This document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of the DFID.

Encouraging CDM energy projects to aid poverty alleviation

Attachment 2

Reports of Country Initial and Final Workshops

Centre for Environmental Strategy, University of Surrey
Katherine. Begg**, -coordinator-
Stuart Parkinson, Dan van der Horst

Intermediate Technology Consultants Schuhmacher Centre, Rugby
Rona Wilkinson

Intermediate Technology Development Group Kenya
Daniel Theuri, Stephen Gitonga, Martha Mathenge

Kumasi Institute of Technology and Environment
Harriette Amissah-Arthur, Samson Atugba, Sophia Ackon, Sarah Ageby

Centre for Energy Environment Science and Technology
Hubert Meena, Stephen Mwakifwamba, Stephen Mwakasonde

Acknowledgements

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** Dr K. Begg has now moved to De Montfort University, UK

CONTENTS

Initial Workshop in Kenya

ITDG
PRACTICAL ANSWERS TO POVERTY

DFID Sustainable Livelihoods Guidance

Workshop on Encouraging CDM Energy Projects to Aid Poverty Alleviation (CAPA)

By

Stephen Gitonga and Martha Mathenge
Energy programme
Intermediate Technology Development Group Eastern Africa (ITDG-EA)

1st March 2002, Nairobi Safari Club

ACKNOWLEDGEMENTS

The Energy Programme of ITDG-EA wish to thank the organizations which contributed their resources, time, technical and financial support in making the Workshop on Encouraging CDM Energy Projects To Aid Poverty Alleviation (CAPA) a success.

We particularly wish to thank the Centre for Environmental Strategy (CES) at the University of Surrey and Intermediate Technology Consultants (ITC) in UK, together with ITDG-EA for their support in the preparation and convening of the workshop. Thanks go to the project sponsors, DFID-KAR (Department for International Development - Knowledge and Research).

Special thanks go to the organizations that were involved in the preparation and making of presentations in the workshop that include: the National Environmental Secretariat, Ministry of Natural Resources and Environment (NES-MENR), Kenya Industrial Research & Development Institute (KIRDI, and the Kenya Association of Manufacturers (KAM)**.**

Our thanks also go to all the participants who took their time to attend the workshop, whose contributions were useful in identifying areas and strategies for CDM projects in Kenya and the whole global initiative on issues relating to climate change.

We hope the recommendations and suggestions from this workshop will make a positive impact in promoting foreign direct investment (FDI) that secures sustainable development and facilitates technology transfer in developing countries among the government, investor, financial, legal and receptor groups. Such capacity building forums in the host countries should ultimately aid the implementation of small-scale energy type of projects

Stephen Gitonga
Energy Programme Manager
Intermediate Technology Development Group Eastern Africa (ITDG-EA)

EXECUTIVE SUMMARY

BACKGROUND

A DFID funded project has commenced to carry out research on the Clean Development Mechanism (CDM). The Clean Development Mechanism is a project-based mechanism under the Kyoto Protocol. Under the CDM, investors from Annex I[1] country with targets may invest in a project designed to reduce Greenhouse Gas (GHGs) in a developing country without targets and in return receive the credits for the emission reductions achieved. A CDM project should also contribute to the sustainable development path of the developing country host.

This DFID project, coded CAPA (CDM energy projects to aid poverty alleviation), is an 18-month project. It is designed to contribute to the design of the CDM under the Executive Board for the CDM so that poverty focused energy projects are encouraged. A major element of this will be capacity building in a host country to aid the implementation of these small-scale types of projects. A range of energy projects will be studied and issues such as baselines for accounting for GHG reductions for these small-scale projects and sustainability benefit delivery will be addressed.

The host countries involved are Kenya, Tanzania and Ghana and the respective country partners are Intermediate Technology Development Group (ITDG-EA) Kenya, KITE (Kumasi Institute of Technology Environment*)* in Ghana and CEEST (Centre for Energy, Environment, Science and Technology) in Tanzania. The Coordinator of the project is Centre for Environmental Strategy at the University of Surrey with Intermediate Technology Consultants (ITC) both of UK.

WORKSHOP OBJECTIVES

- To transfer information on the CDM particularly the institutional structure within the UNFCCC for the CDM, the processes involved for CDM registration etc, the accounting for emission reductions e.g. baselines and the use of sustainability indicators for assessment of projects. This can be used by governments and developers to develop projects.

- To feedback the needs of the target groups (industry, government, local community and financial sector) by target group.

- To encourage networking.

[1] Annex I to the UNFCCC (United Nations Framework Convention on Climate Change) lists all countries in the OECD (Organization for Economic Co-operation and Development), plus countries with economies in transition in Central and Eastern Europe (excluding the former Yugoslavia and Albania). By default, the other countries are referred to as Non-Annex I countries. Under Article 4.2 (a and b) of the Convention, Annex I countries commit themselves specifically to the aim of returning individually or jointly to their 1990 levels of GHG emissions by the year 2000.

- To identify a way forward for the CDM e.g. remove barriers, set up institutions, training etc.

RECOMMENDATIONS

Participants at the workshop recommended the following in relation to small-scale energy projects and the CDM process in Kenya:

- Policy review to allow for decentralized small-scale energy systems, both generation and distribution of off grid power systems.
- Produce database on capability in Kenya across the board in terms of human resources (including environmental lawyers), finances, and institutions that deal with CDM matters.
- Develop a list of development partners and funding mechanisms for CDM.
- Capacity building of the national clearing house personnel.
- Develop mechanism to check against duplication of CDM projects - through screening & advising on CDM projects.
- Encourage collection of baselines by stakeholders including research institutions since Kenya is lugging behind on baselines and inventories.
- Capacity for the operational entities in terms of finances and technical competencies to be able to participate in the validation process.
- Proceedings of the workshop to be shared with the workshop participants and appropriate parties to add value.

SECTION I

INTRODUCTION AND WORKSHOP PROGRAMME

INTRODUCTORY SPEECH

By Sammy Keter, Acting Regional Director, ITDG-EA

ITDG-EA is an international NGO working in eight countries in the world namely Kenya, Sri Lanka, Zimbabwe, Bangladesh, Nepal, United Kingdom, Peru and Sudan.

ITDG - Promoting CDMs Globally

- ITDG is an international NGO Established based on Radical ideas of British economist - Shumacher, the author of the book "Small is beautiful"
- ".... Intermediate technology is vastly superior to the primitive technology of bygone ages, but at the same time much simpler, cheaper and freer than the super-technology of the rich ...a technology to which everybody can gain admittance." He called it, "technology with a human face".
- The Best Aid to give is.....a gift of knowledge - We do this in a drive for "a more equitable and just world in which technology enriches and benefits the lives of poor people". This is accomplished by building the technical skills of poor people in developing countries enabling them to improve the quality of their lives and that of future generations.
- We specialise in helping people to use technology for practical answers to poverty by
  - Respond to real needs,
  - Put people first,
  - Promote appropriate technologies that are suitable to local circumstances,
  - Encourage development that can be sustained
- With appropriate technology, poor women and men can develop technology, which puts people first
  - It is technology which draws on their experience and feeds it
  - Recognises their potential and releases it
  - Respects their environment, and nurtures it, builds on their past, to
  - sustain the future.
- **Appropriate Technology in all aspects embraces the concepts of CDM….**
  - Improved Stoves reduces emissions to the environment and reduces destruction of valuable vegetation.
  - And so do Smoke monitoring interventions
  - Non motorised transport
    Alternative building materials
- **Our Renewable Energy focus is on Clean energy too**
  These Include
  - The newly designed and less costly solar lantern.

- The wind energy
- The exciting Micro and Pico Hydro work around Mt. Kenya - Technology is all affordable, the community has clean light

The Pico Hydro project is called "Miujiza" (Miracle)

- Very small - some people simply laugh when they see it.
- Very cost effective - about $2,700.
- Serves a lot of families - 64 homes about 18hrs a day
- From Micro Hydro
  - Kenya can produce more power than we need - more than 3,000 MW
  - Our current consumption is about 1,000 MW

We therefore…..

- Have potential to make a lot more "Miujiza"in Africa
  More practical solutions
  in promoting Clean Development Mechanisms
  and alleviating poverty

INTRODUCTION AND WORKSHOP PROGRAM AND OBJECTIVES

Martha Mathenge

Key highlights

- Run through the days workshop programme (Appendix I).
- Project objectives and the organizations involved.
- Workshop objectives and channels through which information may be transferred.
- Background information to CDM in Kenya
  Kenya has: -
  - National Environment Secretariat (NES) involved in the climate negotiations and in the CDM.
  - A clean energy technology centre has been set up in the Kenyan Industry Research and Development Institute (KIRDI) by UNEP/UNDP and GPK in 2001.
  - Meteorological department is active in the CDM field.
- Workshop, not first in regard to CDM but a follow up, earlier initiatives on the CDM that have been undertaken include:
  - a DFID project with CES/ITC in 1998-2000.
  - a DFID project by ESD/EAA in 2000.
  - a CDM project by Climate Network Africa.
  - A capacity building project on climate change by the University of Nairobi and the Environment Secretariat (1999-2000).
- Workshop will help overcome barriers to CDM in Kenya

INTRODUCTION TO DFID CAPA PROJECT AND THE CDM PROCESS

Stephen Gitonga

Key highlights

- Requested for feedback from participants for better information
- Talked of the counterparts who could not attend - Katie Begg (CES) and Rona (ITC) of UK
- CDM tied with article 12 of the Kyoto Protocol.
- Talked of what CDM is all about
- Assured participants that although they will be hearing new terms, all will become clear by the end of the day
- This workshop is part of a number of activities to be carried during the implementation of CDM project.
- Talked of organizations involved, which Martha had earlier mentioned and key persons involved (Appendix II).
- Talked of the technical aspects of the CDM project in a more simplified form - logical steps such as project design, validation, verification done by DOE
- Assured participants that more will come to light on the whole CDM context as more presentations are made.
- Presented a diagram of bodies involved in the whole process of CDM (Appendix III).
- Talked of the project design document
- Considering the new terms and process involved in the whole process, sympathized with the participants that that would be a heavy doze early in the morning

Discussions from participants

One participant openly expressed his views about the jargons he heard noting that some terms like DNA were confusing therefore need to explain and simplify on the CDM terms.

Response: In the workshop folders, the participants have been provided with presentations and papers highlighting the terminologies. DNA refers to the designated national authority.

UNFCCC NEGOTIATIONS & ROLE OF THE GOVERNMENT

Emily Massawa (presentation in Appendix IV)

Key highlights

- Reckoned that a look at the participants in the room confirmed that most are converters.
- Talked of when the protocol was entered into force.
- Convention sets two groups of people i.e. annex 1 (developed countries) and non-annex 1 countries (developing countries).
- Talked of what the Kyoto protocol entailed for each country
- Kenya has signed the protocol.

- 1n 1993 Kenya established a climate change committee that is multidisciplinary, which is convened by NES-MENR
- Article 12 of the Kyoto protocol is what defines CDM
- Talked of events leading to COP 4 held in Argentina, which was in itself a plan of action in regard to UNFCCC.
- Talked of the COP 6 part one and the reasons leading to COP 6 part 2
- When COP 6 resumed in Germany and the Bonn Agreement that resulted; not all texts in the entire package of decisions were agreed upon and thus all draft forwarded to COP 7 where delegates were to attempt to conclude their negotiations
- Addressed some of the issues at COP 7 touching on the CDM.
- Mentioned in brief what is involved in baseline, approval of CDM projects, registration:-
    - On baseline: Mentioned some of the questions/ issues to be thought about in regard to baseline
    - On approval: confirmation that project assist in sustainable development;
    - On registration: request made in registration; one of the key things looked at is that the host country must have signed the Kyoto protocol
- Implications of COP 7 difficult to say at the moment; due to the USA withdrawal; all credits nevertheless have a value in the end
- Talked of issues arising such as share of proceeds of the CDM; share of proceeds from CDM remain to be determined by the board
- Role of host government in the CDM- ensuring a workable environment e.g. assisting parties involved, see that developed projects meets needs of the host country
- Talked of what Article 3 of Kyoto protocol entails
- Reminded participants of criteria for CDM PROJECTS
  In Kenya we already have CDM guidelines, mentioned about the Dfid projects and the indicators (gender equity, environmental category, economic development indicators, energy indicators; technology transfer)
- Promised to give a paper informing more about the structure of the CDM process and projects of interest to Kenya
- Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto protocol

Discussions from participants
Stephen Gitonga: said that Emily's presentation was to him a detailed account of the government involvement in the CDM process. There is need for dialogue between the government and the private sector.

TECHNICAL DETAILS OF THE CDM / COUNTRY CONTEXT ON CDM PERSPECTIVES

Peter Orawo (presentation in Appendix V)

Key highlights

- As a realization that some factors were missing, said that he would deviate from his original paper to accommodate some factors of interest to the participants
- Started with a talk about what the Kyoto protocol entails.
  - Kyoto Protocol sets about the CDM
- A brief about the COP 7
- Talked about financing of the CDM projects; project implementation and operation; energy efficiency and CDM process.
- Emphasis on additionality in addition to the reductions attained from potential CDM projects. It is good to produce sugar, but what if there was another company.
- Approaches to baseline definition highlighted.
- Issuing of certificates.
- Capacity building needs.

Questions raised by the presenter to the workshop participants

QN: ***What are the 1990 emission levels for Kenya?***
ANS:
- Kenya not an annex 1 country.
- Available at the National Environment Secretariat (NES).
- Kenya has been helped to do its capacity building, inventories for GHGs levels by UNDP.
- A look from the private sector view - One good thing coming from COP 7 is a board that was formed that is the CDM Board.

QN: ***What are we in Kenya looking for?***
ANS:
- Our own development.
- Not interested in CO2 emission reduction
- Those around during the La Nina and El Nino will agree that we are very badly off.
- Reduced emission will be of help to Kenya should it be required to reduce its emission in the future.
- A provision for investors
- ENRON which collapsed in America could fit well in the CDM process

QN: ***Should the government not be the one to provide reliable information, secure access, and legal resources for both buyers and sellers of CERs Project Implementation & Operation (6 and 7)?***
ANS:
- The question is to provoke the audience to ask questions.
- The government should provide for some legal provisions.
- CDM has four major players - the government, private sector, financial and legal groups.
- Afraid that the government may not be in a position to provide for 6 and 7.

QN: **W*ho is the government?***

ANS:

- Suggestion from participants - we should know about the role of each maybe in the afternoon session (target group discussions).
- Highlighted some of the responsibilities of the CDM Clearing-housing Committee.

QN: ***It would appear that the clearing house duplicates role of CDM board?***
ANS:

- America do not want to participate in the Kyoto Protocol.
- Mentioned some operational elements of the CER MARKET FRAMEWORK…

Peter Orawo posed the following questions to the workshop participants:
What has the government got to do?
Is Kenya ready to attract CDM investments? (This question was stressed over and over again).
From the private sector point of view, who is going to do the CDM project*s?*
Is there anybody from the tea sector area in the room? Will a CDM project apply to such an area?
How do we select bad and good projects?
Do we from the project sector understand life cycle?
What is the role of the government in implementing CDM Projects?
Please check the CDM chart at the end.

- Mr. Orawo noted that the Nairobi Stock Exchange (NSE) has done something in relation to CDM.

" CAN WE NEGOTIATE FOR THE UNITS? HOW DO WE FINANCE CDM PROJECTS?"
Will issues to do with technology transfer and climate change enhance business?
Do we use our national communication?
Is America going to hit us because we are against WTO?

- Focused on the CDM cycle chart.
- More questions from the private sector:
  Who are the CDM validators? Who are involved in baseline definition? Who issues the emission reduction certificate?

Said that for project implementation it was clear who are involved.

- Conclusion: need to create an enabling environment nationally and internationally. Hoped that Mr. Wambua would give more details (refer to proposed CDM chart).

Discussions from participants
Comment - ***Happy that his speech was more of questions than answers that would help greatly in later sessions of the day.***
ANS: By Peter Orawo - I had deliberately made my presentation with such questions so that the participants could answer them and was sharing my thoughts.

Comment: ***Dr. Kituyi thought that the presenter would provide in his presentation a conclusion for a dialogue between the government and the private sector.***

QN: ***What is the difference between CER and CE?***
ANS: CER refers to Carbon emission reduction and CE refers to carbon emissions.

QN: ***Do you get a certificate for CER?***
ANS: Yes and that is what the USA is working on to trade for their emission.

QN: ***America has indicated that it will not sign the Kyoto Protocol, does this still allow them to participate in the CDM?***
ANS:

- Yes, carbon trading is international and any country, including individuals can participate and USA is not participating in the Kyoto Protocol but is involved in carbon trading.
- Peter Orawo urged the participants to have a look at the PCF (prototype Carbon Fund) website.

Comment: ***Need to distinguish between USA and the individual states since there are some states and private sectors interested in participating in the Kyoto Protocol***
ANS:

- The American policy is greatly influenced by the private sector.
- Emily Massawa: You can have a government in question which is not part of CDM
- Orawo: The state of California would like to participate in the CDM process.

Josiah Wambua (presentation in Appendix VI)

Key highlights

- Began his presentation by assuring the participants' that he would like to be simple in his presentation by use of simple terms since he would like every participant to fully understand him.
- What is CDM? He asked before answering that it is a simple mechanism with manifold solutions.
- Noted that given the benefits of CDM it is a good mechanism for developing countries.
- An advantage of CDM for developing countries is that it enables them to establish sustainable baselines and enjoy additional benefits like accurate baselines.
- Another advantage is that we have no obligation unlike annex 1 countries.
- Upto now we have experienced some barriers such as signing of the Kyoto protocol.
- The obligation we have in our countries is the establishment of a clearinghouse to attract investment in our country. Article 12 of Kyoto talks about the additionalities - which will assist us in identifying our priorities.
- Gave his concept about what the clearing house is all about through an illustration (box); its where all the interaction will take place.
- Proposed who the clearing house would comprise of such as the government departments, NGOs, umbrella organizations for small micro enterprises etc.

- Highlighted role of the clearing house listing some of the barriers as :
  1. Baseline construction noting that accuracy is vital (said that baseline constitute our natural resources, other information like emissions, inventories etc).
  2. Information and awareness barriers (information exchange - need for annex 1 and 2 countries to exchange information that would bring to light potentials for each; technology transfer would be realized through info-exchange; problems of developing countries to implement CDM would have to be brought out e.g. poor infrastructure).
  3. Lack of technical coordination (lack of capacity to do research, lack of technical backup).
  4. Policy regulatory procedures (pricing policies, tax incentives, protocol of new and second hand items, energy and materials- gave examples of the Kenyan textile sector which has suffered greatly due to issues related to govt. policy - workers paid little and can not afford the same goods they produce and sadly still the goods cannot find a ready market).
  5. Institutional innovative finance arrangement, loans accelerated depreciation.
- His summary was in form of a table showing barriers and capacity building to implementing CDM projects
- Mentioned about the global and local benefits (Kenya can develop alternative efficient energy sources with no additional costs. If stakeholders' roles were enhanced, Kenya would benefit greatly in things like education, private sector (Jua Kali) etc.
- CDM could have a solution to our power crisis.

