication of their comparative importance, the regulatory and legislative framework, a quick analysis of natural, human and financial resources available in a sub sector, a sense of how strategic functions are carried out (decision making, co-ordination, networking), and a sense of the organisational structure within sub sectors.
- realistic funding possibilities for CDM initiatives available in national and international, public and private sectors.

A certain degree of general awareness regarding climate change is conditional for CDM projects to take place. In Africa, knowledge on the need for greenhouse gas mitigation is probably limited to a small group of individuals in the national government (e.g., the UNFCCC Focal Point), in research institutes and in environmental NGOs. It will be necessary for these organisations to create general awareness amongst the general public, industrial entrepreneurs, agencies, industrial support services, local communities, etc. Although tailor-made to the interests and knowledge of each interest group the following general sequence could be adopted:

- attract attention by explaining the threat posed by climate change impacts (e.g., droughts);
- suggest solutions by explaining how mitigation options have other benefits, such as cost reduction, increased fuel independence, reduced contamination, job creation and improved trade balance;
- provide a framework for continuing dialogue with the main sub sectors and their stakeholders, e.g., by means of workshops, seminars, steering committees, roundtables or taskforces.

3.3 Identifying and prioritising CDM mitigation actions

Key tasks for assessing the needs and opportunities for CDM projects are:

- identifying needs and selecting opportunities for technologies in prioritised industrial sub sectors, i.e. an inventory of technological needs and a comparative evaluation of those options on economic, financial, technological, social and environmental impacts;
- setting priorities for options, a comparative evaluation of appropriate climate relevant technologies and short-list of mitigation options, regarding potential CDM technology transfer projects and opportunities regarding capacity building and policy measures.

3.4 Identifying and prioritising CDM capacity building needs

The main tasks for assessing the needs for CDM capacity building activities are:

- assessing the capacities and policy framework for the implementation of such technologies, i.e., an assessment of the barriers and incentives regarding the implementation of climate-relevant technologies and the formulation of opportunities for capacity building and policy formulation to overcome these barriers;
- setting priorities for options, a comparative evaluation of appropriate climate relevant technologies and short-list of mitigation options, regarding potential CDM technology transfer projects and opportunities regarding capacity building and policy measures

Three inter-related tasks listed hereafter are in principle the consecutive stages of a traditional project or programme planning cycle. The output of the tasks is consolidated portfolio of prioritised mitigation actions, including CDM project opportunities, capacity-building opportunities and policy measures.

The *first* task merges the analysis of mitigation needs in the prioritised sectors with the selection of those technologies most relevant and consists of the following steps:

- mitigation needs assessment, an analysis of mitigation needs in terms of CO₂ reduction and cost-effectiveness, but also regarding their contribution to technological and socio-economic development objectives;
- inventory of mitigation technologies, an identification of climate-relevant technological options to address the identified needs in the prioritised sectors (see Annex 1 for an overview);
- feasibility analysis of mitigation technologies, preliminary evaluation of the available options on technological relevance, economic feasibility, environmental impacts and socio-economic consequences.

In order to facilitate the effective transfer of the prioritised mitigation technologies, it is necessary to assess the national capacities for the uptake of new technologies on the basis of which capacity building activities and policy measures can be developed. This *second* task consists of the following steps:

- Assessment of barriers and incentives, for implementation of climate-relevant technologies, from the point-of-view of technology users (and suppliers);
- Assessment of capacities, i.e., an evaluation of the current functioning of the capacities needed for the acquisition, adaptation and implementation of new technologies;
- Inventory of opportunities for capacity building and policy measures, resulting in a priority list of opportunities for capacity building and policy options.

Barriers to implementation and transfer of energy-efficient practices and clean technologies can be found in the literature. An overview of barriers regarding the implementation of these technologies in industry is given in the Annexes 2 and 3. It depends on the type of technology and end user, which barriers are of importance.

Many technology transfer projects have failed, because the capacity for implementing the technology was lacking. The *third* task, a capacity assessment, with the participation or active consultation of the stakeholders, is important therefore and should concentrate on:

- The technology capacity of the industries, i.e., their ability to adapt, test, manufacture, implement, operate and/or evaluate new technologies;
- The capacity of the industry support services, to provide consultancy, financial and training services to relevant target groups and the ability to network and co-operate among different stakeholders;
- The capacity of the government and dependent bodies to prepare and implement policies and to enforce those.

