REPUBLIC OF MAURITIUS

Ministry of Environment & National Development Unit
(Environment Division)

Capacity Development for the Clean Development Mechanism (CD4CDM)

Second National Workshop

26-27 March 2008

&

Sectoral Workshop on Energy Efficiency

28th March 2008

WORKSHOP PROCEEDINGS

Swami Vivekananda International Convention Centre, Pailles, Mauritius

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1.0 INTRODUCTION

The Second National Workshop of the Capacity Development for the Clean Development Mechanism (CD4CDM) project in Mauritius was held from 26-27 March 2008 at the Swami Vivekananda International Centre, Pailles, Mauritius. The workshop was the second out of a series of three National workshops and was organized by the Ministry of Environment & National Development Unit (MoE), the implementing agency for the CD4CDM project in Mauritius. The project is funded by the Netherlands Government and implemented by UNEP's UNEP RISOE Centre (URC) in Denmark along with further technical support from the Regional Team.

Fifty-eight participants attended the workshop. (The list of participants along with contact details is at ***Appendix I***).

2.0 WORKSHOP OBJECTIVES

The objectives of the second national workshop were to provide local participants with better understanding on –

(i) Project Idea Note (PIN) and Project Design Document (PDD) preparation: common pitfalls in PDD making,
(ii) Baseline methodologies, with examples of baseline method relevant to
national circumstances,
(iii) Validation Process, with details on how the auditors work together with project developers to establish the eligibility of CDM projects,
(iv) CDM project financing, along with the approaches to investment analysis,
benchmarks, sensitivity analysis for CER price and the impacts on project economics,
(v) Financial aspects of CDM and Carbon Finance, and
(vi) Status of global carbon market, with the types of emission reduction purchase programs and a presentation of UNEP RISOE's CDM Project Financing Guidebook.

Presentation materials and handouts were circulated to participants during the workshop. A technical note on the workshop, along with a brief on the resource persons is at ***Appendix II***.

3.0 OPENING SESSION

Mr S. Seebaluck, Permanent Secretary of the Ministry of Environment & NDU, welcomed distinguished guests and participants and extended special thanks to all the resource persons for the running of the present national workshop. He hoped that the series of CD4CDM workshops would enable Mauritius to explore the full opportunities for CDM Projects and underlined the country's continued efforts in transforming Mauritius as a key CDM investment destination. He recalled the outcomes of the first National workshop which

was organized in January 2008 and briefly explained the aims of the second workshop.

He also announced that a mini workshop focused on energy efficiency and targeting the relevant national stakeholders had been scheduled on 28th March 2008 at the same venue with the following objectives:-

1. to create awareness of top management on the CDM process and the associated benefits of CDM;
2. to provide examples to participants on the type of CDM Energy Efficiency projects that are presently in the pipeline; and
3. to provide baseline methodologies and monitoring methodologies for Energy Efficiency projects.

He expressed his wish that, at the end of the CD4CDM project, Mauritius would be able to identify, design, approve, finance, implement and monitor CDM projects that both address the country's sustainable development priorities and offer a cost-effective option for carbon credit buyers to comply with the Kyoto Protocol.

A copy of **Mr Seebaluck's** Address is at ***Appendix III***.

4.0 WORKSHOP DAY 1

The Workshop agenda can be found at ***Appendix IV***.

4.1 PRESENTATION 1 – Outcome of First National Workshop and Second National Workshop Objectives and Expectations - Mrs D. Lan-NG, Director, Department of Environment

Mrs D. Lan-NG, Director, Department of Environment, recalled the major causes of global warming along with the guiding principles of the UNFCCC and the Kyoto Protocol. She explained the objectives of the CDM and elaborated on the constraints faced by developing countries in implementation of the mechanism.

She recalled the outcomes of the First National Workshop, whereby participants:

1. were introduced to the concepts and given a general understanding of the CDM.
2. identified a list of potential avenues for CDM in Mauritius, such as Renewable energy
   (PV panels, Wind energy, Solar Water Heaters), Energy Efficiency (Power bosses, Compact Fluorescent Lamps, Energy efficiency in hotels, Mass Transit system), Bio-fuel (National blending of bio-ethanol with petrol, Biogas from cattle), and Carbon Sequestration (Afforestation/Reforestation of marginal sugarcane plantations), and
3. thereafter submitted PINs and Concept Notes on potential CDM projects (PIN on Landfill Gas to Energy and on Micro Hydro Power

Station and Wind Farm along with Concept Notes on Energy Efficiency and Fuel Switch and on Solar Water Heaters and CFLs).

She also gave an overview of the scheduled activities within the CD4CDM project as being:

1. the organization of a series of 3 National workshop
    a. the first one, held in January 2008, was focused on general sensitization on CDM and its benefits, CDM modalities, procedures, institutions and regulatory bodies
    b. the present one would focus, amongst others, on PIN and PDD preparation, baseline & monitoring methodologies, and CDM project financing
    c. the third National Workshop, which is tentatively scheduled to be held in July 2008, would focus on validation and verification procedures, along with contract negotiation and legal issues
2. the holding of two sectoral workshops
    a. one focusing on energy efficiency, scheduled on 28th March 2008, and
    b. another focusing on in-depth training on CDM Project Development for the financial sector, which would be held back-to-back to the third national workshop.
3. the operationalisation of the Designated National Authority (Design of project review/approval procedure),
4. the development of Sustainable Development Criteria for the Assessment of CDM Projects
5. the design of a National CDM Website, and
6. Formulation of a National Portfolio of CDM Projects

She then explained the objectives and expectations of the Second National Workshop.