Discussions from participants

QN: ***Like America, developing countries should not have signed the treaty since the Annex 1 countries have polluted the environment and now want us who are yet to develop to pay for their actions. Developing countries should not have ratified the Kyoto Protocol since it will interfere with the development process.***

ANS:

- We do not have any obligation to ratify the protocol as the emitters from the Annex I countries.
- We are on the receiving end but still need to be involved to attract investors not only in Kenya although Kenya ratified it, we did not have an obligation as polluters.

Comment from Alice Odingo:

We have to define our own indicators suitable to our own development context since industrialised countries have heavily polluted the environment and at the same time the developing countries are striving to industrialize and pollute the environment which poses a big dilemma. The major concern is that Kenya aims to industrialize by the year 2020 yet it is an agricultural economy.

QN: ***Who owns the earth?***
Why could a private company want to invest in such a concept?

ANS: Although we in Kenya have benefited from development of infrastructures in the telecommunication like alternatives like in the telecommunication sector, we still have barriers in the villages, e.g. we lack power to charge our mobiles.

Comment by Dr. Makayoto: ***Like most of the developed countries, Kenya needs a revolution. The country has set a target of achieving an industrialized nation by 2020, if we do not use avenues such as CDM we may not realize such a vision. Industrial revolution does not necessarily mean metal industries. It also refers to agro industries.***

Comment from a participant: ***If we have to attain industrialization by a certain period in time, we need to come up with proper combinations and not just focusing on one particular area. E.g. biomass energy use has not been fully exploited in Kenya. The ideas of industrialization by 2020 is just what the government has come up with but may not be attained in the long run.***

ANS by Wambua: According to our current development plan, we need to try and use local resources as much as possible no matter whether it is general raw material or energy resource the case. The government needs to come up with very clear policies – and this is an area where CDM can assist us.

An Addition from a participant: We can use mechanisms like CDM to avoid falling into the trap of the developed countries. The implementation part may be a problem just like is the case in other projects. We expect that developed countries will give us a backup given that they are the ones whose actions brought about the CDM process

QN: ***Who owns the environmental act?*** The act is just one unit as revealed in Wambua's presentation. We are on the receiving end and we have our priorities to set right, maybe through the CDM mechanism. Challenge is capacity building in order to use our resources well e.g. water resources which in most cases is polluted.

ANS by Wambua: In future we may not have problems if we could embrace and make proper use of the CDM process.

Comment from a participant: ***A casual look at most of our industries reveals that we are not efficient in terms of usage of energy. Yes, we have to develop but need not follow the way of the developed world. The fact is that they are producing more efficiently than we are doing and hence ours may end up as a market for their produce. What do we do? Need to wake up and develop more sustainably.***

QN: ***When is an African considered poor?***
Dr, Makayoto: Let us not dwell so much on the Americas. Besides financial and political might developing countries could rival the developed world.

Comment from Wambua: ***CDM is going to be very useful globally, even if we are not going to implement it.***

QN: ***How sure are we that the alternatives (clean energies) will not have adverse effects in the future?***

ANS:

- Dr. Evans Kituyi - Enough scientific evidence exists that proves that renewable energies have no adverse effects on the environment.
- Responses by Grace Akumu (CNA):
  - Country negotiators should be very careful not to be a market dumping ground for the goods and technologies of the industrialized countries that are creating jobs for themselves.
  - Should be linked with initiating development of the technologies and good capacity building is needed.
- Continuos interaction and consultation vital before making decisions on what type of CDM projects to adopt or initiate.

General comment from the participants: ***Kenya sends very small numbers of negotiators for international delegations e.g. COPs/MOP and this creates problems when meetings go beyond twelve hours. For example, USA can send about 156 delegates while Kenya sends 4 delegates at most.***

MORNING SESSION CLOSED BY STEPHEN GITONGA AT 1:03PM.

AFTERNOON SESSION (S)

Peter Odhengo (presentation in Appendix VII)

Key highlights

- No specific criteria to measure level of development attained as a result of CDM projects in Kenya.
- Said that his will be easy since by now the participants know what CDM is all about. Question now is how can we internalize the concept for effective implementation. Whatever we do with CDM is on how to achieve sustainable development. One goal however of CDM is to achieve that of the annex 1 countries vis-à-vis sustainable development in developing countries.
- Aim is to develop screening material on on-going projects.
- To assess projects depend on project type and condition of work. Is the project practical (is it going to achieve our development goals).
- Within sustainability we get the vehicle to get us out of poverty.
- Went through key things resulting from the DFID funded project.
- Talked of the need to derive assessments of GHG emissions reduction, costs and analysis of case study projects in relation to poverty alleviation, level of capacity building, technology transfer and environment and social benefits.
- Said that although several criteria have been developed, host countries need to review these criteria and develop their own.

- Mentioned about the objectives of the CDM project.
- He said that there are no criteria to measure sustainable development.
- Said that technology plays a vital role forming the baseline.
- Environmental factors must be factored in before initiation of CDM process.
- CDM one of the best means to initiate development in developing countries.
- Talked of techno-economic conditions necessary to be put in place.
- It is not that we do not pollute the environment, but the case is that our level of pollution is lower as compared to that of the developed countries.
- Assessments of GHG emission deal with energy flows.
- Evaluations of GHG are just mechanisms to be developed.
- Need for specific project baseline.
- CDM process should be based on both the annex 1 and 2 countries.
- Consumption partners chart the way forward.
- CDM is one of the mechanisms to assist developing countries to achieve sustainable development. We learn by doing.
- For a long time locally and internationally, lots of concentration on solar, then slowly on micro- hydro. But definitely, there are many clean development mechanism projects.
- Many projects can fit within the scenario set under the CDM e.g. wind technology which is producing much as is evident in Denmark. There is a question however of such a technology in Kenya.
- Talked about the goal of the future; advance thermodynamics needing high level capacity- there are the technologies to be targeted by developing countries.
- Mentioned a number of other alternative clean sources of energy as appended.
- PFBC is very good. Japan leading in it.
- These technologies are making energy available which has a multiply effect on the economy. - job creation through industrial growth.
- To internalize this, need to make CDM projects to be of value, need for tools to facilitate the process and type of technology.
- One project alone cannot solve the problems of any nation. There is need for other related projects.
- Need to use local resources, skills
- CDM projects should not just target one segment of the economy. Agriculture seems to have its own different requirements. Gave a list of key target area for the CDM projects as appended.
- Mentioned about climate deliverables.
- Said that the receptors in CDM are also the beneficiaries. Gave examples of the receptors within various sectors e.g. transport, service, energy, agriculture etc.
- To assess achievement, 2 things are vital include GHG assessment and assessment criteria.
- Took participants through the CDM projects, identification, screening criteria. Mentioned the key parameters, specific technologies popularly know as carbon technology developed specifically for CDM.
- The more the number of multiplying effects the more the marks score. Scores help in decision making

- The screening criterion is still being developed and subject to debate. The scores for all the sections are added at the end and converted into percentages. Presented in a pie chart (CDM Projects Identification Screening Criteria appended)

QN: ***Developed countries will support implementation of CDM projects in Kenya. Will these necessarily lead to poverty alleviation?***
Who guides the fundamentals of CDM in Kenya?

ANS:
- Question of additionality addresses this question and safeguards the host country from being underdeveloped or exploited further.
- A criterion for choosing such project safeguards host countries.

QN: ***How do we get appropriate projects in CDM that will enable the "neglected" part of the population access clean energy especially the biomass users who account for 80% of the population?***

ANS:
- Maybe talk of mini hydros. This will call for drastic energy policy review to allow for establishment and distribution since only few are in operation allowed because they help the government visualize policy barriers that need to be removed to facilitate decentralized energy systems.
- There are several barriers hindering CDM development access to clean energy to the majority.

QN: ***When will there be an equilibrium in terms of CO_2 levels*** ?
When shall we have the same concentration of CO_2 in Kenya as in America?
Why are we talking of all these alternative technologies.

ANS:
- At no time will we have equilibrium in the atmosphere because of natural systems e.g. volcanic activity, photosynthesis etc. There will be differences in status at any given time or point in time.
- Equilibrium cannot be determined and what we aim is 60% reduction in emission of greenhouse gases (Grace Akumu -CNA.
- We need to do something about global warming

QN: ***Why are we dwelling so much on old technologies such as solar?***

ANS:
- New technologies take time to penetrate the market because there is always a question on how a technology has worked after it is tested over a period of time.
- I talked of technology model. There are some new technologies being placed on the market. Need to find out their performance.
- Need to work on best way to improve.

- Market penetration and legal factors are major barriers.

QN: ***We Africans lack vision. What is our vision on CDM technologies in the next 20 years to come as African Scientists?***

ANS:

- The technologies have already been researched on.
- Yes, I have a vision. It is already there and i do not need to develop one, just improving in the available one.
- An addition from the floor - need to look at the leading edge technology in terms of efficiency.
- Humanity not aiming at equilibrium. First which country will set up that equilibrium? We should try to stabilize the CO_2 concentration.
- Overall goal not to achieve equilibrium but to stabilize or reduce the emission status.

QN: ***Where is Kenya at the moment?***

ANS:

- Non Annex 1 countries (including Kenya) are more keen on sustainable development and poverty alleviation while annex 1 countries are more interested on GHG emissions reduction.

QN: ***We talk of new improved cooking stoves emitting CO_2, which has killed many people. ITDG should instead see how to minimize this.***

ANS:

- From Mr. Gitonga - Some alternatives may not be possible.
- From participants: - Improved stoves have managed to reduce emission by 39% but the problem is that more people will be going for it and hence more use of firewood which contributes to deforestation.

Stephen Gitonga for Katie Begg (Project Appraisal: Baselines, Monitoring, Additionality and Leakage) - Appendix VIII

Key Highlights

- Highlighted what project appraisal involves e,g. definition of project boundaries and examples of the same; assessment of country context; assessment of additionality; definition of crediting lifetime; clarified that the Marrakesh Accord (2001) states that crediting lifetime should be maximum of 7 years and not 10 years as noted by K.Begg.
- Went on to talk about projection of baseline scenario with examples; monitoring of project; monitoring of small scale projects which he said are usually difficult to monitor; calculation of emissions reduction with example.
- Presentation also focused on correction for leakage defining leakage as emissions outside project boundary; leakage pathways
- A final word about uncertainty

- Presentation turned out to be a summary of earlier presentations/talks.

FLOOR OPENED FOR DISCUSSION

Comments from Dr. Makayoto

- ***It would be better to tell where we are so as to chart the way forward.***
- ***There has to be interactions of other initiatives with the CDM.***
- ***Kenya has no on-going projects on CDM.***
- ***Two objectives, that of developed and that of developing countries. Ours more on sustainable development.***

Responses:

- CDM projects must take care of all the objectives (Peter Orawo).
- Kenya has a potential CDM project i.e. Busia Sugar Co. has the same criteria as for CDM therefore it is to be registered.
- Efficiency from up coming projects will be of great encouragement and have a multiplier effect.
- Stephen Mutimba (Energy Alternatives Africa) could provide more information on Kenya's current status in CDM. There is the mention of a case in Busia.
- Orawo: Gave a brief of what Mumias Sugar is doing - use of bagasse ; most sugar companies now not producing their own power and instead are drawing power from the national grid. Muhoroni was the worst of our sugar companies because it draws 100% from the national grid when it can produce its own power from the bagasse. Mumias could easily bring down the cost of sugar but is not allowed to do so by the government. There will be a roundtable CDM conference by World Bank in July 2002. May be the issue of Busia Sugar Company as a CDM project will come up.

QN from Gabriel Mailu: ***point 3 and 5 Orawo's presentation focusing on fundamentals of CDM for Kenya, but what are the allocation levels and division of Certified Emission Reduction (CER)?***

ANS:

- Orawo - The levels are contained in COP 7 agreement and the Marrakech Accord (2001) - Emily Massawa's presentation.

QN: ***What % do we need to get for CDM and for negotiating parties? Do we know what we are going to allow those companies?***

Comments from participants

- Those are the same questions the people from the private sector are asking.
- There is an agreement contained in the Marrakech Accord (2001).
- CDM will be useful to Kenya in the future, since there is a trading offer.
- Our problems are a result of the west. The funding is limited to problems that are only of interest to them denying developing countries a chance to initiate their own development.

- Example of Zimbabwe, now suffering from maize deficit yet sometimes a leading exporter so the west also contributing to our state.
- CDM not being used to exploit developing countries since there are criteria to a CDM project which countries sign voluntarily.
- If someone is going to give you funds for a project, there definitely should be conditions tied to it.
- Will you refuse money if you are poor.
- Conditionality of donors might not be of interest to developing countries.
- Someone does not have to keep you poor but at least promote you to some better level.

Comment and question from Dr. Evans Kituyi
Preparation areas for WSSD - 2002 in Johannesburg: A look at energy insecurity identified as one of great focus and one that still needs to be addressed is that of household energy. A ministerial conference held in Nairobi noted sadly that about 80% of Kenyan households still relying on biomass fuel. In the next 25 years, the African region vision is only 25% accessing clean energy sources. We might achieve less if certain factors are not taken into consideration. In the African region, we have to face the reality. So how to we achieve alternative energy sources?

ANS:
- Overhaul the management of the Kenya Power and Lighting. We have to be very pragmatic and realistic in our approaches.

Comment from Dr. Evans Kituyi: ***Small micro-enterprises are consuming a large proportion of the electricity being produced in Kenya.***

Comment by Stephen Gitonga on micro hydros in Kenya:
- ***Main problem facing the off grid electrification systems such as the micro hydros is that there is no policy but the government is now working on a policy. Attorney General had to interpret the law to allow ITDG-EA micro and pico hydro projects to continue since with current legislation they are illegal; projects allowed to continue since they are pilot projects.***

ANS:
- Mini hydros and micro hydros are still more accessible to the developing countries even though there are legislation and policy barriers.
- Peter Orawo: There is an assumption by the general public that the problem in the power sector has to do with the KPLC management but in fact the problem is external.

CLARIFICATION: ***Source of energy for 80% of Kenyans is biomass. CDM focuses on these 80%. There is energy insecurity in terms of oil. New technologies that we are talking about will need time to be effective given the control of the oil sector. If biomass can relieve us from international oil, then the better. But lets look at things holistically not focusing on single sources.***

QN: ***Can the micro hydros be revived for greater benefit?***

ANS:

- It is not a deliberate problem. There are many micro projects in the country but for private use and not distribution. So the hitch is not against generation of micro hydro but against distribution. Micro hydro is not a problem, and Stephen Gitonga reminded the participants about the electric power act of 1997, which does not cater for micro distribution.
- We have our part to play in disenfranchised energy systems and removing barriers.

QN: ***Are there mechanisms for ensuring the CDM process trickles down to the rural areas where the majority of the people use non-clean energies?***

ANS:

- Can trickle down through the sugar companies. A place like the region around Busia Sugar Company will definitely benefit the rural people. However, we need to look at the benefits to the whole nation. In the case of Tanzania, where one investor negotiated directly with the local people and not the government had tremendous benefits to the larger community.
- It is possible to go directly to the local people but the government would not allow without their authority and knowledge therefore a CDM project has to go through the central body/committee.
- All CDM projects have to go through the country/national focal points for approval.
- Trickle down effect of the CDM process in Kenya is hindered by several barriers as appended in Appendix VI such as
  - lack of information & communication
  - lack of insurance and rewards
  - lack of access to funds
  - lack of standards and regulations
  - lack of highly trained and skilled manpower
  - Unstable micro & macro economic environment
  - Trade and investment barriers.

CLOSING REMARKS - By Peter Orawo (Kenya Association of Manufacturers)

As a participant in this workshop and on behalf of my fellow participants I wish to thank:

- The Centre for Environmental Strategy (CES) at the University of Surrey.
- Intermediate Technology Consultants (ITC) in UK, together with ITDG-EA
- The project sponsors, DFID-KAR (Department for International Development - Knowledge and Research).
- The National Environmental Secretariat, Ministry of Natural Resources and Environment (NES-MENR),
- Kenya Industrial Research & Development Institute (KIRDI)
- The Kenya Association of Manufacturers (KAM) and

- The Management and the staff of Nairobi Safari Club

for making this workshop a big success. I hope that this workshop will encourage my fellow participants from the private sector to take keener interest in CDM. The private sector should be the driving force behind the implementation of CDM. The Government's role is merely to provide an enabling environment, which in fact it has done. The government is just waiting for an opportune time to ratify the Kyoto Protocol.

SECTION II

Appendix I: TIMETABLE: CDM WORKSHOP PROGRAMME, NAIROBI SAFARI CLUB, 1ST MARCH 2002

TIME	ACTIVITIY
08:30 – 09:00 hrs	Registration & introduction of participants
09: 00 – 09:15 hrs	Introductory remarks **Regional Director** Intermediate Technology Development Group (ITDG-EA)
09.15 - 09.30 hrs	Opening Speech NES-MENR / KAM
09:30 - 09.45 hrs	Overview of the workshop programme and objectives **Martha Mathenge** (ITDG-EA)
09:45 – 10:15 hrs	Introduction to the DFID CAPA project and the CDM process **Stephen Gitonga** ITDG-EA
10:30 – 10:50 hrs	Tea Break
10.50– 11.20 hrs	Status of the UNFCCC Negotiations & Role of the government **Emily Massawa** (NES-MENR)
11:20 – 12.50 hrs	Technical Details of the CDM /Country Context on CDM Perspectives **Peter Orawo** (KAM) **Josiah Wambua** (KAM) **Peter Odhengo** (KIRDI)
12:50 – 13.15 hrs	Project Appraisal: Baselines, Monitoring, Additionality and Leakage **Stephen Gitonga** (ITDG-EA)
13:15 – 14:00 hrs	Lunch Break
14:00 – 15:00 hrs	*Breakout sessions:* Topics according to target group (government, industry,

	financial, investor, legal sector, representatives of local community, research institutions)
15:00 - 1600 hrs	Group presentations according to target groups
16:00 – 16.30 hrs	Tea Break
16.30 – 17:00 hrs	Closing Remarks (Kenya Association of Manufacturers)

Appendix II: CDM Energy Projects for Poverty Alleviation

Introduction by
Stephen Gitonga and Katie Begg
gitonga@itdg.or.ke

Introduction

CAPA is a DFID funded project to carry out research on Modalities for the implementation of small-scale energy projects under the CDM to deliver poverty alleviation benefits.

The CDM is project-based mechanism under the Kyoto Protocol. Under the CDM, investors from an Annex 1 country with targets may invest in a project designed to reduce Greenhouse Gases (GHGs) in a developing country without targets and in return receive the credits for the emission reductions achieved.

Background

- A CDM project should also contribute to the sustainable development path of the developing country host.
- This DFID project, code named CAPA, is an 18-month project.
- It is designed to contribute to the design of the CDM under the Executive Board for the CDM so that poverty focused energy projects are encouraged.

Elements of the Project

- A major element of the project is capacity building in the host countries to aid the implementation of these small-scale types of projects.
- A range of energy projects are being studied and issues such as baselines for accounting for GHG reductions for these small scale projects and sustainability benefit delivery addressed.