Combining the results of the barriers analysis and the capacities assessment allows the formulation of opportunities for capacity building and policy measures. Formulating those should actively involve the stakeholders. While doing so, the possible partner organisations for capacity building should be indicated.

The task aims to prioritise mitigation 'options' that can be CDM technology transfer opportunities, capacity building activities and policy measures. A practical solution would be to invite stakeholders to submit specific project outlines both for technology transfer and capacity building. This has the advantage that it raises the stakeholders' interest and commitment. Once such a list of project concepts has been compiled, a comparative evaluation will result in a portfolio of prioritised CDM mitigation options. Criteria for such an evaluation are:

- Mitigation potential, the contribution to greenhouse gas emission reduction, in terms of the amount of carbon reduced and cost per tonne of CO₂ saved;
- Sustainable development potential, i.e., to what extent does the project contribute to socio-economic and environmental development objectives;
- Commitment of the actors involved, to what extent are parties' that benefit from implementing the project willing to co-finance projects and what will they earn from the project.

3.5 Creation of a national support system for CDM

CDM projects may only take off in the right 'enabling environment', provided by a 'national support system. This starts with organising capacity building activities and policy measures in technology or subsectoral programmes that support and promote the successful implementation of individual projects. Such programmes are to be designed to address the major barrier groups (information, financial, regulatory, institutional and technological) in an integrated way. Examples of elements of such programmes are given in table 2.1. Here the sense of 'ownership' is important for the programme's success, so from the onset the most important stakeholders should be involved, such as the industrial partners (foreign technology vendor or investor and the national technology user), the industrial support services (retailers and wholesalers, banks and non-governmental organisations) and government.

Obtaining finance is often the stumbling block. Unfortunately, especially Africa counts with a high number of indebted countries that cannot easily access private and multilateral foreign loans. The matter of finance is an important issue quite often underestimated in capacity building/development activities, and therefore more attention should be paid to this issue.

3.6 Implementation of CDM projects

3.6.1 Implementation and operation of CDM projects

The next step is to really implement the portfolio of CDM project concepts. At this stage, the project concept is further developed into a detailed project set-up with regard to:

- Target groups (a market survey may need to be undertaken);
- Objectives
- Organisation
- Sales objective; market potential; definition of outputs
- Technology choice (a more detailed technology assessment may be required)
- Estimation of baseline greenhouse gas emissions and emission reduction (by desk study or real emission measurements)
- Work plan of activities
- Budgets and finance
- Technical and economic feasibility
- Environmental benefits and other impacts.

These elements are laid down in the Project Design Document (PDD) which then enters into the CDM project cycle as briefly described in paragraph 1.3

3.7 Evaluation and national dissemination

The review of the implementation of prioritised mitigation actions is essential to evaluate their success. At the project level, monitoring and evaluation of the project by a recognised 'CDM verification agency' is necessary to get UNFCCC certification for the emission reduction units of the project. This implies that the role of national institutions or agencies, acting as CDM validation and verification agencies is clearly defines, and that their methodology is well-developed. Also, at the programme level, a mechanism should be established for the periodic review of the implementation status, results and experiences of capacity building and policy measures. Such reviews provide the inputs for the country's National Communications to UNFCCC and National Action Plans. Apart from emission reduction and cost-effectiveness criteria (price of emission reduction units), other criteria include environmental (e.g., local pollution, deforestation), macro-economic (international trade balance, job creation, foreign exchange reserves), micro-economic (return on investment, net present value) and social (wealth distribution, gender).

It is likely that those stakeholders, involved in the definition, selection and implementation of mitigation actions will remain interested in the actual achievements.

However, stakeholder may 'drop out' if project ideas were not selected as priorities, project fail to get implemented due to the barriers mentioned earlier, etc. This asks for a sustained dissemination of information between the key actors and a concerted action amongst them to start a national dialogue, by means of information clearinghouses, websites, workshops, conferences or Roundtables. After all, it has to be stressed that the phases mentioned in figure 2.1 form an iterative process of assessing needs and options and actually carrying the options out.