She informed participants that a regional CDM Capacity Building Project for Sub-Saharan Africa was also being undertaken jointly with UNDP and UNEP with the following objectives:

1. to enhance public and private sector capacity to develop, implement and approve CDM projects,
2. to build linkages with external investors and carbon credit purchasers,
3. to identify investment opportunities for carbon finance projects,
4. to provide technical assistance to identify and develop appropriate methodologies in relevant sectors (e.g. afforestation / reforestation), and
5. to support the development of projects in nationally-strategic sectors through UNDP's Millennium Development Goal (MDG) Carbon Facility

4.2 PRESENTATION 2 – Recap: How the CDM works and the CDM project cycle – Mr Randall Spalding-Fecher

Mr Randall Spalding-Fecher, Energy and Climate Analysis Expert, South Africa, recapped on the rationale and modalities of the CDM and covered the following topics:

1. the rationale behind investing in carbon trading,

2. the CDM process,
3. the difference between normal and CDM investment,
4. investment project assessment,
5. eligibility of project types and financial implications,
6. the steps in developing a CDM project,
7. the CDM project cycle and responsibilities,
8. project documentation requirements,
9. implementation schedule at the different steps,
10. host country approval,
11. Designated Operational Entities checklist at validation stage,
12. Monitoring, Verification and Certification stages.

4.3 PRESENTATION 3 – Overview of CDM Website – Mr L. Bullywon, MoE and Mrs N. Callychurn, Central Information Systems Division(CISD)

Mr L. Bullywon, Assistant Secretary, MoE and Mrs N. Callychurn, Assistant Systems Analyst, CISD, presented the features of the proposed Mauritius CDM website, which was under construction and was put on test at the following URL: http://www.gov.mu/portal/sites/cdmmauritius/index.htm. They requested participants to forward any comments, inputs and remarks on the website format and contents to the Ministry of Environment & NDU for consideration.

4.4 PRESENTATION 4 – The Global Carbon Market: Status & UNDP's Strategy – Mr Robert Kelly, UNDP

Mr Robert Kelly, Regional Coordinator, Regional CDM Capacity Development Project, Southern & Eastern Africa, UNDP, briefed participants on the carbon markets existing worldwide, the common misconceptions about CDM, and UNDP's carbon strategy which includes capacity development, along with the features of the MDG Carbon Facility.

4.5 PRESENTATION 5 – PDD Development Process: Overview & Key Elements – Mr Randall Spalding-Fecher

Mr Randall Spalding-Fecher, explained on the key elements comprising a Project Design Document (PDD) as well as its purpose, contents and the forms to be filled. He also guided participants through the most useful websites for project developers.

4.6 PRESENTATION 6 – Lessons Learned in PDD Development: Good Practice and Mistakes to Avoid – Mr Robert Kelly, UNDP

Mr Robert Kelly, UNDP, went through a presentation prepared by **Mr Glenn S. Hodes from the UNEP RISOE Centre** on a guidebook published by UNEP RISOE regarding the pitfalls in drafting and processing PDDs. He highlighted the following common mistakes observed in PDDs, including:-

1. Unnecessary delays,
2. Non-utilization of pre-approved methodologies, where applicable,
3. Inappropriate baselines (over conservative in some PDDs),
4. Not explicit and systematic enough information,
5. Irrelevant and overly detailed PDDs,
6. Incomplete responses,
7. Mistakes in investment analysis (additionality),

8. Missing documentation, and
9. Inconsistency.

Lunch Break

4.7 PRESENTATIONS 7 & 8 – CDM Validation Procedures & Project Baselines and Additionality – Mr Randall Spalding-Fecher

Mr Randall Spalding-Fecher, enlightened participants on the validation procedures, its objectives, criteria for assessment, means and results of verification, clarification and corrective actions, validation protocols and opinions as well as the final validation report.

He gave a detailed description of the components within baseline setting, the sectoral scopes and applicability of methodologies (including new methodologies) as well as the justifications for satisfying additionality criteria.

End of Workshop Day 1

5.0 WORKSHOP DAY 2

5.1 PRESENTATIONS 9 & 10 – Baseline and Monitoring Case Studies: Small Scale Energy Efficiency (solar water heating, lighting, appliances)

Mr Randall Spalding-Fecher presented specific case studies:

1. Bagasse Cogeneration including key elements of approved methodologies, applicability conditions, identification and indicative applicability of different baseline scenarios (power generation, heat generation, and biomass use), project boundary, emission reduction calculations (from displaced electricity, leakages from transport of biomass, etc)
2. Solar Water Heating including additionality concept for small scale CDM projects, barriers (investment, technological, prevailing practice and other barriers), renewable electricity generation from the grid, monitoring requirements as well as the major provision within Approved consolidated baseline and monitoring methodology ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" and ACM0006: "Consolidated methodology electricity generation from biomass residues"

3. Steps in Combined Margin Calculations including identification of the relevant electric power systems, selection of an Operating Margin (OM) method, calculating the OM emission factor, identification of the cohort of power units to be included within the Build Margin (BM), calculating the BM emission factor and calculating the Combined Emission Factor. Corresponding values applicable to Mauritius were exemplified using values contained within the PDD from the Central Thermique de Savannah project.

4. Documents needed within Small Scale CDM projects: Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories (AMS I C (Thermal energy for the

user with or without electricity), AMS I D (Grid connected renewable electricity generation), AMS II C (Demand-side energy efficiency activities for specific technologies) and AMS II E (Energy efficiency and fuel switching measures for buildings)

5. The "Visakhapatnam (India) OSRAM" Compact Fluorescent Lamp (CFL) distribution CDM Project, the "Kuyasa Low-Cost Urban Housing Energy Service Upgrade" project in South Africa, and the "Demand side energy efficiency program by COELBA" for low-income residential customers in Salvador.