Host Countries of the Project

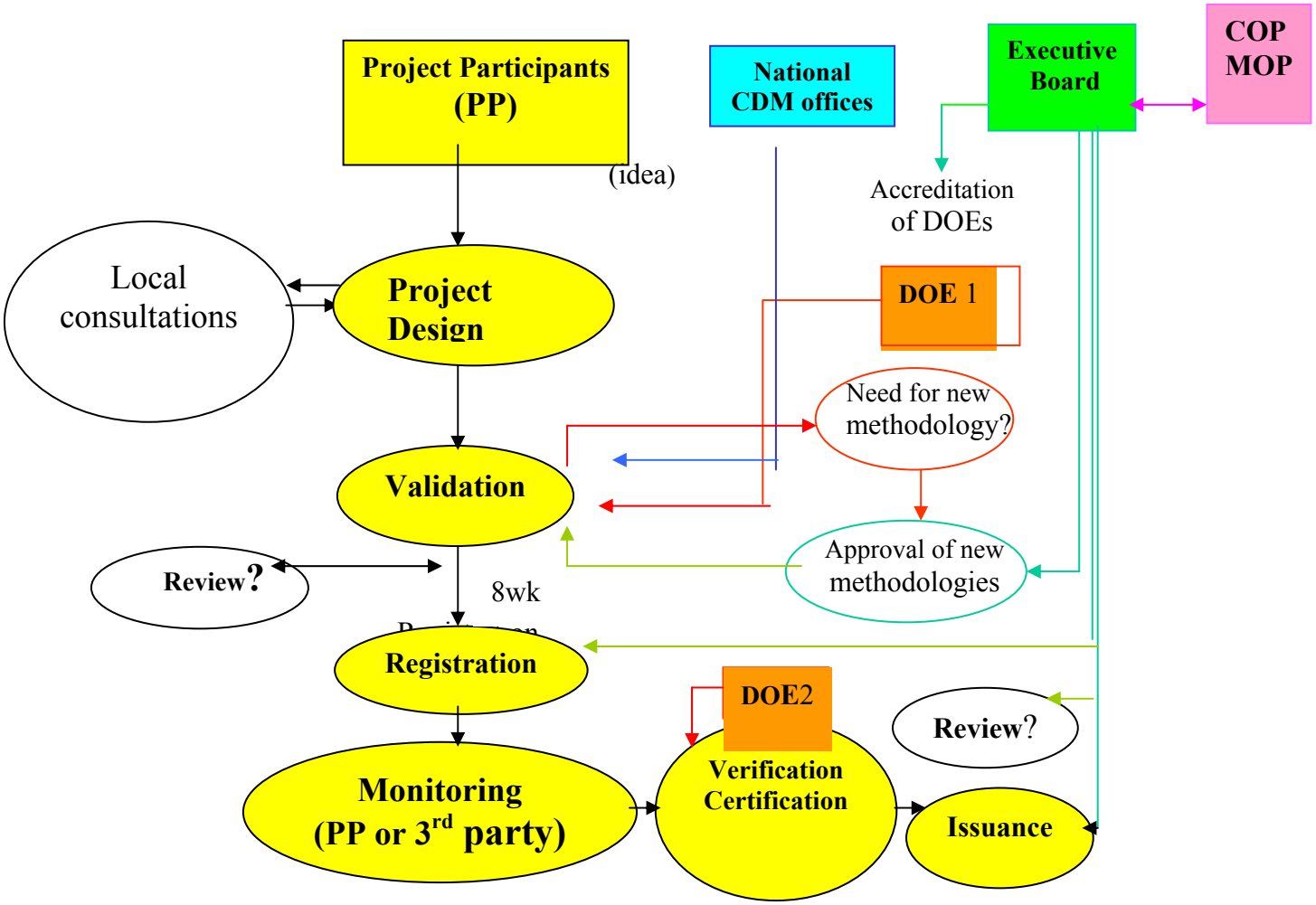
- The host countries involved are Kenya, Tanzania and Ghana
- The respective country partners are Intermediate Technology Development Group (ITDG) Kenya, KITE in Ghana and CEEST in Tanzania.

Co-ordination

The co-ordinator of the project is Dr K. G. Begg at the Centre for Environmental Strategy at the University of Surrey with Rona Wilkinson at the Intermediate Technology Consultants (ITC) as the other UK collaborator.
Stephen Gitonga and Martha Mathenge are the Kenyan Component co-ordinators
For further details please contact Dr Begg at k.begg@surrey.ac.uk or Stephen Gitonga at gitonga@itdg.or.ke

Appendix III: The CDM Process

Stephen Gitonga / Katie Begg / *D. van* der Horst
Intermediate Technology Development Group (ITDG-EA)
Centre for Environmental Strategy -University of Surrey



Notes on CDM Process

<u>Phases in the CDM project activity cycle</u>
Project Participant (PP) **designs** project activity
PP contracts Designated Operational Entity (DOE) to review the Project Design Document and confirm that all validation requirements have been met.
DOE (hired by PP) checks **validation** requirements
(if a new methodology is needed, EB must first approve)

when DOE decides validation requirements are met it sends report to Executive Board (EB) who will **register the project**
(unless there is a request for review within 30 days)
PP can start project but must **monitor** & report as agreed
DOE will **verify** monitoring data & advise on **certification**
EB will **issue** the Certified Emission Reductions (CERs)
(unless a review of DOE2 is requested within 15 days)
DOE is a body that has been **accredited** by EB and designated
by COP/MOP (review every 3 years, spot-checks)
The request for registration must include written approval
of voluntary participation by the national offices of each party involved

PP = project participants
PDD = project design document
DNA = designated national authority (DNAs of host and Annex 1 country must approve)
DOE = designated operation entity accredited by EB and designated by COP/MOP
EB = executive board of the CDM
CER = certified emission reductionsProject Design Document

Project Design Document
To guarantee successful registration and validation, the PDD must include:

- calculations of baselines and additionality
- description of boundaries,
- leakage potential,
- national policy and context of host country,
- crediting period.

Project Design Document (PDD)

- EIA
- Description of (local) public consultation and resulting adjustments to the plan
- Proposed monitoring methodologies conform M&V requirements
- Project must not divert ODA,
- Technology (transfer) must be sound and safe.
- Written approval must be obtained from donor and host countries, stating their voluntary participation

Designated Operational Entity (DOE)
DOE must ensure the PDD includes all of the above. The DOE (or its subcontractors) must:

- Comply with laws of host countries when carrying out its functions (validation/registration, or verification/certification)
- Demonstrate that it has no conflict of interest with the participants
- Only be involved in either the validation /registration, or the verification/certification, unless permission is requested and granted by the EB to do both.

DOE

- Maintain a publicly available list of all CDM projects it has worked on
- Submit an annual activity report to the EB
- Make information obtained from the CDM project participants publicly available, including information about additionality, baseline methodology and EIA
- Baseline and additionality methodologies in the PDD must be approved by EB. If the project requires the use of new methodologies, then these must be submitted by DOE and approved by EB prior to registration
- DOE's validation report is made publicly available upon transmission to EB

Validation and Registration

- ***Validation:*** PP contracts DOE to review the PDD and confirm that all validation requirements have been met.
- ***Registration:*** after validation by DOE, the project is registered by Executive Board (EB). Validation by the EB is automatic 30 days after registration, unless a review is requested by a UNFCCC party, or stakeholder, or approved NGO, or 3 members of the EB.

Monitoring

- **Monitoring:** emissions must be monitored during project life time. PP (or the third party they contracted) must monitor and report as set out in the PDD. Changes to monitoring methodology must first be approved by DOE
- Monitoring of environmental and social impacts is implicit in EIA

Verification and Certification

- **Verification :** A different DOE verifies monitoring data and certifies emission reductions. Verification by DOE includes site visits, checks of monitoring data and calculation of emission reductions.
- **Certification:** (written assurance that emissions are reduced by X amount) is provided by DOE after satisfactory verification (ex post determination) of emission reductions presented in the monitoring report. Monitoring, verification and certification reports are made publicly available.

Issuance

- ***Issuance:*** EB will issue Certified Emission Reductions
- Automatic issuance 15 days after certification unless there is a request for review of DOE (only if fraud, malfeasance or incompetence of DOE is suspected)

Appendix IV. UPDATE ON THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC) AND THE KYOTO PROTOCOL By Emily Massawa (NES-MENR)

Background

Studies over the past ten years or so have resulted in conclusive evidence that human activities are interfering with global climate system by increasing concentration in the atmosphere of greenhouse gases. These gases are so called because the let through the short-wave solar radiation to reach and warm the surface of the earth while they absorb the outgoing long wave terrestrial (heat) radiation thereby causing warming in the lower levels of the atmosphere. This warming takes place all over the globe and it is therefore referred to as global warming.

There are a large number of greenhouse gases that are emitted into the atmosphere through human activities. But the main ones include Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O) and Chlorofluorocarbons (CFCs).

The main human activities that result in the emission of large quantities of greenhouse gases include consumption of fossil fuels, deforestation, agriculture, and industries.

It is estimated that over the next 100 years, the mean global temperature will have increased by more than 3^o centigrade(c) with some estimates going as far as 4.5^oC. Regional increases will be higher than the above-mentioned mean value.

The global warming is expected to result in changes in climate at global, regional and local scales. Studies have indicated that this climate change will have far reaching impacts on the environment.

Some of these impacts include frequent occurrence of severe droughts in areas that are already prone to them. Increased frequency of rainstorms and flooding in areas with high rainfall, increased frequency of tropical storms, increased cases of vector and water borne diseases, and denudation of coastal areas as a result of sea level rise. The impacts of the last El Nino event are still very fresh in Kenyans memories and these are the sorts of climatic events that are predicted to be on the increase.

Because of the global concern about the potential impacts of climate change, a United Nations Framework Convention on Climate Change (UNFCCC) was negotiated and signed during the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992.

Kenya ratified the Convention on 28 August 1994 and it came into force for Kenya three months later and thus becoming Party to the Convention.

The parties to the Convention commit themselves to undertake a number of activities to respond to the climate change, the main ones being the following: -

- To carry out National Inventories of greenhouse gas sources and sinks, to publish the information, periodically, up date the same and make it available to the Conference of the Parties.

- To formulate and periodically up date national programmes containing measures to mitigate climate change by addressing anthropogenic emissions of greenhouse gas sources and sinks.

- To prepare for adaptation to the impacts of climate change especially integrated plans for coastal zone management, water resources, agriculture health, droughts and desertification as well as floods.

- Promote and cooperate in scientific technological, technical and socio-economic and other research, systematic observations, and data storage related to climate system.

- Promote and cooperate in education, training and public awareness related to climate change.

- Communicate to the Conference of the Parties (COP) information related to implementation of the (UNFCCC).

POLITICAL DEVELOPMENTS SINCE COP1

The United Nations Framework Convention on climate change required the 1st Conference of Parties to review whether the commitment of developed countries to take measures aimed at returning their emission to 1990 levels by the year 2000 was adequate for meeting the Convention objective. The parties agreed that new commitments were indeed needed for the post - 2000 period. They established the Ad hoc Group on the Berlin Mandate (AGBM) to draft "a protocol or another legal instrument" for adoption at COP-3 in 1997.

The Berlin mandate process started by addressing all greenhouse gases and considering setting Quantified Emission Limitation and Reduction Objectives (QELROS) for limiting and reducing emission within specified time frame such as 2005, 2010 or 2020. The negotiations took almost two years and ended in December 11, 1997 in Kyoto with the adoption of a protocol - Kyoto Protocol. The emission reduction target of GHGs agreed upon is roughly 5% below the 1990 levels in the commitment period 2008 to 2012. The protocol has provision for Joint Implementation (JI), Emission (ET) Trading and a Clean Development Mechanism (CDM).

i) Joint Implementation is a specific concept in the Convention providing for developed countries to co-operate in jointly implementing climate change mitigation measures in a cost-effective way for the mutual benefit of both Parties.

ii) The basic concept of Emissions Trading is in some ways similar to JI, in that a party which felt it was expensive to reduce emissions at home would, in effect, "buy" reductions elsewhere. It is, however, perhaps less odious to developing countries because it depends very heavily (or should depend very heavily) on

those with "spare" emissions being willing to sell them on what should amount to a fee market.

iii) Article 12 of the Kyoto Protocol defines the Clean Development Mechanism. It is a form of JI, in that it allows nations that have not yet adopted legally binding emissions limits (non-Annex 1) to participate in the Climate protection activities of the Protocol.

KYOTO PROTOCOL
It was left for subsequent meetings to decide on most of the rules and operational details that will determine how these cuts on emissions are achieved and how countries' efforts are measured and assessed. Although 84 countries have signed the Protocol, most have been waiting for the negotiations of the operational details before deciding whether to ratify. Kenya started the accession/ratification process in October 2001.

To enter into force, the Protocol must be ratified by 55 Parties to the UNFCCC, including Annex 1 Parties representing at least 55% of the total carbon dioxide emissions for 1990. To date 40 Parties have ratified the Protocol, including one Annex 1 Party, Romania.

THE BUENOS AIRES PLAN OF ACTION

In the 4th Conference of the Parties (COP-4) held in Buenos Aires, Argentina, a schedule was set for reaching agreement on the operational details of the Protocol and for strengthening implementation of the UNFCCC itself. This work schedule was outlined in a decision known as the Buenos Aires Plan of Action (BAPA). The critical deadline under BAPA was COP-6, where Parties were to reach agreement on a package of issues.

Critical Protocol-related issues needing resolution included rules relating to the mechanism, a regime for assessing Parties Compliance, and accounting methods for national emissions and emissions reductions.

Issues under the UNFCCC requiring resolutions included questions of capacity building, the development and transfer to technology, and assistance to those developing countries that are especially vulnerable to the adverse effects of Climate Change or to activities taken by industrialized countries to combat Climate Change.

COP-6 PART 1

The 6th Conference of the Parties was held in The Hague, the Netherlands in November 2000.

The COP-6 President, Jan Pronk, Minister for Housing, Spatial Planning and the Environment of the Netherlands attempted to facilitate progress on the many disputed political and technical issues by convening high-level informal plenary sessions to address the key political issues, which he grouped into four `boxes' as follows: -

a) Capacity Building, Technology Transfer, adverse effects and guidance to the financial mechanism
b) Mechanisms
c) Land-use, Land-use Change and Forestry (LULUCF)
d) Compliance, Policies and Measures (P&Ms) and accounting, reporting and review under Protocol, Articles 5 (Methodological issues) 7 (communication and information) and (review of information).

After almost 36 hours of intense negotiation, no agreement could be achieved on the presidents' proposals. Particularly difficult were the financial issues, supplementarity in the use of the mechanisms compliance and LULUCF. COP-6 was therefore suspended on Saturday 25th November 2001.

COP-6 PART II

The Climate Change discussions suffered some set back when in March 2001, the US administration declared its opposition to the Kyoto Protocol, stating that it believed it to be `fatally flawed as it would damage its economy and exempted developing countries from fully participating.

Parties however decided that they would continue the discussions despite USA's withdrawal.

At the high-level segment of the resumed COP6 held in July in Bonn, Germany, Participants resolved to make a breakthrough by achieving agreement on a "political" decision on key outstanding issues. However, in spite of several Parties announcing that they would support the political decision, disagreements surfaced over the section on compliance.

The political decision – or "Bonn Agreements" was approved and formally adopted by the COP on 25 July 2001. High-level discussion also resulted in a Political Declaration by a number of developed countries in which they pledged additional funding for Climate Change for developing countries.

Although draft decisions were approved on several key issues, delegates were unable to complete all their work on mechanisms, compliance and LULUCF. Since not all texts in the entire "package" of decisions were completed, all draft decisions were forwarded to COP-7 where delegates were to attempt to conclude their negotiations.

COP-7

The seventh Conference of the Parties to the United Nations Convention on Climate Change was held in Marrakech Morocco from 29 October 2001 to 10 November 2001.
Delegates focused on finalizing an agreement in the operational details for commitments on reducing emissions of greenhouse gases under the Kyoto Protocol. The discussions were based on political principles – the Bonn Agreement. The COP also set up one Kyoto Institution, the Executive Board (to ensure the CDM's prompt start) and an Intergovernmental Panel on Technology Transfer. The high level segment was held

from 7 – 10 November 2001, and then closed with the adoption of decisions and conclusions.

SUMMARY OF THE OUTCOME

The principles set out in the Bonn Agreement and that was the basis for the decisions include: -

- Developed countries have agreed to provide greater access to funds and technology so that developing countries can limit emissions and adapt to climate change. They will also minimize the economic impact that their efforts to reduce emissions will have on developing countries. Specifically, a Special Climate Change Fund for adaptation, technology transfer, and emissions limitation will be established under the Convention, as will a Least Developed Countries (LDC) fund for implementing the Convention and adapting to climate change. In addition, a Kyoto Protocol Adaptation Fund will be established to finance concrete adaptation projects and programmes. In July 2001, many developed countries made a joint political statement pledging to contribute €450 million ($410 million) per year by 2005 to help developing countries manage their emissions and adapt to climate change. Developing countries want a system for contributing to and overseeing the various funds to become quickly operational.

- Developed countries can receive credit towards their Kyoto emissions targets for carbon dioxide absorbed from the atmosphere by "sinks". Eligible activities include revegetation and the management of forests, croplands and grazing lands. Individual country quotas have been set; the result is that sinks will account for only a fraction of the emissions reductions that can be counted towards the Kyoto targets.

- Energy efficiency, renewable energy, and forest sink projects can qualify for the Clean Development Mechanism. Developed countries are to refrain from using nuclear facilities in the CDM.

- Use of the Protocol's three flexible mechanisms should be supplemental to domestic action, which will constitute a significant element of the effort made by each Party. This applies to the CDM and to the international emissions trading regime, which enables developed countries to buy and sell emissions credits amongst themselves, and the Joint Implementation regime, under which OECD countries can invest in projects in countries with economies in transition.

- A Compliance Committee with a facilitative branch and an enforcement branch will oversee the compliance mechanism. For every ton of gas that a country emits over its target, it will be required to reduce an additional 1.3 tons during the Protocol's second commitment period.

- Additional compliance procedures and mechanisms will be developed after the Protocol enters into force.

The Kyoto Protocol will enter into force and become legally binding after it has been ratified by at least 55 Parties to the Convention, including industrialized countries

representing at least 55% of the total 1990 carbon dioxide emissions from this group. So far, 40 countries have ratified, including one industrialized country (Romania).

A LOOK AT SOME OF THE ISSUES RAISED BY COP7 DECISIONS TOUCHING ON CDM

The implications of the overall package of decisions in COP7 on prices of carbon are hard to estimate and talk about at this time. US withdrawal, substantial allowance for domestic sink activities and "hot air" tend to suppress prices, while increased certainty of the Kyoto Protocol coming into force and the positive outcome on Fungibility and transferability of credits have an opposite effect. All credits have value at the end of the commitment period. A number of studies have been commissioned on this.
The Marrakech meeting was a milestone with one significant achievement - rules finally exist.
Therefore ratification and the coming into force of the Kyoto Protocol is possible and Concrete implementation can start on (relatively) sound basis.
We do however know that making the rules operational is a huge task for the CDM Executive Board and the project developers. This is because many clarifications and interpretations are needed.

Below are some issues that could be of relevance for the prompt start of the CDM

1) Streamlined Procedures

The Marrakech decision confirmed that streamlined procedures could be used for small projects.