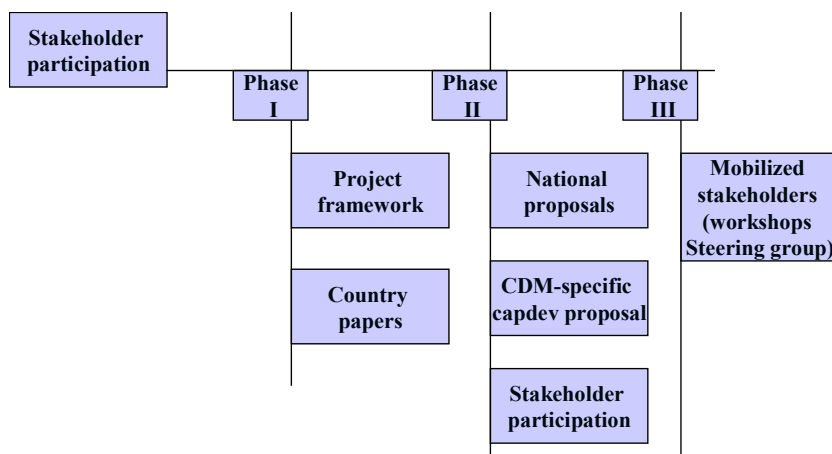
3.8 Phasing of activities

The main part of the capacity building programme activities as outlined above can be implemented in three phases. The actual implementation of CDM projects is not included in these phases and can be considered as a fourth phase. This phasing of the programme is already schematically sketched in figure 2, but in the following sub chapters and accompanying figures this is more elaborated for the following main elements, to know

- stakeholder participation;
- Identifying and prioritization mitigation option;
- Identifying and prioritization capacity building activities and policy measures;
- Implementation of CDM industrial projects and national support programmes.

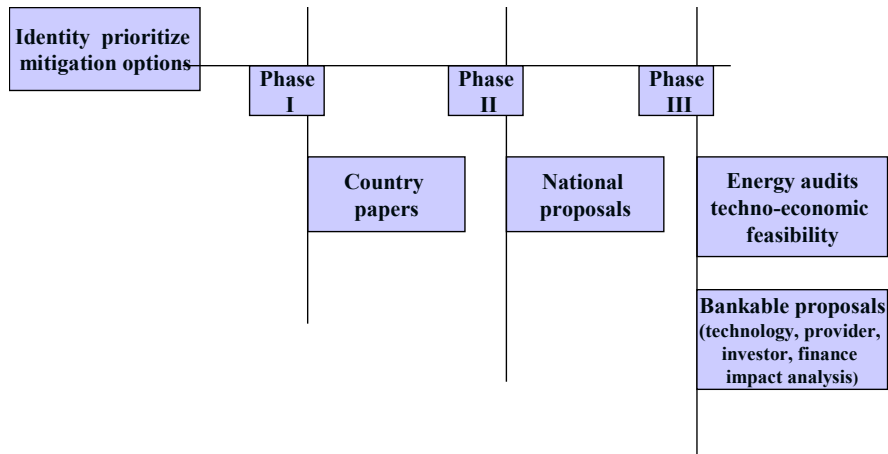
3.8.1 Stakeholder participation

The stakeholder's participation is on of the key elements of the framework. During the first phase of the programme the concept of the frame work is elaborated in detail by the participating stakeholders taking national circumstances including progress in Climate change activities into account. These elements will be laid down amongst others in the country paper. In the second phase the stakeholders are involved in national proposals especially on CDM capacity building activities, While in the third phase the stakeholders are involved in the projects through workshops and e.g. though participation in steering groups.



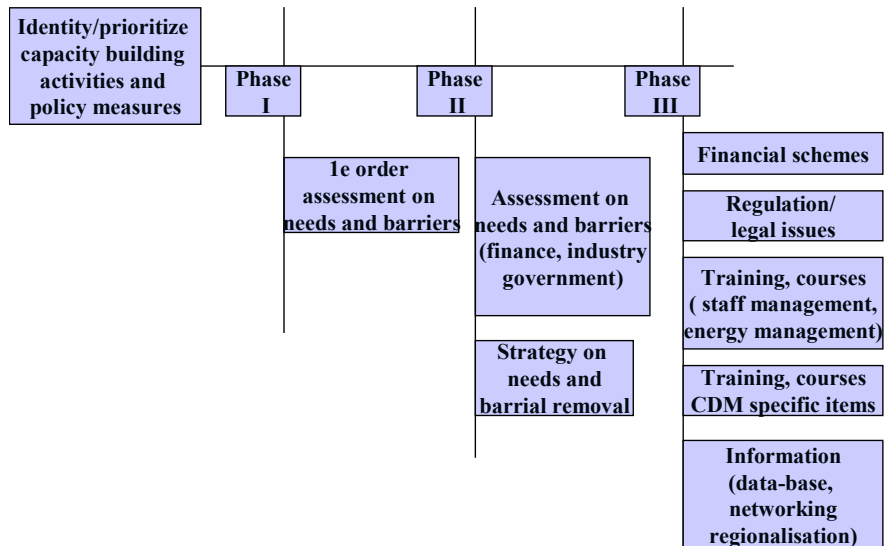
3.8.2 Identification of mitigation options.