5.2 PRESENTATION 11 – Programmatic CDM – Dr Todd NGARA, UNEP RISOE

Dr Todd NGARA, CDM Expert, briefed participants on the specifics of programmatic CDM (pCDM) and covered the following aspects: definition, potential and pitfalls of pCDM, advantages, basics and core characteristics of pCDM, niche sectors, generic barriers to and examples of Energy Efficiency (EE) projects, and bundled CDM

Lunch Break

5.3 PRESENTATION 12 – CDM Projects: Financial Perspective – Mr Robert Kelly, UNDP

Mr Robert Kelly presented to the participants on the financial implications within CDM projects and underlined the following aspects:

1. the range of potential CDM projects,
2. variations on a project-by-project basis,
3. combinations of revenue streams,
4. undertaking a financial analysis with focus on profitability, demonstrating additionality, and project structuring,
5. techniques of investment appraisal (payback period, net present value, internal rate of return and benefit-cost ratio), and
6. a practical example on animal waste management (flaring methane from a pig farm in Brazil).

5.4 PRESENTATION 13 – Perspective of a Carbon Purchaser – Mr Hans-Jurgen Mielisch, EnBW

Mr Hans-Jurgen Mielisch gave the perspective of EnBW, a carbon purchaser. He focused his intervention on the role and participation of EnBW within CDM projects and highlighted EnBW's interests, strengths as a buyer and expectations from a seller of Certified Emission Rights (CERs).

5.5 PRESENTATION 14 – CDM project financing and carbon funds – Dr Todd NGARA, UNEP RISOE

Dr Todd NGARA portrayed the different financial tools in CDM. He focused his presentation on the following:

1. the components of cash flow in CDM projects,
2. sources of financing,
3. marketing to investors,
4. financial models,

5. CDM project risk profile and its impacts on CER pricing,
6. types of risks in CDM projects (counterparty risks, baseline risks, generic risks, construction phase risks, etc), and
7. risk matrix.

6.0 CD4CDM Energy-Efficiency Sectoral Workshop

6.1 INTRODUCTION

A sectoral workshop, with particular focus on CDM opportunities in Energy Efficiency, was held on 28th March 2008 at the Swami Vivekananda International Centre, Pailles, Mauritius.

The forty participants who attended the workshop were sourced from varied professional fields, which included representatives from stakeholder Ministries (Ministry of Environment & NDU and Ministry of Public Utilities), parastatal bodies (Board of Investment and Central Water Authority), academia / research Institutes (University of Mauritius and Mauritius Research Council), Power Producers (CEB and Independent Power Producers), and representatives from the private sector (top management and technical managers from industries in the textile, sugar, hotel and sea-food hub sectors), as well as local experts and consultants. (The list of participants along with contact details is at ***Appendix V***).

6.2 WORKSHOP OBJECTIVES

The objectives of the sectoral workshop were to –

(i) create awareness and sensitize top management of major energy consuming industries/sectors on the CDM process, along with its associated benefits,
(ii) provide participants with concrete examples of CDM Energy Efficiency projects presently in the pipeline,
(iii) provide an understanding of baseline and monitoring methodologies for Energy Efficiency projects.

6.3 OPENING SESSION

Mr Y. Pathel, Divisional Environment Officer of the Department of Environment, Ministry of Environment & NDU, welcomed participants and reiterated special thanks to all the resource persons for the running of the present workshop. He briefly explained that the CDM offered an opportunity to mobilize additional resources for the implementation of projects in developing countries and concurrently help in mitigating climate change while promoting sustainable development. He informed that the Ministry of Environment & NDU, as the Designated National Authority (DNA) for the CDM, had sought the assistance of UNEP and UNDP to provide the necessary training to all stakeholders in order to enable the country to benefit from the CDM.

6.4 WORKSHOP AGENDA

The Workshop agenda can be found at ***Appendix VI***.

6.4.1 PRESENTATION 1 – The CDM: Setting the Scene - Mr Robert Kelly, UNDP

Mr Robert Kelly enlightened participants on the following themes:

(i) the basis and role of the CDM, generation of carbon credits, Green House Gases and their global warming potential, the concept of additionality, the crediting period of the Kyoto Protocol, and programmatic CDM,
(ii) types of CDM projects and number of projects within the pipeline,
(iii) the CDM project cycle – stages, stakeholders and costs involved, and
(iv) energy efficiency in the CDM – sectors covered, number of energy efficiency projects, volumes of CERs and carbon revenues generated.

6.4.2 PRESENTATION 2 – PINs related to Energy efficiency – Mr Yahyah Pathel, MoE

Mr Y. Pathel, MoE, briefly outlined the contents of a Project Idea Note (PIN) document on an energy efficiency CDM project from the improvement in efficiency of chillers of Government Buildings. He explained that the PIN originated from consultants from Proklima, a division responsible for Montreal Protocol and Clean Development Mechanism (CDM) -related projects within GTZ (a programme assisted by the German Government via the Deutsche Gesellschaft fur Technische Zusammenarbeit, GTZ). He added that around 2500 CERs/year could be reasonably expected for the replacement of chillers within three buildings owned by Government.