> "6 (decision 17/CP.7 Para 6)- Decides that the executive board shall include in its work plan until the eighth session of the Conference of the Parties, inter alia, the following tasks: -
>
> c) To develop and recommend to the Conference of the Parties at its eighth Session, simplified modalities and procedures for the following small scale Clean development mechanism project activities: i) Renewable energy project Activities with a maximum output capacity equivalent of up to 15 mega watts (Or an appropriate equivalent); ii) Energy efficiency improvement project Activities, which reduce energy consumption, on the supply and/or demand Side, by up to the equivalent of 15 gig watt hours per year; iii) other project Activities that both reduce anthropogenic emissions by sources and that Directly emit less than 15 kilotonnes of carbon dioxide equivalent annually;"
>
> The details on how streamlining can be done is to be decided in COP8 on the Basis of the executive boards recommendations.
>
> Two categories could be subject to streamlining:
>
> - Project cycle steps (e.g. combining monitoring and verification steps)
> - Methodologies (e.g. standardized baselines and simplified monitoring plans)

Would the Executive Board (EB), welcome proposals for streamlined procedures for small CDM projects prior to COP8?

2) Afforestation and Reforestation projects

The Marrakech rules also confirmed the eligibility of afforestation and reforestation CDM activities. Exact rules and modalities for these activities will be adopted in COP9 in 2003. If however, Parties want to start pioneering these activities, it should be noted that the CDM executive board would not register such projects prior to COP9 (in particular since it is not in the Executive Board's mandate to develop definition and modalities for sink activities).
However if such activities were in the offing would it be reasonable to assume that such activities can be validated and started, and could, if eligible, be subsequently registered and receive credits retrospectively from the project starting date?

3) **Project Risk Assessment**

Ratification of the Kyoto Protocol was made a validation/registration requirement for the CDM projects and project proponents/developers will give increased weight to assessing whether the host country is likely to ratify or at least initiate the process i.e. before the project is being submitted for registration. It is also important to note, however, that the executive board may decide to register projects pending host country ratification requirement.

4) **Public consultation during the project design phase**

Consultations during the project design are considered to be the responsibility of the CDM project sponsors.

"37. The designated operation entity selected by the project participants to validate project activity, being under a contractual arrangement with them, shall review the project design document and any supporting documentation to confirm that the following requirements have been met:

> (…) (b) Comments by local stakeholders have been invited, a summary of comments received has been provided, and a report to the designated operational entity on how due account was taken of any comments has been received."

5) **Preparation of project design document**

A part from other issues that are relatively straightforward, an affirmation may be required that the CDM activity does not lead to diversion of Official Development Assistance (ODA). This may require a letter from the Investor Governments participating in the CDM activity affirming that the funds provided are not part of their ODA financing or other financial obligations under the Climate Change Convention nor has led to reduction. More clarification will be sought on this.

6) **Baseline study monitoring and verification plan**

A baseline for a CDM project activity is a scenario that reasonably represents the anthropogenic emission by sources of greenhouse gases that would occur in the absence of the proposed project activity.

This is an area where a great deal of capacity needs to be built nationally. Kenya will comply with requirements for baseline and monitoring methodologies approved by the Executive Board.

The CDM rules specify that all new baseline and monitoring methodologies need to be approved separately by the CDM executive board before a project can be registered. It is the task of the validator to send all methodologies it determines to be new to EB approval. The EB is to approve to reject such methodologies within four months. The COP/MOP can request a review of a methodology. Perhaps at this stage a definition ought to be given to the word "Methodology".

So far, only accredited operational entities can submit methodologies for approval, delaying the beginning of this process until such accreditation are granted.

7) **Crediting period**

A CDM Project activity may choose to use a 10-year crediting period or a 7-year period with a maximum of two renewals. It is reasonable to expect that the latter option would be more popular as few projects with a 10-year crediting period can produce a sufficient volume of CERs to make the project viable.

It remains to be determined what exactly is required when the CDM crediting period is renewed. Project developers, operational entities and the CDM executive board will need to address which aspects of the baseline can be treated as constant and which can be subject to change over the lifetime of the project. Some of the questions include: -

- What kind of new data would trigger adjustments of the baseline scenario?
- Would technology breakthroughs that are not part of the original scenario analysis have to be considered when the crediting period is being renewed?
- What kind of indicators will need to be monitored (as part of the monitoring plan) during the crediting period? Can a single or a few indicators trigger a switch in the baseline or is the baseline to be fixed/constant over the 7-year period?

8) **Validation process**
Procedures for CDM operational entity accreditation may become available in May/June 2002. Accreditation decision can be expected within months after that.

9) **Approval letters**
On project approval, the CDM text says that the designated operational entity shall have received from the project participants written approval of voluntary participation from each Party involved.

"40 - The designated operational entity shall:

a) Prior to the submission of the validation report to the project participants written approval of voluntary participants from the designated national authority of each Party involved, including confirmation by host Party that the project activity assists in achieving sustainable development.

But more light needs to be shed on issues such as: -

a) Are letters approving voluntary participation in a CDM project activity required for each individual project? Or
b) Can a general letter approving voluntary participation of an entity in any CDM project be issued.
c) Is such a letter required from a Party (or Parties) that are not directly involved in a project (i.e. where the Government in question is not a project participant), but a private entity from that Party is?

10) **Registration**

REGISTRATION FROM THE HOST COUNTRY RATIFICATION OR COMING INTO FORCE OF THE KYOTO PROTOCOL?

In the CDM, registration is the formal acceptance by the executive board of a validated project as a CDM project activity. The request for registration is made in the form of a validation report sent to the executive board by the operation entity, i.e. the validator. The CDM executive board may review the proposed CDM project activity (ref. Para.41 & 42 of decision).

The most important precondition for registration in the CDM is that the host country has to have ratified the Kyoto Protocol at the time when the project is registered:

”30 - A Party not included in Annex 1 may participate in a CDM project Activity if it is a Party to the Kyoto Protocol.

”37 - The designated operational entity selected by project participants to Validate a project activity, being under a contractual arrangement with Them, shall review the project design document and any supporting Documentation to confirm that the following requirements have been Met:

a) The participation requirements as set out in paragraphs 28 to 30 above are satisfied.

This requirement would seem to imply that not only must the host country have ratified but also that the Kyoto Protocol must be in force before a project can be registered. This is the usual definition of being a party to an International Agreement. However, there are some indications that the CDM executive board may interpret this rule to only require ratification by the host country, not coming into force of the Protocol.

The interpretation of this provision is crucial as a CDM project can only earn credits from the date of registration:

"COP…

12. Decides that certified emission reduction shall only be issued for a crediting period starting after the date of registration of a CDM Project activity.

If paragraph 30 were interpreted to mean that the Kyoto Protocol has to come to force before a project can be registered, many prompt start projects would be at risk of losing a portion of their credits. The incentive to start projects promptly would be reduced and the project developers might put projects on hold. This is the case especially if there is any risk that the coming into force of the Protocol is delayed for some reason.

11) **Shares of the proceeds in the CDM**

2% share of the proceeds for adaptation is taken out of all CERs issued. LDC projects are exempt.

The share of proceeds for administrative expenses of the CDM remains to be determined by the COP upon the recommendation of the executive board. Until the COP determines this fee, the executive board will charge a fee to cover any project related expenses. The level of this is not yet known.

MODALITIES AND PROCEDURES FOR A CLEAN DEVELOPMENT MECHANISM AS DEFINED BY ARTICLE 12 OF THE KYOTO PROTOCOL

THE INSTITUTIONS

COP/MOP

The Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol has the overall authority and provides guidance to the CDM through the EB.

SUBSIDIARY BODIES

The Kyoto Protocol will make use of the same permanent subsidiary bodies as the convention, but only parties to the Protocol will have the right to take decisions on Protocol matters. The COP/MOP will also be able to establish its own subsidiary bodies, if needed.

EXECUTIVE BOARD

The Executive Board supervises the CDM under the authority and guidance of the COP/MOP.
Amongst other duties, it shall accredit operational entities, which meet the accreditation standards contained to the Annex of the decision of COP-7 on Article 12.
The Executive Board was in place by end of COP-7. It has embarked on its duties including: -

a) Developing (and is already applying) its draft rules of procedures

b) Accrediting and designating operational entities on a provisional basis, pending the designation by COP-8

c) Working on simplified modalities and procedures for small scale CDM projects activities in the areas of renewable energy (up to 15MW) energy efficiency (up to 15 giggwatt1yr) and other project activities that both reduce anthropogenic emissions by sources and that directly emit less than 15 kilotonnes of carbon dioxide equivalent.

DESIGNATED OPERATIONAL ENTITIES (DOE)

The Designated Operational Entities are accountable to the COP/MOP through the EB. Their activities are in the area of validation, verification and certification of CDM project activities.

It is possible that by May 2002 some DOEs will be accredited by the EB. In the Annex to decision 17/CP.7 are accreditation standards, for the Designated Operational activities and functions to be performed and Parties participation requirements.

MODALITIES, PROCEDURES AND PARTICIPATION REQUIREMENTS

Below is a summary of what was agreed on under the CDM decision 17/CP.7 that is of immediate relevance to non-Annex 1 country participation in the CDM.

1. Participation in CDM project activity is voluntary;
2. Parties participating in the CDM must designate the National Authority for the CDM;
3. Participants must be Parties to the Kyoto Protocol;
4. It is the host country's prerogative to confirm that a Clean Development Mechanism Project actually assists it in achieving sustainable development;
5. Nuclear facilities do not qualify for CDM activities;
6. Promotion of equitable geographical spread of CDM projects at regional and sub-regional levels;
7. No diversion of ODA to fund CDM activities;
8. The transfer of technology under CDM is additional to that required under Article 4.5 of the Convention and Article 10 of the Kyoto Protocol;
9. LULUCF activities are allowed under Article 12 but limited to afforestation and reforestation

10. a) CERs to be issued for a crediting period starting after the date of Registration of a CDM project activity
    b) A project activity starting as of the year 2002 shall be eligible for Validation and registration as a CDM project activity if submitted before 31 December 2005. If registered, the crediting period for such project Activities may start prior to its registration but not earlier than 1st January 2000.
11. Share of proceeds towards adaptation is 2% of CERs
12. LDCs exempt from share of proceeds to assist with costs of adaptation

CDM PROCEDURES

Project Identification/Formulation

The key actors at this stage include the Project proponents, Designated National Authority and Bilateral/Multilateral Development Agencies.

For the CDM project to pass the validation test and be registered by the Executive Board, it has to meet the requirements of the CDM as set out in the COP-7 decision and be based on the project design document as outlined in the Appendix B of the decision and summarized below.

Project Design Document
Has the following elements:-

1. A description of the project comprising the project purpose, a technical description of the project, including how technology will be transferred and a description and justification of the project boundary;
2. A justified proposed baseline methodology in accordance with the COP7 decision on modalities and procedures for a CDM.
3. A statement of the estimated operational lifeline of the project and which crediting period has been selected.
4. Emissions additionality description of how the anthropogenic emission of GHG by sources is reduced below those that would have occurred in the absence of the registered CDM project activity.
5. Environmental Impact Assessment in accordance with procedures of host Party
6. Information on sources of funding from Annex 1 does not result in a diversion of ODA and is separate from and is not counted towards the financial obligations of those Parties
7. Stakeholders comments, including a brief description of the process, a summary of the comments received, and a report on how due account was taken of any comments received
8. Monitoring plan;
   a. Identification of data needs and data quality with regard to accuracy, Comparability, completeness and validity;
   b. Methodologies to be used for data collection and monitoring including quality assurance and quality control provisions for the monitoring collection and reporting

9. Calculations
   Description of all the formulae and methodology used in arriving at the emissions reductions of the CDM project activity.

CDM Validation/Registration

Validation is the process of independent evaluation of a project activity by a designated operational entity against the requirements of the CDM (PDD).

Registration: Formal acceptance by the EB of a validation project as a CDM project Activity

This activity is carried out by the Designated Operational Entities participation in collaboration with the Designated National Authorities (CDM Clearing House).

Issues of concern: -

- Does the project meet national objectives, sustainable development

- The DOE must comply with laws of host country when carrying out its functions (Validation/registration or Verification/Certification)
- Demonstration that there are no confliction of interests

The DOE to be involved only in the validation/registration or the verification/certification, unless permission is requested and granted by the EB to carry out both. The DOE must maintain a publicity available list of all CDM projects it has worked on; submit an annual activity report to the EB; make information obtained from the CDM project participants publicly available; including information about additionality; baseline methodology and EIA; Baseline and additionality methodologies in the PDD must be approved by EB. If the project requires the use of new methodologies, then these must be submitted by DOE and approved by EB prior to registration.
The DOE's validation report must be made publicly available upon transmission to EB.

Registration

After validation by DOE, Executive Board (EB) registers the Project. Validation by EB is 30 days after registration, unless a UNFCCC Party or stakeholder, or approved NGO or 3 members of the EB request a review.

Monitoring

Emission must be monitored during project lifetime. Monitoring of environmental and social impacts is implicit in EIA. If changes in monitoring methodology must be approved by DOE.

Verification and Certification

Verification is the periodic independent review and ex post determination by DOE of the monitored reductions in anthropogenic emissions by sources of GHGs that have occurred as a result of a registered CDM projects activity during the verification period.
Certification is the written assurance by the DOE that, during a specified time period, a project activity achieved the reduction in anthropogenic emission by sources of GHGs as verified.
Verification by DOE includes site visits, checks for monitoring data and calculation of emission reductions.
Monitoring, verification and certification reports are made publicly available

Issuance of Certified Emission Reductions

This is automatic 15 days after certification unless there is a request for review.

CAPACITY BUILDING NEEDS

CDM sponsors as well as host governments will reflect uneven capacity. Therefore to have transparency and a harmonious working relationships, the capacities on both sides need to be balanced or at least raised so that there are equal partners participating in a project. Going through the CDM process what is obvious is that DOEs who are largely based in Annex1 countries carry out most of the activities. Diverse strategic means should be used to build sponsor and host government capacity. They include; provision

of technical assistance; prefeasibility grants; Activities that make a project fully viable include introducing quality control systems, management, marketing and technology training, credit financing skills or funding; use of e-mail and web pages to communicate project development experiences as well as funding alternatives.
Developing countries need an enormous amount of capacity building starting right from the decision makers in government as well as other relevant stakeholders outside of the government, on the benefits of the CDM.
Now that the rules of the CDM are established, developing countries now need to be assisted to take advantage of the CDM to further their sustainable development priorities through prototype projects and capacity building activities, with a particular focus on utilizing the CDM to leverage additional private sector investment.

The COP-7 Decision on the CDM makes a request to Annex 1 Parties to start implementing measures to assist non-Annex 1 Parties with building capacity in order to facilitate their participation in the Clean Development Mechanism.
The sort of activities that non-Annex 1 countries clearly need their capacity built are those that will make the CDM projects viable, while taking into account the relevant decisions on capacity building and on the financial mechanism of the convention, these sort of activities could also be targeted for ODA.
The following are the CDM capacity needs: -

- Establishment and strengthening of institutional linkages required for the implementation of the CDM (Institutional, adequate resources and technical capacity to evaluate projects against sustainable development and other host country requirement)
- Project identification, formulation and design including assessment, validation and implementation;
    - Monitoring, verification, auditing, and certification of Project Activities;
    - Development of criteria, including for Sustainable Development Indicators (e.g., for adaptation);
    - Development of Baselines;
    - Project Negotiation skills- Capacity needs to be built in the negotiations (to ensure projects meet host country development objectives (& retention of credits) contribute to sustainable development and retention of credits.
    - CDM Demonstration Projects to enhance capacity (learning by doing), including assessment of costs/risks (long and short-term);
    - Data acquisition and sharing.

The capacity building needs amongst decision-makers in the longer term include the need to develop their capacity to;

a) Formulate a regulatory framework to deal with regulatory, legal, financial, and technical issues that are unique to CDM projects; and
b) Identify and apply baseline parameters in accordance with agreed procedures.

POVERTY ALLEVIATION

PRSP recognizes that physical infrastructure includes transportation, water sanitation, energy, building etc. and that efficient transport and communications systems offer a fast and effective vehicle for industrialization and rejuvenation of economic growth. This

sector is to be strengthened by amongst other strategies encouraging the private sector to undertake joint venture with the Government.

CDM is certainly the sort of joint venture that has in-built in it sustainable development considerations. Central to sustainable development objectives is the goal of eradicating poverty. Because the lack of modern energy services correlates closely with many dimensions of poverty alleviation such as economic development, educational opportunities, health care and functional sanitation facilities, provision of modern energy services especially to those living in poverty should be an essential component of national development.

As Kenya works towards industrializing by the year 2020, significant growth in the provision of modern energy services is inevitable.

As Kenya's energy consumption grows so too will emissions of GHGs from thermal generation of electricity; with time, these emissions could become increasingly significant contributors to climate change. The CDM offers potential opportunities for developing countries such as Kenya to advance their sustainable development objectives while contributing to reducing GHGs.

The decision small-scale CDM projects would indicate an attempt at the earliest opportunity of having on board projects that are aimed at poverty alleviation. Small projects tend to be more democratic as then they are more affordable and can be more widespread. The projects currently being considered are in the area of energy
Access to energy is important in that in moving from a rural poor condition, increasing access to energy can provide the means for freeing time and empowering the people. There are more social and economic benefits including health and education benefits with increasing a clean and efficient energy service.

CDM projects will provide the opportunity to more Kenyans to participate fully in the economic development of the country and to a decent standard of living.

Although there is a decision on land-use, land-use change and forestry and therefore touching on agriculture, the exact rules and modalities for these activities will be adopted at COP9. The PRSP has identified agriculture as a core sector and therefore activities in the identification of projects in this area should start so as to be ready by COP9.

TECHNOLOGY TRANSFER AND CAPACITY BUILDING

The CDM is a financial opportunity whereby the developing countries can promote the use of environmentally sound technologies. Climate Change policy analysis is fraught with uncertainty and controversy, but at least one thing is perfectly clear: technological innovation is the key to addressing Climate Change. Moving the economy on a green house friendly path will necessitate a profound economic transition – a transition that simply cannot come to pass without technological progress.

CDM is but one of the vehicles which can be used for transfer of technology. But this has to be in line with the objectives of the CDM. Hence the transfer of technology must meet both the objectives of sustainable development and also simultaneously reduces the emission of GHGs in the host country in which case there has to be proper training of the decision-makers who have to decide on the details of a particular project. The

training would however not be limited to evaluation of GHG Emission reductions but to overall needs of sustainable development.

The project implementers too have to be trained and made aware of the maintenance and reliability in delivering reductions over the long term and in ensuring commercial viability in the long term. Business and marketing skills as well as technology training are key factors to success (CES, 2000), micro-credit financing skills or funding as well as public participation expertise.

Under the COP7 decision on development and transfer of Technologies in the Annex, part IV on the scope of capacity building; there are activities that are relevant for the CDM namely;

- Enhancement of the awareness of financial institutions, public, private and international of the need to evaluate environmentally sound technologies on an equal footing with other technology options.
- Provision of opportunities for training in the use of environmentally sound technologies through demonstration projects
- Enhancement of skills in the adoption, adaptation, installation, operation and maintenance of specific environmentally sound technologies and a broadening of understanding of methodologies for evaluating alternative technological options
- Strengthening of the capacities of the existing national institutions relevant to technology transfer, taking into account country and sector specific circumstances, including south-south cooperation and collaboration
- Training in project development and the management and operation of climate technologies
- Development of skills and know-how in conducting technology needs assessment.
- Enhancement of knowledge on energy efficiency and the utilization of renewable energy technologies
- Strengthen the indigenous capacities and capabilities in research, development, technological innovation, adoption and adaptation and technology for systematic observation, relevant to climate change and its associated adverse effects.