In the first pasha of the programme tentative sectors and in some case projects are identified as been potential CDM options/projects. In the second phase these ideas are elaborated further (PIN or early PPD stage) in the national proposals. In the following stage bankable project proposals (including the PDD) need to be addressed. In order to assess the project the CDM feasibility energy audits, baseline calculation, assessments of emission reductions, and financial-economic analyses should be carried out, including the development of an investment /financing scheme.



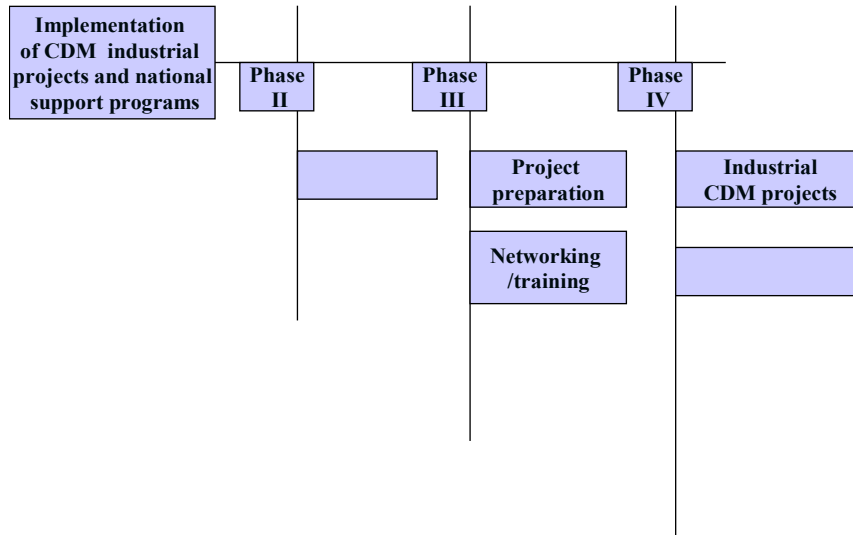
3.8.3 Identification and prioritization of capacity building activities and policy measures

During the first phase a first order assessment of needs and barriers for both capacity building activities as policy measure development is carried out. These assessments are further elaborated in the second phase, while detailed strategies to tackles these issues will be developed subsequently. This must result during phase three in an "enabling environment" encompassing suitable financing schemes, regulatory measures, information desks specific CDM issues related training and courses etc.



3.8.4 The implementation of CDM industrial projects

The preparation of implementing CDM projects already starts in the third phase. The actual implementation takes place in the fourth phase.



4 ISSUES IN CDM CAPACITY DEVELOPMENT PROGRAMMES

As stated already in chapter 2.2, many CDM capacity building programmes and projects have been implemented, mainly aiming on the specific CDM-PDD elements of these type of projects. It is observed that financing including the development of Emission Reduction Purchase Agreements (ERPAs) and the negotiation of such agreements have hardly been tackled while being important elements of the projects and the “enabling” system. The workshop and training held in the framework of the UNIDO project “*Demonstration Project for 10 African Francophone Countries on the Clean Development Mechanism (CDM)*” held in UNIDO’s headquarters Vienna Austria from 21-23 September 2005) provided several presentations on the issue of financing and ERPA’s. More information can also be found in e.g .the report of D. Cornland *CDM Business Issues: Describing a Project for Buyers* which can be downloaded from documentation page of UNIDO’s project website (<http://www.unido.org/doc/45989>) as well as in the reports of the other experts F. Dayo and C.N. Sylla which can also be found on the same page.