6.4.3 PRESENTATION 3 – Energy Efficiency Baseline and Monitoring Case Studies – Mr Randall Spalding-Fecher, SouthSouth North

Mr Randall Spalding-Fecher, delivered a presentation on Small Scale Energy Efficiency Projects with focus on the following topics:

1. Small Scale CDM simplified rules, size limits and lower transaction costs and the additionality concept.
2. Energy Efficiency (EE) technologies, EE lighting, monitoring for Small Scale EE technologies, energy and emissions baselines and project emissions,
3. Case studies: The “Visakhapatnam (India) OSRAM” CFL distribution CDM Project, the “Kuyasa Low-Cost Urban Housing Energy Service Upgrade” project in South Africa, and the “Demand side energy efficiency program by COELBA” for low-income residential customers in Salvador.
4. Solar water heating and Small Scale CDM, thermal energy for the user, baseline emissions, renewable electricity generation from the grid and monitoring requirements.
5. Steps in Combined Margin Calculations including identification of the relevant electric power systems, selection of an Operating Margin (OM) method, calculating the OM emission factor, identification of the cohort of power units to be included within the Build Margin (BM), calculating the BM emission factor and calculating the Combined Emission Factor. Corresponding values applicable to Mauritius were exemplified using values contained within the PDD from the Central Thermique de Savannah project.

Lunch Break

6.4.4 PRESENTATION 4 – Energy Efficiency Baseline and Monitoring – More Case Studies – Mr Randall Spalding-Fecher

Mr Randall Spalding-Fecher, further used the example of a glass manufacturing plant in India to illustrate a viable EE CDM project. He also explained onto the details of EE and fuels switching in industrial facilities as well as the baseline emissions of the project. He ended by illustrating barriers testing and financial analysis techniques.

7.0 ISSUES RAISED

1. *CDM Projects with GHGs having high global warming potential*

Implementation of CDM projects involving GHGs such as PFCs, SF_6 and Methane was rather cheap, easy as well as bringing much more CERs. However, there is now less possibility of such projects happening since all the places where such projects could be implemented have already been exploited.

2. *CDM potential in Mauritius*

Some major projects are already in the pipeline, eg, the waste-to-energy project by Gamma that will bring quite some CER revenues that will increase the financial viability of the project. The wind power concept also is quite viable for Mauritius

3. *Financial Viability with carbon credits.*

Carbon revenue helps but a project developer may also need to look at other mechanisms to make the project viable.

4. *Authorities issuing carbon credits*

The CDM EB is the regulatory authority only for the CDM. As regards to Joint Implementation, which is another project-based carbon trading mechanism between industrialised countries under the Kyoto Protocol, there is the Joint Implementation Supervisory Committee, which is the equivalent of the CDM EB that issues carbon credits.

5. *Project development under the MDG Carbon Facility – operation, financial risks*

If a project is accepted within the MDG Carbon Facility, then the project developer need to sign two contracts simultaneously, one with the UNDP and one with Fortis Bank. UNDP would undertake some preliminary screening to make sure that the projects are robust and realistic. The potential that the project gets registered at the CDM EB would thus rest upon UNDP.

6. *Agreement with Fortis Bank*

The reason why Fortis Bank is involved in the MDG Carbon Facility is that UNDP's constitutions does not allow UNDP to trade commodities, so UNDP cannot buy or sell CERs. Thus, in order to launch the MDG Carbon Facility, Fortis Bank was retained following a tendering process as the commercial partner who could buy the carbon credits.

7. *Validity period*

A very important issue about the MDG Carbon Facility is that it has a active window that is between March 2008 to March 2009 to sign up projects having the potential to generate CERs. After this period, it will probably be too late to

sign up projects to generate the appropriate number of carbon credits before the Kyoto Protocol which will expire in 2012. Project developers were thus encouraged to come forward and contact UNDP as soon as possible.

8. *Non-attainment of pre-agreed CERs generation within contract with Fortis Bank*

When the project developer signs the contract with Fortis Bank, he undertakes to deliver a specific amount of CERs to the bank during the course of his project. It is up to the project developer to ensure that the carbon credits are delivered. In case the required amount cannot be generated, most probably the promoter will have to buy the remaining CERs from the market. Because the contract is a commercial undertaking and Fortis Bank is providing a very good rate for the CERs, it is ultimately the responsibility of the project developer to ensure that the project delivers according to the contract.

9. *Minimisation of risks*

In case the project promoter is risk-averse, he could sign a contract stating that he is expecting to generate some e.g. 10,000 CERs, but, in order to play it safe, he undertakes to sell 5,000 CERs to Fortis. In case more CERs are generated then these could eventually be sold to Fortis or any other interested Buyer on the carbon market.

10. *Minimum amount of CERs to benefit from MDG Carbon Facility*

Typically a project that generates less than 40,000 CERs per year probably would be less attractive. However, there is no formal threshold for MDG Carbon Facility and it might take projects smaller than that, but the rule of thumb for a viable CDM project is more than 40,000 CERs per year.

11. *Designated Operational Entities (DOEs) in developing countries*

There may be some firms from developing countries now applying for registration as DOEs but there are no accredited DOEs from these regions yet due to the considerable amount of money needed to go through the process of being accredited as DOE.

12. *Validation costs charged by DOEs*

The prices are quite competitive, and nowadays it may cost around €10,000 to €15,000 (inclusive of all costs, with the cost of the consultants and their travels and site visits). At the Validation stage, the project developer will need to retain the services of a DOE, the best way to proceed will be to contact 3-4 DOEs and request for a quotation.

13. *Identification of DOEs*

In case the project is not undertaken under the MDG Carbon Facility, UNDP can help in directing the project developers to the various DOEs. If the project

is being carried out through MDG Carbon Facility, then the issue does not really arise since it would be the UNDP who would be liaising with the DOE and make sure that the project is validated.

14. Proof of Additionality within Government program, whereby a tender is awarded to a firm for a fixed price.

In case a tender was launched without including carbon credits, the investor could state that at that tender price, the project is still not viable given the cost of capital investment. The investor could demonstrate that in order to build the project and meet the tender price, the carbon credits are required to make the project viable.
The project developer needs to be careful that a program be implemented which makes everything viable with no consideration of carbon because it may become impossible to prove additionality later on.
Another possibility is to state that the tender price is based on the fact that government/utility company receives the rights of the credits so that the benefits of the carbon credits gets passed onto the end user.