DIRECT AND INDIRECT ENVIRONMENTAL AND SOCIAL BENEFITS

- The implication of CDM projects on social development of Kenya could be significant as the mechanism is designed according to the principles contained in Articles 2 and 3 and Article 4.7 of the Convention.
-
- Below is a quote of Article 4.7 of the Convention;
-
- “The extent to which developing country Parties will effectively implement their commitments under the convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer and social development and poverty eradication are the first and overriding priorities of the developing country Parties”.
-

- This truly reflects Kenya's and other developing countries position. The first development priority for Kenya is poverty eradication. The country aims at achieving this object through industrialization by the year 2020.
-
- The size of the CDM projects as per the decision of the COP-7 are small and therefore have the advantage of being democratic as they can be well distributed rather than concentrating in certain areas. Poverty is a major concern in urban and rural areas. However, given that about 80% of the population lives in the rural areas, the magnitude of poverty is conspicuously high in these areas. Taking into consideration that the potential CDM projects identified if implemented would be rurally based, it is foreseen that these projects will benefit a bigger population through the generation of new activities within local communities and therefore meet a major requirement of the economic and social policy of Kenya, which is the creation/generation of new jobs.
-
- Economic activities arising from the implementation of CDM projects will also create capacity in local communication for raising per capita well being. This may be achieved through for e.g. improvement of infrastructure access to energy therefore freeing time and empowering the people.
-
- There are also social and economic benefits including health and education benefits with increasing an efficient energy service.
-
- A large section of the rural population are women and these projects being located there, would to some extent allow a more even distribution of wealth and bring empowerment of women therefore targeting another of the country's crucial issues.
-
- The CDM projects being largely in the areas of energy and LULUCF, they will contribute to reversing the degradation of natural resources especially forests, soil and water resources. The introduction of new and more efficient technologies should reduce the pressure being exerted on the environment.

GREENHOUSE GAS ASSESSMENT IN KENYA

Two studies have been undertaken to inventory levels of greenhouse gases from various sectors in Kenya as per the guidelines of the IPCC. These studies were the United States Kenya Country Study on Climate Change (Mbuthi et al. 1998) and UNDP/GEF Capacity Building Project (Agatsiva and Obiero 1998). The studies covered five sectors namely; Energy, Agriculture, Land Use Change and Forestry, Industrial Processes and Waste Management.

Table 1 summarizes the emissions from all the five sectors for 1994. Detailed results are presented in the individual sectors. Kenya is a net carbon dioxide sink, absorbing about 22,752 Gg CO_2 per annum, due to regeneration of forest and non-forest trees. This finding is associated with uncertainties in quantities of activities in land use change and forestry. This is also because the land use issues in Kenya are quite uncertain.

The other emitted gases are methane (750 Gg) whose highest emissions are from the agricultural sector (576 Gg) followed by energy sector (148 Gg). Another GHG emitted is

N_2O (1.4 Gg) mainly coming from the energy sector (1.3 Gg). The other non-GHG's are Nox (50.9 Gg), CO (1645.3 Gg), and NMVOC (6.0 Gg).

Table 1. Summary of GHG Emissions from anthropogenic activities in Kenya in 1994 (in Gigagrammes)

Sector	Gas Type					
	CO_2	CH_4	N_2O	NOx	CO	NMVOC
Energy	-4522	148	1.3	46.7	1645.3	-
Industry	-990	-	-	1.5	5.6	6.0
Agriculture	-	576	-	-	-	-
Land use/ Forestry	+28262	11	0.1	2.7	9.4	-
Wastes	-	15	-	-	-	-
TOTAL	+22752	750	1.4	50.9	1660.3	6.0

Source: Kenya's Draft Initial National Communications to the UNFCCC,2002

Conclusions

In most of the sectors, gaps were identified due to lack of comprehensive data storage and management, particularly on annual basis. In all except cement manufacture, there were no local emission factors. The results show that carbon dioxide is the major greenhouse gas emitted, the bulk of it coming from the energy sector, more than 65% of CO_2 emitted, mainly from the transport sector, which is the largest consumer of petroleum products in Kenya. The second largest emission of carbon dioxide (CO_2) is from the industrial sector, mainly from cement production. Other important gases emitted include carbon monoxide (CO), methane, oxides of nitrogen (NO_X) and nitrous oxide (N_2O). Agricultural sector (including livestock production) is the major emitter of methane (over 70%) followed quite significantly by the energy sector. The largest source in the agricultural sector is enteric fermentation emitting most significantly methane. Although synthetic fertilizers are a source of nitrous oxide, their total emission is low due to limited use of fertilizers in Kenya.

Land use change and forestry sector has been found to be a major carbon dioxide sink. This results in Kenya being concluded as a net sink of carbon dioxide but a lot of caution needs to be put into consideration because future industrial developments and deforestation may change this situation.

Work carried on GHG emissions in Kenya show that the country is a very low emitter. This is one factor that will likely limit the number of CDM investments flowing into the country, as the options for mitigation are limited. The challenge the government therefore faces is coming up with policies and projects that enhance the country's potential to stabilize the global emissions through emission avoidance or sink preservation.

KENYA'S PROGRESS ON THE CDM

Kenya's current trend on Official Development Assistance (ODA) has been on the decline and is trying to lobby under avenues such as the NEPAD for ODA to be reversed back to support the development initiatives under the poverty reduction strategies.

Foreign Direct Investment (FDI) has proved to be a critical source of development capital for Less Developed Countries. Apart from providing external funding, FDI also contributes to technology spillovers, improves productivity and facilitates the transfer of human skills. Multinational Corporations (MNCs) also play a key role in diversifying the export base of host countries.
Given the importance of FDI, and the country's low absorption of world FDI,
Kenya is already taking steps to boost FDI flows to the country. Key measures include: -

a) Putting in place an Investment Code that will consolidate the incentives, protections and institutional framework for investment;
b) Continuing to improve on existing export promotion schemes such as the Export Processing Zones, the Manufacturing Under Bond and the Duty/VAT drawback schemes;
c) Improving economic infrastructure to strengthen the enabling environment; and
d) Continuing with the institutional reform that will enable the investment support institutions to meet best practice standards.

The Government is also working on the issue of micro-finance so as to increase the funds available for investment in the rural areas. The government intends to set up a rural development fund from which entrepreneurs can borrow for investment. Setting aside 2% of the annual Government budget each year will finance this. The fund will also receive resources from externally generated capital from bilateral and multilateral donors and banks. The funds will be on lent through local commercial banks and financial institutions and micro-finance institutions on conditions attractive enough to attract investors to the rural areas.

Carbon emission reduction initiatives are an area where the country could boost FDI and ODA flows into the country. The enabling environments being created as indicated above will work for the CDM

As a host country Kenya has established a forum to promote national consensus on carbon emission reduction initiatives as elaborated below: -

In 1993 Kenya established a National Climate Change Activities Co-ordinating Committee (NCCACC) to co-ordinate all climate change activities in the county and to advise the government on all issues related to the UNFCCC. The Committee is multi-disciplinary, with membership drawn from government, university, research institutions, private sector and NGOs. It is a sub-committee of the Inter-ministerial Committee on Environment.

The IMCE has several committees dealing with different aspects of environmental protection. The National Climate Change Focal Point is also the National Operating Entity for the CDM. Several workshops on Climate Change and the CDM have been held sponsored by organizations such as UNIDO, UNEP, and DFID. UNIDO has gone ahead after identifying several industry specific barriers hindering the acquisition of cleaner technologies in the local industries to develop a regional project proposal that amongst other issues aims to build the capacity of institutions to develop industrial CDM Projects. Although a clearinghouse for AIJ was set up within NES, no projects were put forward for approval; consequently, the country still has no experience in the handling of carbon-offset projects. Kenya has come up with an institutional structure for the processing of CDM projects that needs to be resourced and staffed. The institutional structure for the processing of CDM projects is as follows: -

1) National Climate Change Focal Point (NCCFP)

Role:

- Defining the national policy on the CDM;
- Liaison with the UNFCCC Secretariat;
- Appointment of members of the NCH and the Expert Panel;
- Approval of CDM projects.

2) The CDM National Clearing House (NCH*)*

Composition:

The composition of the NCH will be drawn from the following institutions:

- Public sector institutions;
- Private sector institutions;
- NGOs and Civil Society Organisations and
- Academia.

Role:

The NCH will be responsible to the NCCFP for:

- Setting the criteria for CDM Projects;
- Processing of CDM project proposals;
- Monitoring and Evaluation of all CDM projects;
- Verification and recommendation of CDM project proposals for approval/disapproval by the NCCFP;
- Liaison with stakeholders;
- Promotion of CDM projects;
- Coordination of all CDM project activities;
- Advising the Government, through the Focal Point, on all issues pertaining to the CDM;
- Development of a national database for CDM projects.

The National focal point and the clearing house should be adequately resourced and staffed to engage in efficient and effective rpoject reviews and/or delegate such reviews to government agencies, private firms, NGOs and Universities. The review process will be transparent. It will encourage the provision of technical assisance to projects by government or independent entities, etc (NGOs, private firm). The structure is so as to provide a coordinated policy response to CDM projects among relevant government agencies.

National Requirements for CDM Projects

All CDM projects must satisfy the following requirements:

a) Demonstrate firm and tangible contribution to sustainable development;

b) Be supportive to and consistent with national development priorities and be pegged to poverty reduction;

c) The technologies transferred must be locally appropriate, environmentally friendly and demonstrate energy efficiency. Necessary precautions must be in place to avoid dumping of substandard technologies;

d) Contribute to the enhancement of national institutional and human capacity building.

e) Activities that generate maximum economic, social and environmental benefits should be accorded highest priority;

f) Address community needs and priorities through effective public participation in project design, planning and implementation in order to ensure equitable distribution of sustainable development benefits.

g) Contribute to global efforts to achieve stabilization of greenhouse gas concentrations in the atmosphere in accordance with article 2 of the Convention;

h) The CDM financial inflows must be over and above the existing Official Development Assistance (ODA);

i) Consistent with the objectives of Agenda 21 and relevant environmental conventions such as the Convention on Biological Diversity, the Ramsar Convention on Wetlands, and the Convention to Combat Desertification as well as with local and national environmental management laws;

Need for 'signal' to project sponsors

Kenya will provide an early `signal' to project sponsors that their respective projects are consistent the country's review criteria particularly with respect to national sustainable development objectives. This letter will not interfere with the Kenya's right associated with any formal review.

This letter gives the project sponsor some degree of certainty that at least with Kenya's CDM review criteria; they are on the right track.

The Letter would indicate Kenya has no problems with the proposed project. A similar type of letter, reserving Kenya's ability to review projects after the Operational Entity review, would provide a needed signal for sponsors.

Information systems

Kenya has started on the maintenance of a system of keeping information on possible projects, approved projects, funding sources etc.

Kenya's efforts to support CDM projects

The NCCACC is taking the lead in fostering meetings to inform companies and NGO groups of CDM opportunities and to increase their understanding of the CDM.

Information needs

At a minimum, project sponsors are asked to provide information and analysis concerning; project characteristics: project baseline, anticipated environmental additionality of the project, and sustainable development contribution of the project, monitoring and verification protocols.

Sustainable Development Indicators

Kenya considers reviewing projects based first on criteria that will assure exclusion of projects with negative impacts on national sustainable development objectives.
Learning by doing.

But we still have other activities like the PCF, which will continue to play a critical role in learning by doing.

Kenya will be initiating discussions among NGOs, appropriate government agencies, and private sector leaders on the way forward concerning forestry projects, as there is now a decision on this.

SUSTAINABLE DEVELOPMENT AND OTHER REVIEW CRITERIA

The crucial challenges facing Kenya today include poverty alleviation and unemployment reduction. These, needless to say, are the country's priorities for sustainable development. Being aware of the links existing between poverty, the environment and economic growth, the Government aims at the eradication of poverty incorporating environmental, agricultural and industrial strategy plans in the National Development Plan. Environmental concerns have been integrated into the development planning process with the adoption of NEAP in 1994 but further policy developments are under consideration in the Sessional Paper No.6 of 1999 on Environment and Development.
The National Poverty Eradication Strategy is intended to promote the development of sustainable livelihoods and diversify income-generating activities. One of the means for achieving poverty alleviation and generation of jobs is industrialization as envisaged in the Sessional Paper No.2 of 1996 on Industrial Transformation. The aim is to make Kenya a Newly Industrialized Country by 2020.
The CDM was created with the explicit purpose of assisting non-Annex 1 Parties with achieving sustainable development. The host country therefore has the responsibility to analyze and determine a project's compliance with its sustainable development criteria.
While it is agreed that the non-Annex1 Parties are in the best position to evaluate the sustainable development attributes of projects, some criteria have been set under the decision 17/CP.7 on the sort of projects that would be allowed under the CDM and are therefore considered compatible with the concept of sustainable development.
Generally speaking any policy pursuing sustainable development needs to:

- Ensure economic development;
- Improve rational use of natural resources;
- Preserve the ecosystem's functions;
- Enhance social well being.

Furthermore the sustainable development framework incorporates a focus on the equitable distribution of wealth in the society, therefore aiming towards poverty alleviation.
A major difference between general policy-making and CDM arises in the second stated purpose of the CDM, which is to reduce greenhouse gas emissions. All the dimensions of social and environmental development that are to be assured by this second purpose are strictly in the host country's definition and interpretation of sustainable development.
Several macro-economic indices have been developed to measure whether Parties are developing along a sustainable path (UNCSD, UNDP, UNEP, WBCSD, WRI, WWF etc.) However, indices to evaluate the sustainable development contributions of individual projects are at their infancy.
The ability of macro-economic indices to measure sustainable development
Within a country is questionable given the unavailability of needed date and difficulties in weighing and aggregating information from the different sectors.

Kenya benefited from a DFID study in defining a limited number of indicators to determine the effects of CDM projects on sustainable development. The reason why the number of indicators was kept low is that they are intended to provide investors and the Government with a practical tool to be readily used during the feasibility study on CDM projects.
The indicators are as follows:

1.Social and Infrastructural Development Indicators

- Poverty Alleviation
- Improved access to power
    - Contribution to eliminate unemployment/Creation of new jobs
    - Creation of new activities
    - Impacts on local community (improved local economy)
    - Capacity building (e.g. transfer of technical skills)
    - Improved access to power

- Gender Equity
    - Women empowerment
    - Wealth equitable distribution

2. Environmental Development Indicators

- Global Environment
    - GHG emissions reduction
    - Leakages (qualify)
- Local Environment
    - Local environment improvement (air, water, soil etc.) – conservation of biodiversity
    - Efficient resource utilization (impact on intra-generational equity as well)

3. Economic Development Indicators

Macro-Economic Indicators

- Increased investment in a priority sector of the economy e.g agriculture or energy
- Positive effects on the trade balance
- Contribution to reduce foreign exchange expenditures
- Contribution to national debt reduction

- Micro-Economic Indicators
  - Cost-effectiveness
- Energy related indicators
  - Contribution to energy source diversification
  - Impact on supply security
  - Contribution to energy efficiency/saving
- Technology Transfer
  - State of the art technology transfer (clean and cost effective)
  - Effective transfer of technology

During the host-country review process, a project will be evaluated against each indicator.

To assure expeditious project reviews, the country will rely on validation information from Operational Entities. Kenya has a guide on projects that have been pre-determined to be compatible with sustainable development objectives (projects would need to have an overall positive rating).

EXISTING AND POTENTIAL PROJECTS

Under the Project "CDM Kenya Project" supported by the Climate Challenge Fund of the UK Government's Foreign and Commonwealth Office and workshop on sustainable climate change projects organized by USAID and USDOE, the following potential CDM projects were identified.

PROJECT	DESCRIPTION	PROGRESS
Geothermal	Geothermal electricity generation capacity added to National grid	Olkaria III geothermal has been endorsed as a CDM Project for consideration in the CERUPT 2001 Carbon Purchasing Programme
Household use of LPG	Potential for LPG to replace Charcoal/Kerosene for cooking. Difficulties in uptake include high upfront costs of appliances	
Rural Electrification using solar PV/use of solar water heating systems	The concept is for large scale financing PV to community groups and business for lighting and household requirements. There is need to cluster projects to achieve worthwhile investment & sizeable CERs. There is existing experience in PV in Kenya.	This is the sort of project that would have a strong sustainable Development impact in the rural areas. In the hotels and urban homes, more power would be freed for other uses. Lodges in the parks would save fossil fuel use.

Grid-connected Wind (e.g. Ngong Hills or remote site wind (e.g. in Garissa, Lamu etc.)	Kenya has considerable wind resources. The Ministry of Energy and Dept of Meteorology at the University of Nairobi including the Meteorological Department have data on wind resources. There is experience in wind generation. There is work on-going with Ministry of Energy and UNEP on the development of a wind atlas. There is a great opportunity here for a wind development	
Industry Energy Efficiency	Implementation of a range of energy efficiency measures in industry has been demonstrated will give savings and free more energy for other uses.	Kenya Association of Manufacturers (KAM) / UNDP-GEF project
Fuel Switching in the tea sector	Changing over from oil-fired boilers to wood-fired boilers in small-scale tea processing factories. This will be with sustainably-managed forests. Technology is mature and there is experience in Kenya. Emission and financial additionality has been easy to demonstrate.	ESD/EAH are further developing Michimikuru Tea Factories for consideration as a carbon project. This project has a good potential for smallholder participation through paying out growers for producing fuel.
Cogeneration in the sugar industry	Installation of co-generation system running on bagasse and steam. Resources are available and technology is mature. It would replace fossil fuel use. There is smallholder participation. Has a strong sustainable development impact.	Busia Sugar Factory/Western Electric Company is being considered for funding under the World Bank's Prototype Carbon Fund.
Mini-hydros on and off-grid	Electricity generation capacity added to national grid or stand-alone min-grid. There is already experience and the prospects for S.D are very good.	

Other projects are sustainable Charcoal for industry, wood waste for heat and power, coffee wastes for heat and power, biomass briquetting for energy, improved manure management and livestock feed, wastewater treatment: methane capture and use and/or generation of electrical energy.

Apart from geothermal, all the other projects are not included in the power sector baselines i.e. the least cost plan and would therefore be additional.

Appendix V. CDM PROJECTS IN KENYA by Peter Orawo (KAM)

KYOTO PROTOCOL

BACKGROUND

Studies over the past ten years or so have resulted in conclusive evidence that human activities are interfering with global climate system by increasing concentration in the atmosphere of greenhouse gases. These gases are so called because they let through the short-wave solar radiation to reach and warm the surface of the earth while they absorb the outgoing long wave terrestrial (heat) radiation thereby causing warming in the lower levels of the atmosphere. This warming takes place all over the globe. The warming is therefore referred to as global warming.

There are a large number of greenhouse gases that are emitted into the atmosphere through human activities. However, the main greenhouse gases include Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O) and Chlorofluorocarbons (CFCs).