15. Qualification as a CDM project

As per the present rules, as long as there is a clear paper trail (through board minutes, note of meetings and other such records at the very early stages of the projects that the project will be considered under the CDM) and the additionality arguments are valid based on the conditions when the decisions were taken, then the project has a good chance to qualify for carbon credits.
Since the process is lengthy, management could have decided that since it takes so long to get to validation and registration, they go ahead with the implementation of the project and this is acceptable given that there is a clear paper trail.

16. Viable options for emissions reductions produced but project not yet registered – CTSav project

The CTSav project was started quite some time back, the project is not yet registered but the plant is operational since 2007 and would have been earning CERs if it was registered. The CTSav project can still be registered because all along the process there was a clear intention on the part of the project developers to consider for CDM registration.
CERs cannot be earned until the project is registered. However, the Voluntary Market does buy credits from projects that are validated but not yet registered.

17. Delays in CTSav registration

The main problem with all the methodologies (note: ACM 006, scenario 18 methodology has been used for the CTSav project), is that it covers for a full year utilisation of renewable sources of energy. Since there is only one source of bagasse in Mauritius and it is available only during part of the year, CTSav has had to apply for a deviation to the Meth Panel, which is delaying the validation of the project.

The promoter cannot even go on the Voluntary Market to sell the carbon credits, but if the deviation is accepted and the project is successfully validated, then only CTSav will be able to sell the VERs.
A deviation is usually accepted if the project complies with all the other requirements of the methodology. If everything on the methodology fits a project really well except for a minor factor which is inherent to the project or specific to the sector, then the project developer can apply for a deviation which allows them to use the methodology except in a specific area where they will be allowed to do things slightly differently.

18. IPCC Emission Factor Database

It contains default emission factors that can be used for baseline calculations. Usually the methodology will refer to the appropriate table in the IPCC guidelines to find these emission factors. Even when calculating the calorific value of fuels, the IPCC default emission factors can be used, e.g., CO_2 emission from coal.

19. Monitoring procedure in bundled projects

In case several projects have been clustered (bundling), small and/or large scale in one PDD, the monitoring will have to be carried out at each site. E.g. if many co-generating plants have been clustered with one PDD then, the project developer will have to monitor at each facility how much biomass is being used. Monitoring cannot be done only at one facility since, for example, boiler efficiency will be different at each facility. Thus checks and measurements have to be undertaken at every site.
Exceptions will be in the case where there are lots of very small units, e.g. solar water heaters, then you do not have to go and physically test every single solar water heaters.

20. Definition of small-scale projects under CDM

The small scale project will represent $15MW_e$ electricity generation, 60GWhr energy saving or 60,000 tCO_2 emission avoided. Roughly, for a solar water heating programme, with units of capacity 3KW, this will represent around 5000 households.

21. pCDM (programmatic CDM)

pCDM is about dispersed activities, e.g. Solar Water Heaters (SWH) or Compact Fluorescent Lamps (CFL). A project developer may want to roll out 500,000 units of SWH or CFL. Under classic CDM, it would be impossible to write a PDD for each individual installation. pCDM allows the promoter to write one PDD specifying ‘x’ number of units to be considered for CDM (e.g. CFL or SWH). There is no need to specify how many units (e.g. water heaters or light bulbs) exactly would be deployed and where or when they will be installed. It is a very flexible tool within the framework of the CDM for rolling out lots of very small activities, which on their own does not make commercial sense but,

when aggregated over large numbers, e.g. thousands or tens of thousands, then makes commercial sense in the context of the CDM.

22. Monitoring of programmatic CDM

It is assumed that if there are thousands of units within a pCDM project, there is no need to monitor all of them. Most of the small scale methodologies have additional guides about programmatic issues and how to take statistically significant samples for monitoring purposes.
In the case of a variety of products with different energy efficiencies, e.g. solar waters heaters of different capacity, then the project developer should undertake stratified sampling and incorporate it within the monitoring methodology.

23. Estimation of CERs from a pCDM project

The project developer needs to be quite confident while submitting the PDD that he is going to roll out enough units to be able to recover his costs and to make a profitable activity. Since pCDM is open ended, it is going to be difficult to calculate exactly how much CERs would be generated. pCDM is a very flexible tool allowing a project developer to start his project and if the project is going on well, it can be scaled up while continuing to claim CERs.

24. Ownership of the CERs in a pCDM

If a project developer wants to embark on a programme of distributing CFLs to households and the project developer wants to claim the accrued carbon credits, he has to make sure that there is no double counting and that he has the rights to the carbon credits (not the person who is using the light bulbs). This can be achieved by making each householder owner sign a waiver form stating that he is granting the project owner the right to the carbon credits associated with the use of these CFLs.

25. Demonstrating additionality for mandatory public sector initiatives in pCDM

Two potential ways of by-passing the argument of demonstrating additionality within mandatory policy measures include; –

- Government should clearly mention (within paperwork and/or related legislations/policies) that it is explicitly seeking the financing for implementation of such policy from the CDM,
- The project developer could also demonstrate additionality by proving that some policy is typically ignored by vast majority of the population, and that by harnessing the carbon credits, this will allow the mandatory policy to work in practice.

26. Eligibility for carbon credits beyond 2012 and contract period.

There is a difference between crediting period and the contract for the sale of CERs. Under the rules of the CDM, a project developer can still sell those credits beyond 2012, but the demand for CERs beyond 2012 will change and how much one CER will fetch on the market will also change; different purchasers will have different degrees of interest in those CERs beyond 2012: some will say they are very interested in purchasing all the CERs upfront, some will pay the same amount for all the CERs, others could pay for a lower price for the CERs generated beyond 2012, still others can decide not to sell the CERs during the early stages and wait beyond 2012 to sell the credits.

27. Threshold for carbon buyers

The threshold for Fortis Bank is around 40,000 CERs generated per year. Ecosecurities has a threshold of about 20,000 CERs but that also depends on some factors; if the project is sound, if the project financing has already been secured and if he project is not too risky and there is not going to be too much fluctuations in the amount the CERs that is doing to be generated each year, then Ecosecurities could develop the project for the promoter for a given future price. There are even smaller scales that can be achieved presently, e.g. 5,000-10,000 CERs. There are specialised Voluntary Emission Rights (VER) companies who buy these CERs and sell then on the Voluntary Market, because the Voluntary Market players want to take CERs away from the market so that industrialised countries will have to generate more CERs to be compliant under the Kyoto Protocol, and there will inevitably be a premium for CERs emanating from such projects, e.g. up to € 30-40 per tonne. So a 5,000CER generating project, if it is a good project that may become interesting for the voluntary markets can actually become economically viable.

28. Post-2012 CER pricing for EnBW

EnBW believes that there will be a CER market after 2012 and would be ready to negotiate on an index price for the CERs

29. Preparation of risk management plan

The project developer needs to distinguish between generic risk of the project and CDM risks. For generic risk, the people who will invest in the risk mitigation are experts in their field, so big companies or banks that finance energy sector investments will be the most appropriate institutions to develop the risk mitigation matrix.

30. Mitigation strategy for CDM-related risks

Help may be sought from experts, namely UNEP RISOE and UNDP in the case of this particular project, in order look into baseline and additionality factors at the conception of the project so as to reduce risks of the project not being validated. Thus the ‘Kyoto risk’ can be mitigated by a thorough engagement from project participants and a thorough job while developing the PDD,

8.0 CONCLUSION & CLOSING REMARKS

Mr Randall Spalding-Fecher underlined that the ultimate goal of the present UNEP RISOE programme was to have registered CDM projects in Mauritius. He stated that the topics covered within the workshops so far would not be helping project developers to go all the way till the validation stage on their own, but rather help to develop PINs and produce PDDs with the help of consultants.

He also urged potential project developers to make full use of the experts available from UNDP's concurrent program in order to take their projects at the next stage in the CDM project cycle and help their projects getting validated and ultimately registered.

Mr Robert Kelly explained that a CDM project contained two layers: the underlying project, which requires a thorough understanding of its aspects (technology used, feasibility, costs and benefits, amongst others) and the carbon layer of the project, which in most cases represent an add-on to the existing project. He stressed that the 2012 cut-off date ruled the thinking of participants in the carbon market and that CDM projects should be developed as soon as possible in order to maximize assured revenue flows from the window of opportunity provided by the Kyoto Protocol.

Mr Kallee, **Deputy Director, Department of Environment**, summarized the topics covered in the first workshop and pointed out that the focus of the second workshop was on development of PINs and PDDs, as well as the baselines and methodologies associated with CDM projects.

He also encouraged participants to come up with project ideas, contact the CD4CDM and UNDP resource persons regarding assistance in project development.

He stated that a CDM Legal Expert would soon be on mission to Mauritius to help in redesigning the present CDM project review and approval procedure, develop a set of Sustainable Development Criteria for assessing CDM projects in Mauritius, and support the development of a Designated National Authority (DNA) that operates within a robust regulatory framework.

He informed that the third national workshop, focusing on Emission Reduction Purchase Agreements, would be held in July 2008.

9.0 APPENDIX

9.1 APPENDIX I: List of Participants

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9.2 APPENDIX II: TECHNICAL NOTES

The CD4CDM is an initiative funded by the Netherlands Government and implemented by UNEP's UNEP RISOE Centre (URC) in Denmark. Mauritius has been selected along with eight other countries to benefit from this project. The CDM capacity development activities in these countries will aim at enabling the host countries to fully engage as partners in the global carbon market. Capacity development activities will include support for the establishment and operationalization of Designated National Authorities (DNAs) in the host countries, provision of hands-on, practical capacity building workshops for relevant CDM stakeholders including civil servants, local experts and consultants, academia, financial institutions, and staff members of the DNAs. The capacity building efforts will also aim at the formulation of a national CDM project portfolio, CDM promotional brochures, and a national CDM web site to be hosted by the DNA.

Among the scheduled project activities, a series of three workshops are planned to be held within the course of this project. The ultimate aim of these workshops will be to target our local policymakers in order to clarify the potential benefits of CDM and create the political will needed to support CDM activities in our country.

The first workshop was held in January 2008, and the main outcomes of the workshop are as follows:

- The participants were provided with an Understanding of CDM and its benefits
- The participants have been introduced to CDM Modalities & Procedures, and CDM Institutions & Regulatory Bodies
- A list of potential avenues for CDM in Mauritius have been identified
- PINs and Concept Notes on potential CDM projects have been prepared by workshop participants.

The main topics that will be covered during the Second National Workshop are as follows:

(i) Project Idea Note (PIN) and Project Design Document (PDD) preparation: common pitfalls in PDD making

(ii) Baseline methodologies: examples of baseline method relevant to national circumstances

(iii) Additionality – How to demonstrate the additionality factor

(iv) Understanding the Validation Process: how the auditors work together with project developers to establish the eligibility of CDM projects

(v) CDM project financing: approaches to investment analysis, benchmarks, sensitivity analysis for CER price impact on project economics

(vi) Financial Aspects of CDM and Carbon Finance

(vii) Status of global carbon market: types of emission reduction purchase programs, presentation of UNEP RISOE's CDM Project Financing

By the end of the project, the host countries will be able to identify, design, approve, finance, implement and monitor CDM projects that both address their sustainable development priorities and offer a cost-effective option for carbon credit buyers to comply with the Kyoto Protocol.