The main human activities that result in the emission of large quantities of greenhouse gases include consumption of fossil fuels, deforestation, agriculture, and industrial activities.
It is estimated that over the next 100 years, the mean global temperature will have increased by more than 3.0^0 Centigrade with some estimates going as far as 4.5^0 Centigrade.
Regional temperature increases will be higher than the above-mentioned mean value.
Global warming is expected to result in changes in climate at global, regional and local scale.

ABSTRACT

The protocol calls for a worldwide reduction of emissions of greenhouse gases (GHG) by 5.2% below 1990 levels in the commitment period of the years 2008 to 2012 for countries with targets.

Different countries adopted different targets.

All countries are required to meet their commitment targets to reduce greenhouse gas emissions.

The protocol requires that each **annex 1** party shall incorporate in its annual inventory of anthropogenic emissions by source and removals by sinks of GHGs not controlled by the Montreal protocol.

Each **annex 1** party submits supplementary information for purposes of ensuring compliance to the Kyoto protocol to the conference of parties (COP).

The reports are to be assessed by the expert of assessor teams and compliant questions reported to the cop.

THE PROTOCOL MECHANISMS

The Kyoto protocol establishes three markets based mechanisms

Emissions trading (ET): (the buying and selling of emissions credit among annex 1 countries, which are those with binding emission targets).

Joint implementation (JI): (allowing one country with a target to co-operate jointly in implementing climate change mitigation measure with another country with target); and

The Clean Development Mechanism or CDM: (allowing developed countries to receive emissions credit for financing projects that reduce emissions in developing countries)

THE COP 7

Negotiators in Marrakech, Morocco reached agreement on a complex set of decisions spelling out rules for implementing the Kyoto protocol.

COP7 provided detailed legal text elaborating on the board principle of the Bonn agreement, reached in July at COP5 in Bonn Germany.

Major areas covered in the Marrakech accord include:

- Operating rules for the protocol's three flexible mechanism and rules defining a party's eligibility to participate in the mechanisms.

- A compliance regime that sets consequences for failing to meet an emissions target but defers until a later conference the question of whether the consequences are legally binding.

- Accounting procedures that provide for fungibility - meaning that emissions units under all three mechanisms can be transferred several times as equal units.

- Creation of a new type of emissions unit for sinks credits that cannot be banked for future commitment periods.

CDM BOARD

The conference appointed 10 members and 10 alternates to the CDM Executive Board. The Marrakech accord set the stage for countries to ratify the protocol and bring it into force.

FOUNDAMENTALS OF CDM FOR KENYA

1. Meet the developmental objectives of Kenya.

2. Assist Kenya that is particularly vulnerable to adverse effects of climate change to meet the cost of adaptation.

3. Kenya will benefit from project activities resulting in Certified Emission Reduction (CERs)

4. Kenya may use the certified emission reductions accruing from such project activities to contribute to future compliance and reductions commitments.

5. Help Kenya maximize the generation of supply of cost effective CERs.

6. Provide Kenya with reliable information and secure access for buyers of CERs.

7. Provide Kenya with legal recourse for both buyers and sellers of CERs.

8. Meet the needs of a wide spectrum of potentially diverse project types and proponents.

9. Provide a real incentive for a broad base of investors to invest in CDM projects not just attracts a limited band of "green investors".

10. Result in CDM projects that are additional to defined baseline

KENYA & CDM

The Kyoto protocol does not require the establishment of a national CDM Board of regulatory framework. However, to facilitate the generation of CDM activities at the national levels and "sustainable" development objectives, Kenya has set up such as agency.

The CDM Clearing House Committee

The Responsibilities of the CDM Clearing House Committee

- Validating eligible CDM project activities that

    a. Meet national priorities such as poverty alleviation.

    b. Contribute to sustainable development.

c. Result in real, measurable and long-term benefits to the mitigation of Climate Change

- Validating the baselines associated with cdm project activities to ensure the availability of the data needed for independent certification of the resulting emission reductions (ERs).

Operational Elements of a CER Market Framework

- Institutions/specialists/consultants that provide technical formulation and development of cdm projects and project baselines e.g. the national climate change activities coordinating committee.

- Institutions/banks/development agencies which provide or secure financial resources for developing and financing of CDM projects e.g. the KAM consultants.

- Markets / information sites where potential sellers and buyers can obtain price and other relevant information relating to the supply and demand for CERs e.g. the CDM Clearing House Committee.

- Brokers that bring potential buyers and sellers together to assist in the selling of CERs and recording of binding transactions e.g. the Nairobi Stock Exchange (NSE).

The Legal Environment

This is necessary but not sufficient for attracting investments in CDM projects. An environment in which rules and regulations are not in place to protect and foster general project investments will not attract CDM investments as well. Countries without favorable legal, political and regulatory investment environments will have difficulty in attracting CDM project investments as well.

Is Kenya ready to attract CDM investments?

Project Eligibility Criteria

The CDM Executive Board is authorized to approve methodologies for baselines, monitoring plans and project boundaries; accrediting operational entities; and develop and maintain the CDM registry. The COP will oversee rules of procedure for the Executive Board; accreditation standards for, and registration of, operational entities; and a review of regional/sub-regional distribution of CDM project activities.

However the following are suggested for the CDM Board to be considered as points of eligibility criteria for CDM projects:

- Non-Annex 1 parties will benefit from project activities resulting in CERs
- Projects must result in real, measurable and long term benefits related to the mitigation of climate change

- Projects must result in reduction in emissions that are additional to any that would occur in the absence of certified project activity.

Baseline Definition

- Responsibility – the CDM clearing house committee?
- Approaches

(a) Project Specific
(b) Technology Mix
(c) Benchmarking
(d) Validity Period
(e) "Step baseline" Where emissions from baseline are adjusted periodically taking into account technological and financial changes that would result in lower emissions from the " expected" baseline options
(f) The UNIDO Method?

Validation of CDM Projects

(a) Conditions
(b) Responsibility

Financing CDM Projects

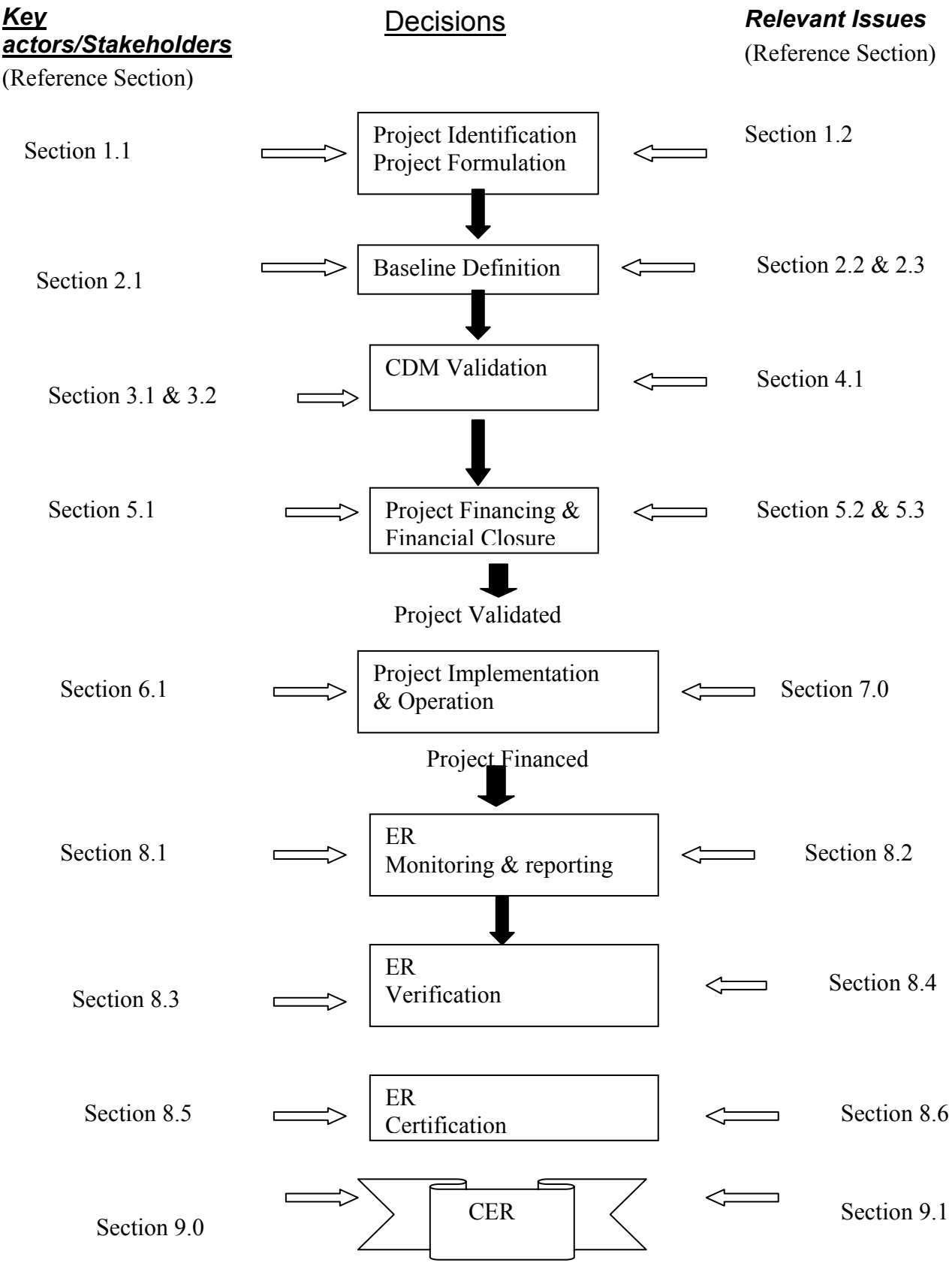
(a). Securing Emission Reduction Proceed Agreement (ERPA)
(b). Establishing monitoring, reporting and verification (MVR) process
(c). Financial Models for Capitalization
(d). Achieving Financial Closure

Project Implementing and Operation

(a) ER Monitoring
(b) ER Verification
(c) ER Certification

ENERGY EFFICIENCY AND CDM

(a) Identification of CDM projects
(b) Baseline Construction
(c) Validation
(d) Emission Reduction Monitoring
(e) Verification
(f) Emission Reduction Certification.


Key actors/Stakeholders
(Reference Section)
Decisions
Relevant Issues
(Reference Section)
Section 1.1
Project Identification
Project Formulation
Section 1.2
Section 2.1
Baseline Definition
Section 2.2 & 2.3
Section 3.1 & 3.2
CDM Validation
Section 4.1
Section 5.1
Project Financing &
Financial Closure
Section 5.2 & 5.3
Project Validated
Section 6.1
Project Implementation
& Operation
Section 7.0
Project Financed
Section 8.1
ER
Monitoring & reporting
Section 8.2
Section 8.3
ER
Verification
Section 8.4
Section 8.5
ER
Certification
Section 8.6
Section 9.0
CER
Section 9.1

TYPICAL CDM PROJECTS FOR KENYA

1. Co - generation in the sugar industry.

Apart from Mumias sugar all the other sugar factories are drawing electricity from the national grid instead of feeding electrical power into the national grid. The bagasse (cane sugar waste) which could be used to generate electricity in the "Heat + Power" system is left to rot, producing methane, which is a GHG gas.

The Busia Sugar factory was supposed to be partly funded through CDM. What happened?

2. The Drying of Tea using Fuel Oil

The returns, (i.e. payment), from the large tea plantations is between Ksh 50/- to Ksh 60/- per Kg. of processed tea. The return (i.e. payments) from the small-scale tea factories varies from as little as Ksh 11/- to Ksh 33/- per kg. of processed tea. The major difference between to factories is the type of energy used and the efficiency with which that energy has been used for drying tea. In the large tea plantations they use wood for the drying of tea while in the small- scale tea factories they use fuel oil. (The net emission of CO_2 from wood is zero). The type of energy source for the drying of tea and the efficiency with which that energy is utilized seem to be the key factors in determining the value of returns from processed tea.

CAPACITY BUILDING NEEDS FOR CDM

Provide Implementers
Provide Receptors
Develop Methodology

- Ability to identify requirements for CDM
- Ability to select and develop good projects
- Ability to undertake all activities in the life-cycle of a CDM project
- Ability to identify and organize a project team
- Plan, Evaluate, Promote, Operate

Implementing CDM Projects

- Ability to select projects that contribute to sustainable development
- Ability to prepare projects for the CDM market
- Ability to assist in securing financing for the non-CDM portion of the project
- Ability to negotiate CERUs and distribute cost savings
- Define Government Role

The Government Role

- Ability to screen projects for CDM
- Ability to evaluate and compare project risks
- Ability to certify CDM emissions reductions and determine additionality
- Ability to design and implement monitoring and verification protocols, as required

Technology Transfer & Climate Change

- Create an Enabling Framework
- Identify Technology Needs
- Enhance Business Environment
- Capacity and Institution Building
- Make use of National Communication
- Reduce Barriers to international Trade

CONCLUSION

- Need to create enabling framework nationally and internationally

- Identify Kenya's Climate Technology needs

- Address barriers and obstacles to technology transfer

Energy efficiency plays a major role in improving the profitability of an enterprise. In enterprises such as sugar and tea production it can improve the incomes of the rural tea and sugar growing populace, hence, alleviating poverty. In some enterprises the energy efficiency will enhance the competitiveness of the enterprise products by reducing cost of energy i.e. reducing production costs. Less energy is used i.e. less GHG are emitted which results in the mitigation of climate change. This is the whole aim of the Kyoto Protocol.

References:

The Kyoto Protocol
Minutes of National Climate Change Activities Coordinating Committee (NCCACC)
Paul Hassing and Mathew S. Mendis-Market based framework for CDM Transactions
Proceedings of COP7 on climate Change
Summary of Marrakech Accords on Climate Change – COP7.

CDM IN KENYA

1.0 Introduction:

Kenya is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), signed in June 1992 and ratified on 30th August 1994. The Convention entered into force for Kenya on 28th November 1994. Kenya is waiting to ratify the Kyoto protocol, which is established under the UNFCCC. The UNFCCC also established the three international mechanisms known as the flexible mechanism under the Kyoto protocol. These mechanisms are the Clean Development Mechanism (CDM), Joint Implementation (JI) and Emission Trading (ET). Of the three flexible mechanisms, CDM appears most attractive for developing countries since it helps to: securing sustainable development, gain access to foreign direct investment and facilitate technology transfer.

The basic premise of the CDM is that the reduction in emission of Greenhouse gases (GHGs) achieved in the developing countries can be counted against GHGs reduction targets of the developed countries.
CDM is thus an important framework by which the North & South can work in partnership to achieve sustainable development and tackle the mitigation of climate change challenges. CDM if conceptualized properly will provide Kenya with the opportunities for poverty alleviation by attracting foreign resource for investments, increase resources for clean energy developments, provide a window for improving environmental management for industries, by introducing cleaner technologies and increasing capacity building opportunities among others.

2.0 Driving Force

Foreign investments especially by the private sector generally are expected to be the driving force behind projects under the CDM.

The Inter-Ministerial Committee on Environment **{IMCE}** comprising of representatives from all key stakeholders has the Kenya Association of Manufacturers, **(KAM)** representing the Private sector. KAM is therefore faced with the arduous task of ensuring that the CDM is private sector driven. This is so because, the current lack of focus on the fact that CDM is intended to be private sector driven, influences the overall approach and the kind of projects being promoted for CDM.

3.0 Awareness Raising for the CDM

The biggest hurdle that needs to be overcome in order to ensure effective implementations of CDM in Kenya is; increased awareness and much greater involvement of the part of the private sector than at present.
In Kenya, the Kenya Association of Manufacturers (KAM) represents the private sector in CDM matters. The private sector should be the driving force in CDM and must

therefore make significant efforts to raise awareness among its members and other stakeholders.
Currently, the knowledge on CDM and involvement in activities related to the implementation of CDM in Kenya is restricted to related government departments, some Non Governmental Organizations (NGOs) and academic institutions. The Awareness Raising should therefore, in effect have maximum linkages to the grass root levels and not operate at high levels only. KAM should incorporate specific sessions/discussions on CDM into its environmental seminars, workshops and conferences. Case studies and experiences in CDM projects that have achieved success should be shared among all stakeholders and lessons learned embraced. Replication of successful CDM projects should be emphasized.

It is felt that only a well-informed business and industrial community can negotiate effectively with foreign investors. With an effective Awareness Raising, CDM can be structured to be an attractive business option.

The Awareness raising should cut across the industrial entrepreneurs, general public, financial agencies, industrial support services and local communities. This should go further towards the important task of identifying suitable stakeholders to undertake CDM activities. Actors should not be from the formal institutions only that hold knowledge of the CDM but need to be found in the private sector, reason being:

- Enable implementation of new projects in partnership with companies from developed countries.
- Generate the potential of substantial investment flow.
- Enable acquisition of new expertise and skills through technology transfer.
- Recognize potential for promoting policy changes that will improve the national investment environment.

4.0 Transfer of Knowledge on CDM

Information is empowering. The overall goal of the CDM is to establish as many projects as possible with the aim of stabilizing the concentration of GHGs in the atmosphere while at the same time contributing to sustainable development. Having this in mind, it is imperative that knowledge on CDM projects be transferred to achieve maximum additionality. Knowledge on how best to implement CDM projects should be between the academia, government, NGOs, local community and private sector.
Case studies of successful projects need to be highlighted through workshops, conferences, bulletins and magazines etc.
Failed CDM projects must also be highlighted and reasons for failure emphasized.

5.0 Experience involving local communities, government, NGO, and industry.

Experience on CDM projects must involve local communities, government, NGOs, and private sector. Capacity building, training on technology transfer, awareness raising, procedures on assessment of CDM projects etc. need to cut across all the stakeholders actively involved in the CDM projects.

6.0 Analysis of projects in terms of poverty alleviation, capacity building, environmental technologies transfer and social benefits.

The Kenyan CDM clearinghouse is responsible for carrying out the first project appraisal to verify that the project reflects the Kenyan development priorities and contribute to the country sustainable development.

7.0 Capacity Building.

The Capacity Building should be a fundamental focus for the private sector while analyzing CDM projects. Selected projects must be in a position of:

- Enhancing the ability of stakeholders to identify requirements for gaining access to CDM and other mechanisms.
- Enhancing their ability to develop good CDM projects.
- Enhancing the ability of stakeholders to undertake all activities in the life circle of a CDM project.
- Enhancing the ability to identify and organize a project team capable of planning, evaluating, and promoting the project.

All projects should have strong capacity building elements for local technical and managerial personnel in order to sustain the overall long-term objectives. For each CDM project there should be project co – managers representing the investors and hosts. Capacity should be build both in the public and private sectors **(project implementers)** and non-annex 1 **(government).**

A framework for identifying capacity building needs is therefore essential so as to:

- Enhance ability of selecting projects, which contribute to sustainable developments.
- Enhance ability to prepare projects for the CDM market.
- Enhance ability to assist in securing financing for the non-CDM portion of the project.
- Enhance ability to negotiate Certified Emission Reduction Units (CERUs) and distribute cost savings.

Capacity of project implementers need to be build to enable them to quantify project costs and benefits, determine additionality, consistent with both sector and project level baseline, and monitor/estimate reported and project emissions consistent with Validation and Monitoring protocols.

The capacity of non Annex 1 countries (governments) need to be strengthened to enhance their ability of:

- Screening projects for CDM
- Evaluating and comparing project risks.
- Certifying CDM emissions.
- Designing, implementing, monitoring and verifying the projects, as the protocol requires.

8.0 Poverty Alleviation

The purpose of CDM is to assist parties not included in Annex 1 in achieving sustainable development among others. There is a general agreement that sustainable development requires the effective integration of three key elements: the economic, social and environmental dimensions of developments. Furthermore, the sustainable development framework incorporates a focus on the equitable distribution of wealth in the society, thus, aiming at poverty alleviation.

CDM projects should encompass a multiplier effect at the national level down to the grass root level. For Kenya Poverty Alleviation must be a key element of the sustainable development target for any development, including CDM project. It is important that CDM projects improve the welfare of the Kenyan population and moreover, Kenya should be in a position to define the direction of these improvements. While analyzing projects under CDM, elimination of unemployment, by creation of jobs, and introduction of new activities should be the foremost dictating factor.

9.0 Technology Transfer

Technology transfer is an important issue under the CDM. It is an opportunity by the private sector to improve efficiency and reduce cost. For instance, substitution of biomass for energy imports for products processing will reduce cost of production, offer new opportunities for rural growers, and boost sustainable developments in the rural Kenya. Technology transfer should be environmentally sustainable, friendly, and innovative. It should be developed locally and be non-polluting.

Under the CDM, technology transfer should bring an opportunity for Kenya to add value to its goods rather than exporting raw materials. Suitable technology transfer in CDM projects should carry a warranty of reasonable duration and have proven operational capability. Care must be taken to prevent Kenya being used as a mere testing ground for new technological inventions.

To adopt successful technology transfer it is important that:

(a) Technological needs should be identified.
(b) An enabling framework at the national level should be created.
(c) Business environment should be enhanced.
(d) Capacity of institutions should be built.

The Kenyan climate technological needs should be identified by:

- Making use of Kenya's draft "First National Communication to the Conference of Parties". Possible areas of focus to include;

- Decentralization of the national electrical grid network, i.e. creation of mini-grids solar, biomass, wind etc. This involves changing of the Power Act.
- Enhancing Energy efficiency for industrial, commercial and agricultural sectors.
- Increased geothermal electricity generation
- Increasing the market potential for Liquid Petroleum Gas instead of charcoal
- Tea drying using biomass
- Co-generation in sugar, tea etc. where possible

Certain barriers and obstacles that can hinder technology transfer under the CDM are:

- Lack of information and communication.
- Lack of insurance and rewards.
- Unstable micro and macro economic environment.
- Trade Barriers
- Lack of access to funds.
- Lack of standards and regulations.
- Lack of highly trained and skilled manpower.

These obstacles can be overcome through the development of a national strategy, the cutting of the red tape bureaucracy in the government, the building of capacity for installation and operation of the projects, products modification and marketing, needs assessments and technology selection and screening, the creation of funds to assist technology transfer for climate friendly technology, coherence with CDM. International cooperation programme on technology database, consultative process amongst the stakeholders and identification of the scope for international standard and norms should be the order of the day.

10.0 Environmental and Social Benefits

Projects under CDM must be those that contribute to the reduction of GHGs emissions. Global warming by the greenhouse effect due to anthropogenic sources of GHGs and its implications to the global environment is the reason behind the formation of the UNFCCC. Therefore, CDM projects should meet the main objectives of UNFCCC to prevent dangerous anthropogenic interference with the climate system through the stabilization of atmospheric concentration of GHGs.

Project analysis should also consider CDM projects that embrace the sustainable use of local resources with little or no impact on the local environment to avoid indiscriminate degradation of the environment that will eventually contribute to global warming and its related effect or any other environmental degradation.

The crucial challenges facing Kenya is reduction of poverty and unemployment. The development priorities aim at raising the standard of living through poverty alleviation

and employment creation etc. CDM projects are focused towards sustainable development.

In Kenya, the majority of the poor are women. The Government does not discriminate on the basis of gender, but in practice gender imbalance does exist because of cultural and other related factors. Women are a major player in natural resource use. In Kenya therefore, if CDM projects were those that enhance equitable distribution of wealth this will help bridge the gap between the rich and the poor, they may also promote gender equity through empowerment of women in the various sectors of the economy. Incorporation of women in CDM projects will assure that women enjoy maximum participation in decision-making issues in the project implementation where applicable.

11.0 Assessment of Project in terms of GHGs emission reduction (baseline construction and additionality)

CDM provides an opportunity for partnership among developing and industrialized countries to promote sustainable developments while reducing global emission of GHGs. The concept of additionality must be a significant component in any CDM project. Therefore, when assessing projects emphasis must be laid upon additionality.

Article 12 of the Kyoto Protocol requires that emissions reduction be *"additional to any that would occur in the absence of the certified project activity. Therefore additionality must not only focus on environmental additionality, but also towards financial, technological and investment additionalities."*

Assessment of CDM with focus on environmental additionality will ensure that CDM activities result in a net reduction of GHG emissions with respect to what would have happened in their absence. Emissions reduction can thus be measured against an emission baseline that represents the projection of the emission that would have occurred under business – as – usual (BAU) circumstances.

Assessments of CDM projects in terms of technological additionality will ensure that CDM projects contribute to the transfer of suitable or environmentally friendly technologies for Kenya and therefore facilitating the path to sustainable industrialization. This will be in accordance with Sessional Paper NO. 2 of 1997 on Industrial Transformation to the year 2020 that aims at making Kenya a Newly Industrialized Country (NIC) by the year 2020 through the rapid industrialization process.

11.0 Base line Construction

A well-defined baseline should be the basis of assessing any CDM project. The baseline indicates as accurately as possible, the expected level of future emission that would occur in the absence of the CDM projects.

National baselines can be used as a methodology in construction of baselines. National baselines attempt to gauge national and sectoral developments from some points in the past to some point in the future. Baseline construction must therefore, embrace the three concepts of "additionality". This will help assess whether or not the CDM investment will lead to:

- An investment that would have occurred anyway.
- An investment that is planned but not yet financed.
- Most importantly, an investment that has environmental additionality.

Baseline construction will require investors to develop the case that investments satisfy at least the criteria that is environmentally additional. Baselines will also help project proposers calculate the number of Certified Emission Reduction units, (CERUs), that will be generated by the project.

Several practical problems are bound to arise that might hinder the procedure of calculating project baselines for energy related projects. Therefore, during the construction there is need for more precise data from all economic sectors. For energy projects, there is need for clear information on installed and effective electricity generating capacity and its performance. The power output from hydro, thermal, and geothermal, change according to climatic conditions and the status of the equipment used. In the industrial sector, there is little concrete or collated data on energy used patterns and GHGs as of now.

Operational costs in the baseline construction of CDM projects might increase considerably due to CER volume, evaluation and baseline determination. A robust national baseline against which proposed projects can be evaluated must therefore be developed. To address this, financial aid may be sought through local, bilateral and multilateral cooperation basis, which will help in the considerable reduction of costs to the private sector. However, in the immediate short term, in order to enable CDM projects to get off the ground quickly in Kenya despite the additional costs, project developers should develop their own project baselines in the absence of national baselines. Stakeholders in CDM should at the same time seek funds to carry out baseline surveys for the industrial sector.

12.0 Training of assessment of CDM projects (both GHG emissions reduction and sustainable development aspects)

Training needs assessments (TNAs) surveys should be conducted to determine the training needs of all stakeholders in the CDM.

Stakeholders should be given comprehensive training that will help them on the long term to conduct technical appraisal, monitoring and evaluation of projects under the CDM. Local human manpower should be generated to ensure that locals are their own managers and can effectively understand the concepts underlying the CDM and projects under it. This will ensure suitability of the project.

Human resource development should be encouraged through the award of scholarships for training and exchange educational programmes for the purpose of gaining experience.

13.0 Conclusion & Recommendations

Kenya has already prepared National Guidelines for CDM. Kenya is now in a position to ratify the Kyoto Protocol. Kenya should endeavour to attract foreign investments including the investments through CDM. The CDM investments will help towards Kenya's industrialization process and hence, sustainable development.

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4. Ottavia Mazzoni, "The Clean Development Mechanism" – Harmonizing the potential business opportunities and sustainable development requirement of Kenya.

Potential CDM Projects in Kenya

Projects	*Description*	CDM Priority 1 low: 5 high	Comments
Geothermal	Geothermal electricity generation capacity added to national grid	**3**	Need for Decision on baselines and additionality. **Budget: US $ 140 million per station. Each station 30MW**
Household use of LPG	Potential for Liquid Petroleum Gas (LPG), using revenue from Certified Emissions Reductions, (CERs)	**2**	Considerable past and current investment by international companies. Low priority because some public investment is required in the form of storage facilities. **Budget US $ 70 million**
Rural electrification using solar PV	Widespread dissemination of solar Photo-Voltaic (PV) equipment,	**4**	Good potential for positive impact on rural poor. Finance organizations in Kenya already involved and could form potential a consortium of investors. (E. g. KCB initiative) **Budget: depends on each installation. Limited flexibility, 25 Watts, US $ 500 per home, for 200 homes, US $ 100,000.**
Wind generation	Wind generators or off-grid wind-diesel hybrid systems	**4**	Contact with Ministry of Energy. Opportunity for existing wind energy developer. **Budget: US $ 1000 per Kilowatt- hour. For 200kWh, enough for 180 homes, US $ 200,000**
Industrial energy efficiency	Implementation of a range of energy efficiency measures in industry part-funded by revenue from CERs	**4**	Co-ordination and monitoring of a number of "small" interventions may be difficult

			Budget: will vary considerably depending on project, for example, replacement of old 3 ton per hour boiler + piping modification, US $ 100,000.

Fuel switching in the tea sector	Changing over from oil-fired boilers to wood-fired boilers in small-scale tea processing factories.	**5**	Investment and financial additionality easy to demonstrate. Co-ordination of several factory conversions may be difficult. **Budget: US $150,000 per factory + piping modifications. 50 such factories use oil instead of wood US $ 7.5 million. Additional funds may be necessary for initial tree growing for starting the wood-fired boilers, say, US $ 5000 per factory.**
Use of solar water heating (SWH)	Application of solar water heating systems	**4**	Well-established local industry. Hotel sector receptive to SWH Budget: will vary depending on each installation. SWH for household of 6 persons, US $ 1,500, combined SWH with basic lighting and TV etc. US $ 3000.
Co-generation in the sugar industry	Installation of co-generation system running on bagasse.	**5**	Attractive CDM project – large, with clear defined boundaries. **Budget: US $ 10 million per factory, five factories are involved**
Mini-hydros on and off-grid	Electricity generation capacity added to national grid or stand-alone mini-grid	**5**	Attractive CDM project – large, with clear defined boundaries. **Budget: Grid connected, 15 MW station, US $ 25 million. Stand alone micro-hydro US $ 1,500 per Kilowatt- hour to US $ 3,000 depending on distance and wiring. Micro-hydros are mainly aimed at income generating activities in remote areas not connected to the grid.**

Appendix VI. CDM BARRIERS IN KENYA by Joe Wambua (KAM)

BARRIERS TO THE IMPLEMENTATION OF CLEAN TECHNOLOGIES, CAPACITY BUILDING OPPORTUNITIES

1.***INFORMATION & AWARENESS BARRIERS:*** Lack of information amongst stakeholders on activities & potential benefits accruing from implementation of CDM projects has resulted in poor participation & representation of industry in climate change activities at national, regional and international levels.

Action:

- National Committee on Industry and Climate Change (NCICC) needs to be constituted to formulate strategies on representation in all meetings.
- Programmes for development of information materials on Kyoto Protocol and CDM for industry needs to be developed.
- A network for information exchange amongst stakeholders on a continuous basis should be established.
- The use of internet should be given priority and stakeholders should be supported to build capacity to use internet services.

LACK OF AWARENESS: Plant owners, managers and technical personnel are also unaware of the fact that an improvement of energy efficiency reduces production costs at the long term.
The bid to acquire the ISO 14000 acreditation by industries is still a very new concept to plant owners, Yet accreditation & certification of a plant as an ISO14000 is bound to increase the sales of the plant.

Action:
Public awareness campaign: Intensive campaign should be encouraged & emphasized for plant owners/industries to gain certification for ISO 14000. Majority of the existing plants are still ISO 9001.

2. ***LACK OF LOCAL EXPERTISE:*** In effect, local expertise with the ability & capacity to monitor evaluate the CDM projects is absent.
In-adequate capacity in terms of expertise exist to facilitate the identification and acquisition of technology under the CDM.
Lack of Local expertise has well hampered the capacity of being innovative, adopting and adapting technology under CDM.

Action:
A critical mass of local expertise need to be trained on the various aspects of monitoring, evaluating and coordinating the implementation of CDM projects.
Bi-lateral cooperation should be emphasized in order to provide a framework enabling the allocation of scholarships for the local personnel to pursue further education & short-term training on measures to improve energy efficiency.

Lack of capacity to identify, develop and formulate investment opportunities under CDM has been also a barrier.
Selected persons from private & public institutions should be equipped & trained to undertake tasks as required.
Kenyan industrialists must also develop self-confidence especially the private sector because, they are the driving force in CDM and must thus play their role as ambassadors of Kenya in attracting foreign investments.

Action:
INSTITUTIONAL DEVELOPMENT & CAPACITY BUILDING:
The objectives are:
Develop Project Management units (CDM Country clearing house) to execute GOK policies objectives on energy efficiency and energy conservation and CDM as a whole. The Clearing House will be provided with up to date capacity on energy management services and advise. The CH will be tasked to establish and maintain good project management and outreach support on industrial energy management, in collaboration with the Universities and associations of SMEs as well as with other Energy Service Companies (ESCOs). The CH will be developed and improved to offer expertise CDM topics.

Full time local ESCOs will be identified and be given in-depth training in specific energy service such as monitoring & targeting and load management techniques

3. ***POOR INCENTIVE STRUCTURE:*** The inadequacy of existing framework of fiscal and financial incentives, such as energy prices, to support energy efficiency improvement schemes such as retrofit measures resulted in long payback periods for investments in energy efficiency. Securing financial support from the traditional banks was not forthcoming and unattractive due to the low returns and high interest rates.

4. ***NO LONG TERM FINANCE:*** This impediment is a significant barrier owing to the fact that energy efficiency and alternative energy projects require an enormous deal of financial input.

Action:
Small and medium scale industries should be given priority when budgeting & giving financial aid. Development Banks should also be encouraged to offer loans to small & micro-enterprises to enable them implement CDM.
Agency like the World Bank, UNDP etc must give utmost consideration to such industries when allocating grants.
The government of Kenya must cultivate good relations with its development partners urgently to attract investors and donor assistance.
The government should set up venture capital to support young entrepreneurs with innovative ideas to invest in emission reduction technologies and support investors.
The Banks especially, commercial & development should lower their interest and transaction charges for young entrepreneurs.

5. ***NO LONG TERM COMMITMENT TO ENERGY CONSERVATION & ALTERNATIVE ENERGY:*** Although the energy conservation awareness was created in the technical personnel of some industries, the top decision makers were not well informed. Reports of the government sponsored global energy audits were sometimes shelved because they went free to the companies and contained too many recommendations which sometimes left management wondering as to what to tackle first. Where management was aware of the implications of energy conservation on their operational costs, lack of commitment always hampered the implementation of audit recommendations. Energy efficiency related issues were not given the needed attention. In the cases where initially some funds were allocated for energy efficiency activities, the lack of commitment hampered follow-ups resulting in deterioration of the efficiencies of equipment to their pre-audit states after 2-3 years.

Other causes of low patronage of energy efficiency & energy conservation are:

a) Low entrepreneurial capabilities of local Energy Services Companies (ESCOs)

b) Lack of knowledge of specific problem areas that need urgent attention and the solution of which could yield immediate results.

c) Lack of codes, standards and guides on energy efficiency.

Although some local industries have demonstrated some appreciable level of energy management capacities and have put in place energy management schemes on their own, this category of firms require further assistance to improve their capabilities to exploit the full potential for improving energy efficiency. The bulk of Kenya firms, however, have little or no energy management skills. The lack of adequate internal energy management capability in local firms constraints local industrial/commercial managers from making sound and informed judgment on energy efficiency investments. This threatens to undermine any efforts to eliminate other financial and technical constraints. The need to introduce effective energy management tools and techniques to these industries is thus critical to improving energy efficiency in these sectors. CDM is one of such tools and enabling environment should be prepared for its phasing in.

CONCLUSION

The provision of energy efficiency & alternative energy options services – both which are CDM best options - can be sustained in Kenya and Africa through a series of interventions ranging from technological through financial in an enabling economy and political environment, with the private sector as the main driver. Importation of prototype technology into Africa as is, although the goal is common, different strategies may be required for different countries, even in Africa. With the incentives and financial intermediation available, backed by a vibrant supply CDM network, Kenya's energy efficiency & alternative energy programme can make a new turn for success.

Appendix VII. Peter Odhengo's Presentation (KIRDI)

R7305 PROJECT AIM

To inform international debate on the design of the CDM and its implications for:

- Energy use
- The environment
- Reduction of poverty to aid capacity building for CDM in developing countries (Kenya).

ASSESSMENTS OF GHG EMISSION REDUCTION AND COSTS

- The development of the criteria is based on:
  Baseline information (refers to a reference case regarding its techno-economic characteristics and GHG emission level that would be most likely to occur based on the domestic circumstances in the host country in the absence of such a CDM activity).

Key baseline reference cases include:

- Net CO_2 emission reduction
  - Additionally
  - Incremental cost of CO_2 emission reduction caused by CDM project (calculated, assessed, measure and verified)

- Baseline elements usually varies based on

  In case of an energy related CDM project baselines consist of three flows:
  - Energy flow certain intensity
  - CO_2 emission flow with corresponding emission intensity and
  - Financial cash flow (cost per unit product or service)

- Evaluation of GHG emission reduction caused by the CDM project against the baseline can be conducted by:
  - Intensity indicator approach regarding the unit product delivered
  - Total production indicator approach regarding annual production

- Project specific baselines-determined based on the technical specification and existing operation records of the facility/equipment through on site survey

- CDM is a project based cooperation mechanism between developed and developing country, hence, project specific baseline should be adopted on project by project case

CDM PROJECTS RATIONAL

- For developing country parties: CDM assist in achieving sustainable development and in contributing to the ultimate objective of the UNFCCC
- For developed countries parties: CDM will assist in achieving compliance with their commitments under article 3.

POTENTIAL CDM PROJECTS

- Schedule I: (Projects identified under DFID R7305)
  - Mini hydropower
  - Micro-hydro power
  - Solar Home systems
  - Improved cook stoves
  - Biogas plant

- Schedule II: Proposed additional potential projects for inclusion under R7503
  - Wind turbines
  - Tidal waves
  - Integrated coal gasification (cement factories)
  - Advanced thermodynamic cycles (coal powered thermal power stations)
  - Solar power plants (solar thermal)
  - Combined heat and power (small to medium co-generation in sugar, tea Ind..)
  - Production of biofuel from wood
  - Generation of electricity from municipal waste
  - Biogas gasification for electricity
  - Methanol from biomass for fuel cells
  - In Plant energy efficiency improvements:
    - Retrofitting industrial boilers and kilns
    - Upgrading power generation by Pressurized Fluidized Bed Combustion (PFBC) and Integrated Gas Combined Cycle.
    - Expanding existing hydro power
    - Wind power
    - PV Power systems
    - Solar cookers etc.