SECOND NATIONAL WORKSHOP – March 2008
FACILITATORS:

(1) Randall SPALDING-FECHER
Director (South Africa)
ECON Analysis

Randall Spalding-Fecher has more than ten years experience in energy and climate change analysis. He spent 6 years at the Energy & Development Research Centre, University of Cape Town, leading the energy and environment programme of research, policy advice and teaching, before moving to ECON's Energy Sector Reform & Development Group. He has special expertise in Clean Development Mechanism (CDM) methodology and project development, energy economics, mitigation analysis, and energy efficiency analysis. His experience includes reviewing and/or consolidating 37 CDM baseline and monitoring methodologies, as well as serving as a consultant to the UNFCCC on additionality testing, technical guidelines for baseline methodologies, energy efficiency methodologies, witnessing of carbon auditors (proposed DOEs) and analysing requests for registration of CDM projects.

He advises private sector industry clients on CDM potential, has served as a policy advisor to the South African government on climate change and energy and has led capacity building programmes to support government, NGO's and the private sector in Southern Africa. He guides a large number of projects within the area of energy and environment, from carbon project development to climate policy and strategy.

Randall Spalding-Fecher has contributed numerous professional articles, peer reviewed conference papers and research monographs on climate change, energy, and CDM. He has published peer reviewed articles on CDM project analysis, energy policies and sustainable development, energy efficiency and economic analysis of energy projects.

(2) Mr Robert KELLY
Regional CDM Project Coordinator
UNDP

Mr Robert Kelly holds a maters degree in Geography and Environmental Economics. He ia currently acting as Regional CDM Project Coordinator for Southern & Eastern Africa at theUNDP Environment & Energy Group / GEF (Addis Ababa) where he is responsible for UNDP's CDM capacity development programme in sub-Saharan

Africa and is managing UNDP's carbon finance relationships with regional Governments, the World Bank, regional development banks, other UN agencies, academic institutions and NGOs.

He has previously worked as CDM Consultant for the UNDP Environment & Energy Group (New York) and was responsible doe CDM capacity development, including project management of a six-country UNDP-UNEP Sub-Saharan Africa CDM Capacity Building Project. He was also Research Associate at the UNDP Drylands Development Centre (Nairobi) where he was involved in project design and initial viability assessment of a grassland carbon sequestration project in Baringo, Kenya – working in collaboration with ICRAF on innovative remote sensing and in situ carbon measurement methodologies, and developed UNDP-DDC's position paper on Payment for Environmental Services, analysing in particular the synergies between carbon mitigation and climate change adaptation, and the potential linkages between the environmental service markets associated with carbon, watershed management and biodiversity.

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Dr Ngara is a PhD holder and his PhD thesis was on Soil Science - Moisture consumption patterns of maize during wet and drought years in Zimbabwe. He is also a holder of a Masters degree in Meteorology and Climatology.

He is currently working at the UNEP RISOE Centre in Denmark and is involved in projects related to Climate Change Adaptation and also CDM activities for Africa. His work mainly consist of CDM and Climate Change Adaptation capacity building activities. From 2002 to 2007, he was involved as Programme Officer in the IPCC National Greenhouse Gas Inventories Programme in Japan where he dealt with scientific and technological aspects of the IGES Programme for the support of the National Greenhouse Gas Inventories programme Task Force (NGGIP) which develops technical guidance for use by governments in the preparation of their national greenhouse gas inventories. He has also worked as UNFCCC Secretariat Consultant and Lecturer in Climatology and Statistics, Department of Geography and Environmental Sciences at the University of Zimbabwe.

9.3 APPENDIX III: WELCOME ADDRESS BY PERMANENT SECRETARY, MINISTRY OF ENVIRONMENT & NDU

- Dr Todd NGARA, CDM Expert, UNEP RISOE Centre
- Mr Robert KELLY, Regional CDM Project Coordinator, UNDP
- Mr. Randall SPALDING-FECHER, Director (South Africa), ECON Analysis
- Our Partners from the Private Sector,
- Mrs Ng, Director, Department Of Environment,
- Colleagues,
- Ladies and Gentlemen.

It gives me great pleasure to welcome you to the Second National workshop on the Capacity Development for Clean Development Mechanism Project. At the very outset, I would like to thank all the resource persons who have traveled all the way to facilitate the running of this very important national workshop. Indeed the Ministry of Environment & NDU is very much honored to host this important event in collaboration with the UNEP RISOE Centre of Denmark and we sincerely hope that this series of workshop will enable us to explore the full opportunities for CDM Projects.

The Clean Development Mechanism (CDM) is a project-based flexible mechanism of the Kyoto Protocol. It is designed to assist developing countries in achieving sustainable development and to make it easier and cheaper for industrialized countries to meet their greenhouse gas (GHG) emission reduction targets agreed to under the Protocol. Under the CDM, an industrialized country with a GHG reduction target can invest in a project in a developing country and claim credit for the emissions that the project achieves.

The call for this second national workshop stems out from our continuous efforts in transforming Mauritius as a key CDM investment destination. Further to the first National workshop which was organized in January 2008 where all the participants were able, among others, to:

- understand the CDM process and its benefits;
- be introduced to CDM Modalities & Procedures, and CDM Institutions & Regulatory Bodies; and
- identify a list of potential avenues for CDM in Mauritius;

this second national workshop will be focused on:

(i) Project Idea Note (PIN) and Project Design Document (PDD) preparation: common pitfalls in PDD making;

(ii) Baseline methodologies: examples of baseline method relevant to national circumstances;

(iii) Understanding the Validation Process: how the auditors work together with project developers to establish the eligibility of CDM projects;

(iv) CDM project financing: approaches to investment analysis, benchmarks, sensitivity analysis for CER price impact on project economics;

(v) Financial Aspects of CDM and Carbon Finance; and

(vi) Status of global carbon market: types of emission reduction purchase programs, presentation of UNEP RISOE's CDM Project Financing.

I have also the pleasure to announce that a mini workshop focused on energy efficient will be held on Friday at this venue itself just after the second national workshop. The objectives of this mini workshop will be firstly to create awareness of top management on the CDM process and the associated benefits of CDM; secondly to provide examples to participants on the type of CDM Energy Efficiency projects that are presently in the pipeline; and finally to provide baseline methodologies and monitoring methodologies for Energy Efficiency projects.

With the holding of the third and final national workshop and another mini workshop focused on the financial sector scheduled before end 2008, we would be completing the CD4CDM project and I sincerely hope that Mauritius by that time will be able to identify, design, approve, finance, implement and monitor CDM projects that both address our sustainable development priorities and offer a cost-effective option for carbon credit buyers to comply with the Kyoto Protocol.

To end, I would like to conclude on this note that our strategic motive should be three folds: strategic win for the investor, strategic win for Mauritius hosting the project, and finally strategic win for our environment.

I thank you for your kind attention.

9.4 APPENDIX IV: WORKSHOP AGENDA

CD4CDM MAURITIUS - SECOND NATIONAL WORKSHOP

26TH-27th March 2008

Agenda

DAY ONE - Wednesday, March 26			
Time	**Program**	**Who**	**Modules**
08:45-09:00	Registration	All	
10:00-10:15	Welcome Address	Permanent Secretary	**Introduction**
10:15-10:30	Outcome of First National Workshop and Second National Workshop - Objectives and Expectations	DNA	
10:30-11:00	Recap of CDM Project Cycle and CDM Institutions	Randall Spalding-Fecher, ECON	
11:00-11:15	Overview of CDM Website	DNA-Mr L.Bullywon & Mrs N. Callychurn	**Presentation of CDM Website**
11:15-11:30	Tea Break		
11:30-12:15	Status of Global Carbon Market Overview of UNDP-UNEP CDM Capacity Development Projects Common misconceptions about the CDM	Robert Kelly, UNDP	**CDM project cycle and PIN/PDD preparation**
12:15-12:45	Introduction to PIN and PDD preparation	Randall Spalding-Fecher, ECON	
12:45-13:00	Good Practices in PDD Development	Robert Kelly, UNDP	
13:00–13:45	Lunch Break		
13:45–14:15	Introduction to validation and verification	ECON	**Validation & Verification**
14:15–15:30	Overview of baseline methodologies	ECON	**Baseline methodologies**
15:30–16:15	Baseline Case Study 1: Bagasse cogeneration ACM0002 ACM0006	ECON	
17:00	Closing / Tea		

DAY TWO - Thursday, March 27			
09:00-09:30	Baseline Case Study 2: LFG capture ACM0001 AM0025 Methodological tool	URC/ECON	**Baseline methodologies**
09:30–10:15	Baseline and monitoring: Small Scale Energy Efficiency (solar water heating, lighting, appliances) AMS I.C AMS I.D AMS II.C AMS II.E CFL Case Study Low income housing development South Africa Low income housing development Salvador	URC/ECON	
10:15–10:30	Tea Break	All	
10:30–11:15	Baseline case study: combined margin (for renewable grid power, electricity savings) Emission Factor for electrical systems	URC/ECON	
11:15–12:00	Programmatic CDM and Small Scale Energy Efficiency and Renewable Energy Hydropower generation	Todd Ngara URC	**Programmatic CDM**
12:00–12:20	Discussion – baselines, monitoring, small scale projects	All	
12:20–13:15	Lunch Break	All	
13:15–14:00	CDM project Financial analysis, including case study (URC CDM Project Financing Guidebook)	Robert Kelly, UNDP	**Project finance/financial analysis**
14:00-14:30	Perspective of a Carbon Purchaser	Hans-Jurgen Mielisch, EnBW	
14:30-15:30	CDM project financing and carbon funds (URC CDM Project Financing Guidebook) Determining a fair price for carbon	Robert Kelly, UNDP	
15:30–15:45	General Discussions and Q&A		
15:45-16:00	Closing Remarks	DNA, URC, ECON	
Closing/Tea			

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9.6 APPENDIX VI: Sectoral Workshop Agenda

CD4CDM MAURITIUS
MINI-WORKSHOP ON ENERGY EFFICIENCY AND THE CDM
28TH March 2008

Agenda

Time	Program	Who
08:45-09:15	Registration	All
09:15-09:30	Welcome Address Workshop objectives	DNA
09:30-10:30	Introduction to CDM • CDM Institutions (EB, DOE, DNA) • Project Cycle, including timing and transaction costs • Benefits of CDM • Energy efficiency projects in the CDM pipeline	Robert Kelly, UNDP
10:30-10:45	Tea Break	All
10:45-11:30	Discussion of PINs related to Energy efficiency	ECON / Local PIN developers
11:30-12:40	Baseline methodologies for energy efficiency projects, • Small scale vs large scale • Case studies: energy efficient lighting, solar water heating and small scale CDM, Understanding the combined margin	Randall Spalding-Fecher, ECON & Todd Ngara, URC
12:40–13:30	Lunch Break	All
13:30–14:15	Monitoring methodologies for energy efficiency projects • Case studies: glass manufacturing, efficient chillers	Randall Spalding-Fecher, ECON & Todd Ngara, URC
14:15–15:00	Calculating emissions savings from avoided electricity consumption	Randall Spalding-Fecher, ECON
15:00	Closing & Refreshments	All