CRITERIA FOR IDENTIFYING AND ASSESSING CDM PROJECTS

- Type of technology to be adopted
- Potential for job creation
- Potential to increase income
- Contribution to GDP
- Being in line with national development priorities
- Have multiplier effect
- GHG level of emission reductions
- Evidence of effective community /receptor group participation
- Realistic and effective mechanism for technology transfer to the recipient country
- Use of local resources and skills
- Evidence of contribution to socio-economic development

- Target key sector of the economy: - Energy, Agriculture, Industry, Service, Transport, Afforestration etc.
- Cost effective

- Key factors include:
  - Data availability
  - Project Operational condition (stalled, OP half capacity, fully operational)
  - Project size (small, medium,large)
  - Project practicality
  - Sustainability deliberates (poverty alleviation)
  - Multiplier effects (indirect economic activities)
- Climate deliverable:
  - Reduction of GHG emissions
  - Additionality
- Expenditures/financial statements
- Number of Jobs created
- Contribution to social welfare
  - Hospitals
  - Schools
  - Access roads
  - Provision of clean water
  - Communication channels etc.
  - Environmental management
- Utilization of raw materials
- Gender sensitivity
  - Number of women employed by the project
  - Reduction of burden on women

RECEPTORS

- Agriculture
  - Tea factories
  - Sugar Factories
  - Coffee factories etc.
- Energy
  - Cement manufacturers
  - Pulp and paper mills
  - Steel mills
- Domestic
  - Rural homes
  - Rural schools
  - Rural commercial centers
  - Individual homes
- Service
  - Transport

SCREENING / APPRAISAL TOOL

CDM Projects Identification Screening Criteria (Draft)

SEC	KEY PARAMETERS						SCORE POINTS					
							1	2	3	4	5	Score
A	**TECHNICAL ASPECTS**											
	Technological Information											
	a	Years in successful operation										
		[1-5]	[6-10]	[11-15]	[16-20]	[21-25]						
	Score	3	4	5	2	1						
	Type of Technology											
	b											
		Obsolete	Conventional	Hybrid	EST pilot	EST mature						
	Score	1	2	4	3	5						
	Spare parts availability											
	c	Maintenance of the technology										
		Local manufacturer	Local Agents	Import by local agent	Import from overseas agent	Direct import						
	Score	1	2	3	4	5						
	Proposed Project Location											
	% Poverty levels in the project region											
	d	*<10*	*10-30*	*31-50*	*51-70*	*>70*						
		1	*2*	*3*	*4*	*5*						
	Technology Transfer Mechanisms											
	e		*Capacity building*									
		blue print	*Manf*	*Stockist*	*Operator*	*Users*						
		5	*4*	*2*	*3*	*1*						
	Project multiplying Effect											
	f	***Socio-economic development***										
		No. of Economic Activities										
		1-4	5-8	9-12	13-16	>17						
	Score	1	2	3	4	5						
	Employment											
	g	*Indirect Employment*										
		10-20	21-40	41-60	61-80	>80						
	Score											
	Raw material Sources											

	h	% of raw materials available locally										
		[1-10]	[10-30]	[30-50]	[50-70]	[>70]						
	Score	1	2	3	4	5						
SECTION A: SUB-TOTAL												
B		***ENVIRONMENTAL ASPECTS***										
	Environmental Impact Assessment Report (EIA)											
		EIS	Draft	Semi	F-Draft	Full						
	Score	1	2	3	4	5						
	Waste management											
	a	Planning										
		No plan	Brief	Semi Detailed	Detailed							
	Score	0	1	3	5							
	Section Total											
C	RECEPTOR GROUPS PARTICIPATION											
	a	Evidence of well defined receptor group participation in project implementation										
		CBO /Govt	MSE Pvt	NGOs	Religious	Co-op						
	Score	**1**	**2**	**3**	**4**	**5**						
	Other Socio-Economic Deliverance											
	b	Roads	**Schools**	**Health**	**MSEs**	**Water**						
	Score	**1**	**1**	**1**	**1**	**1**						
	Section Total											
D	JOB CREATION											
	a	No. of employees with minimum wages during construction phase										
		1-10	11-20	21-30	30-50-	>50						
	Score	1	2	3	4	5						
	b	The ratio of local men to women employees engaged during the implementation phase in										
		Management		Technical								
		M	F	M	F							

	Total	1:1	1:2	2:1	1:1	2:1							
	Score	1	4	2	5	3							
	c	No. of national experts versus expatriates											
		Management			Technical								
		National Expert.	Expatriate		National Expert.	Expatriate							
		>2	<2		>2	<2							
	Score	5	5		5	5							

E	CLIMATE DELIBERABLES (GHG Reductions)						1	2	3	4	5	SC
	a	**Sectors Targeted by the Project**										
		Agric.	Afforest.	Transport	Industry	Energy						
	Score	1	2	3	4	5						
	b	Projected GHG Reductions (%)										
		1-5	6-10	11-15	15-20	>20						
	Score	1	2	3	4	5						
	c	Additionality (other planned projects in the area)										
		Larger	Similar	Smaller	Different	None						
	Score	1	2	3	4	5						
	d	Availability of Information on the Proposed Project										
		None	Scanty	Summary	Draft	Detailed						
	Score	1	2	3	4	5						
	e	Specific projects in agricultural sector										
		Agro-processing efficiency improvement		Agro-production improvement		Afforestration						
	Score	5		4		3						
	f	Specific projects in Key sector										
		Penstock hydro	Biogass	Solar home system	Micro-hydro	fossil fuel						
	Score	4	2	3	5	1						
	Section Total											
F	POVERTY ERADICATION INITIATIVES											
	a	Poverty levels in the regions										
		Other rural Districts	Urban poor	South, Eastern and Western regions	ASAL areas							
	Score	2	3	4	5							
	Section Total											

Appendix VIII. Project Appraisal: Baselines, Monitoring, Additionality and Leakage

Stephen Gitonga for Katie Begg
Intermediate Technology Development Group (ITDG-EA)

Project Appraisal involves...

- Definition of Project Boundaries
- Assessment of Country Context
- Assessment of Additionality
- Definition of Crediting Lifetime
- Projection of Baseline Scenario
- Monitoring of Project
- Calculation of Emissions Reduction
- Correction for Leakage

Definition of Project Boundaries

"The ***project boundary*** shall encompass all anthropogenic ***emissions*** by sources of greenhouse gases under the ***control*** of the project participants that are ***significant*** and reasonably ***attributable*** to the CDM project activity." (Marrakech Accord, 2001)

Examples of Project Boundaries

- Off-grid micro-hydro plant
- plant itself (zero emissions)
- any activities which may be offset by the plant (eg kerosene lamps if plant used for lighting)
- Building insulation improvements
- appropriate fraction of the upstream emissions from (eg) coal power plant used to supply electric heating

Assessment of Country Context

- In order to assess additionality and define the baseline, a ***country context*** is needed
- Country context includes - details of current country factors which may affect project, eg fuel/ technology mix in energy sector, environmental regulations, economic/ environmental policies, projections of future changes in these country factors

Assessment of Additionality

- "A CDM project activity is ***additional*** if anthropogenic ***emissions*** of greenhouse gases by sources ***are reduced below those that would have occurred in the absence of the registered CDM project activity***." (Marrakech Accord, 2001)
- This may be interpreted as environmental additionality (project reduces GHG emissions) or investment additionality

Additionality

- Investment additionality: ***To stop free riders***
- This was the original AIJ pilot phase meaning of additionality where projects must not be business as usual
- could be demonstrated by evidence of ***barriers*** to the project's realisation eg lack of capital, lack of technical know-how,etc. or by investment criteria eg Internal rate of return.
- Financial additionality
- projects must be additional to ODA

Definition of Crediting Lifetime

- Crediting Lifetime is the period over which the project can earn credits for emissions reduction
- Can be considered as the period over which the project is ***additional***, ie end of crediting lifetime is when project would have taken place under normal economic development

Crediting Lifetime

- Research by CES on uncertainties in calculation of reductions concluded that opting for a short lifetime is the simplest way of preventing over-estimation of emissions reduction
- Marrakech Accord (2001) states that crediting lifetime should be either:
- Maximum of 10y; or
- Maximum of 21y, renewed every 7y

Projection of Baseline Scenario

- "The ***baseline*** for a CDM project activity is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that ***would occur in the absence of the proposed project activity***." (Marrakech Accord, 2001)

Example

- Off-grid micro-hydro plant
- supplies electricity to rural village for lighting and electrical appliances
- Crediting Lifetime
- set at 21y as micro-hydro plant unlikely to be built before then under normal economic development.
- Baseline is uncertain so look at a ***range*** of alternatives

Example

- Baseline 1 (low emissions)
  offsets lighting provided by kerosene lamps and electricity from car batteries for 21y
- Baseline 2 (high emissions)

offsets lighting provided by kerosene lamps and electricity from car batteries for first 10y after 10y, village might have been grid connected, and grid electricity supplied by a combination of coal and natural gas for next 11y

Monitoring of Project

- Need to monitor performance of project to:
  - estimate emissions of project activity
  - calculate emissions of baseline activities
- For energy projects, it is common to monitor ***energy output/ consumption*** (rather than direct emissions) as this usually is simpler and still provides good accuracy Monitoring of Small-scale projects
- Small-scale projects often difficult/ time-consuming to monitor
- Example:
  - programme delivers 50,000 improved cookstoves
  - impractical to monitor each stove, so use surveys to estimate use and therefore total emissions reduction

Calculation of Emissions Reduction

- Project emissions based on
  emission factors (eg tCO_2/MWh) - can be zero
  project activity (eg MWh)
- Baseline emissions based on
  emission factors (eg tCO_2/MWh)
  level of baseline activity considered 'appropriate'
  eg MWh from plant, number of kerosene lamps
- Equivalence of service where possible

Example

- Off-grid micro-hydro plant
  monitor energy output (MWh) of plant
- Project emissions
  zero as no emissions from micro-hydro
- Baseline emissions, use
  emission factors of (eg) kerosene lamps (tCO_2/lamp); coal power plants (tCO_2/MWh)
  appropriate level of baseline activity, eg number of kerosene lamps, MWh from grid

Correction for Leakage

- "Leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases which occurs ***outside the project boundary***, and that is measurable and attributable to the CDM project activity." (Marrakech Accord, 2001)
- In practice, leakage is very difficult to measure and a simple correction factor may be better (e.g. -10% of emissions reduction)

Leakage Pathways

A final word about uncertainty...

- Uncertainty in estimating emissions reduction of a CDM project is high, mainly due to ***immeasurable baseline.***
- This can be compounded by difficulties in defining project boundaries, monitoring (esp. small-scale projects) and leakage.
- Hence, ***estimates must be conservative*** to prevent compromising aims of Climate Convention

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Mobile:

Initial Workshop in Tanzania

PROCEEDING FOR THE WORKSHOP ON ENCOURAGING CDM ENERGY PROJECTS TO AID POVERTY ALLEVIATION

HELD ON 12 – 13 MARCH 2002

VENUE: LAPRIMA HOTEL, KIJITONYAMA AREA

1. BACKGROUND

A new DFID funded project has just commenced to carry out research on the Clean Development Mechanism (CDM). The Clean Development Mechanism is a project-based mechanism under the Kyoto Protocol. Under the CDM, investors from Annex I country with targets may invest in a project designed to reduce Greenhouse Gas (GHGs) in a developing country without targets and in return receive the credits for the emission reductions achieved. A CDM project should also contribute to the sustainable development path of the developing country host.

This DFID project, code CAPA, is an 18 month project. It is designed to contribute to the design of the CDM under the Executive Board for the CDM so that poverty focused energy projects are encouraged. A major element of this will be capacity building in a host country to aid the implementation of these small-scale types of projects. A range of energy projects will be studied and issues as baselines for accounting for GHG reductions for these small-scale projects and sustainability benefit delivery will be addressed.

The host countries involved are Kenya, Tanzania and Ghana and the respective country partners are Intermediate Technology (IT) Kenya, KITE in Ghana and CEEST in Tanzania. The Co-ordinator of the project is Centre for Environmental Strategy at the University of Surrey with Intermediate Technology Consultants (ITC) both of UK.

The objectives of holding an in country workshop was as follows:

- *To transfer information on the CDM particularly the institutional structure within the UNFCCC for the CDM, the processes involved for CDM registration etc, the accounting for emission reductions eg baselines and the use of sustainability indicators for assessment of projects.*

- *To feedback the needs of the target groups (industry, government,local community and financial sector) by target group*

- *To encourage networking*

- *To identify a way forward for the CDM eg remove barriers, set up institutions, training etc*

2. INTRODUCTORY REMARKS

BY,

Mr. Hubert Meena
The Centre for Energy, Environment, Science and Technology

Mr. Chairman, Workshop Participants, Ladies and Gentlemen,

It is with great pleasure that I welcome you to this important workshop on **Encouraging Clean Development Mechanism (CDM) Energy Project to Aid Poverty Alleviation**. The workshop is taking place under the auspices of a DFID funded project whose main objective is, among others, to carry out research on the Clean Development Mechanism (CDM).

As you may be aware, the Clean Development Mechanism is a project-based mechanism under the Kyoto Protocol to the United Nations Framework Convention on Climate Change, under which investors from an Annex 1 country with targets for reducing emission of greenhouse gases (GHGs) may invest in a project designed to reduce GHGs in a developing country which have no targets for the same, and in return receive the credits for the emission reductions achieved. A CDM project should also contribute to the sustainable development path of the host developing country.

This DFID project, code named CAPA (CDM to Aid Poverty Alleviation), is an 18-month project involving host countries of Kenya, Tanzania and Ghana and the respective country partners are Intermediate Technology (IT) Kenya, KITE in Ghana and CEEST in Tanzania. The co-ordinator of the project is Dr K. G. Begg at the Centre for Environmental Strategy at the University of Surrey with Intermediate Technology Consultants (ITC) as the other UK collaborator.

The project is designed to contribute to the evolution of the CDM under the Executive Board for the CDM so that poverty focused energy projects are encouraged. A major element of this will be capacity building in the host countries to aid the implementation of these small-scale types of projects. A range of energy projects will be studied and issues such as baselines development for these small-scale projects and sustainability benefit determination will be addressed.

The project is also intended to come up with a written review document covering decisions taken at COP-6 concerning CDM rules and modalities, assessment methodologies for contribution to capacity building, poverty alleviation, technology transfer and direct and indirect environmental and social benefits. It is also intended to analyse methodologies for baseline and monitoring for the CDM as well as determination of relevant CDM country activities to identify current country progress and confirm the role of small-scale CDM project in the country context. The information generated by this project will be disseminated though country workshops for awareness raising for the

CDM in case study countries thereby promoting transfer of knowledge on CDM aspects tailored to fit with other host CDM experience and involving local community, NGO, industry and local governments and central government.

The project will facilitate capacity building through analysis of projects in terms of poverty alleviation, technology transfer, environmental and social direct and indirect benefits, as well as assessment of projects in terms of financial viability, GHG emissions reduction (including baseline construction and additionality) for the CDM.

Mr. Chairman, the outcome of the project process will be the creation of trained target groups in the case study countries, including expertise on assessment of CDM projects (both GHG emissions reduction and sustainable development aspects) through research and country workshops tailored to countries and stakeholders needs. Another outcome is possible specific and generic guidelines for project appraisal, proposal and implementation for relevant groups for specific countries taking into account of current FDI criteria, including policy recommendations with possible inputs to technical text on eg a 'reference manual'.

Mr. Chairman, with these few remarks I wish to welcome you all to this workshop on CDM Energy Project to Aid Poverty Alleviation.

3. OFFICIAL OPENING

UNITED REPUBLIC OF TANZANIA

OFFICIAL OPENING SPEECH BY MR. E. K. MUGURUSI, DIRECTOR OF ENVIRONMENT, VICE PRESIDENT'S OFFICE, AT THE WORKSHOP ON ENCOURAGING CDM ENERGY PROJECTS TO AID POVERTY ALLEVIATION, LA PRIMA HOTEL, DAR ES SALAAM, 12Th and 13th MARCH 2002

Mr. Chairman,
Distinguished Participants,

Ladies and Gentlemen

It is with great pleasure that I take this opportunity to address you at the opening of this important workshop on **Encouraging Clean Development Mechanism (CDM) in Energy Projects to Aid Poverty Alleviation.** Clean Development Mechanism is a new concept the negotiations of which under the United Nations Framework Convention on Climate Change (UNFCCC were concluded towards the end of last year in Marrakech, Morocco at COP 7. It is thus important that this new window of opportunity for possible financial flows, capacity building and technology transfer in Tanzania is well understood

by the various stakeholders particularly the private sector, the non-governmental organization, the academic and research community and the business community so as to ensure their effective participation. In this regard let me start by commending the organizers: The Centre for Energy, Environment, Science and Technology (CEEST), Centre for Environment Strategies of the University of Surrey, UK and Intermediate Technology Consultant of UK for organizing this workshop so as to deliberate on the issues embodied in the CDM concept particularly as they link to poverty alleviation efforts in Tanzania - which is a top priority on the national development agenda.

Mr. Chairman
The Government of Tanzania signed the United Nations Framework Convention on Climate Change (UNFCCC) on June 1992 and ratified it in March 1996. Since then Tanzania has continuously participated actively in all UNFCCC negotiations and processes. Tanzania was the Chair for G77 and China during the negotiations that led to the adoption of the Kyoto Protocol in December 1997, within which the CDM derives.

Although the Kyoto Protocol advocates the reduction of greenhouse gases chiefly through domestic actions of developed country parties to the Convention which have the historical responsibility of the build up of the current greenhouse gases we currently experience, it allows for flexibility market mechanisms; namely Joint Implementation, CDM and Emissions trading for these countries to reach their targets. Bubble reduction is also allowed.

CDM is an initiative defined in Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (LTNFCCC). Its major objectives include, among others, to provide developing countries with an opportunity to participate in the global efforts to reduce greenhouse gases emissions while in so doing helping them to achieve their sustainable development goals; and in contributing to meeting the quantified Greenhouse gases emission reduction commitments of the developed countries. CDM is envisaged to provide opportunities for developing countries to promote sustainable development through enhanced capital flows from investment, technology transfer and capacity building.

Mr. Chairman
Provided the proper capacity, infrastructure and institutional frameworks are in place, CDM will allow companies in the developed world to undertake projects in the developing countries - Such as the construction of high-tech, environmentally sound power plants - for the benefit of both parties. Certainly companies from the developed countries will get emission credits at lower costs than they could achieve at home, and at the same time developing countries will be able to achieve their sustainable development through capital flows, technology transfer and capacity building.

Developing countries, particularly the least developed countries including Tanzania will need to do more in order to attract CDM projects in the energy sector and other sectors at large. Capacity building in all key sectors and involving all stakeholders is key. The

government is currently working towards this end. Clearly, incentive for facilitating large-scale transfers to developing countries of energy efficient and renewable energy technologies are equally important. That's why, one of the key decisions from COP7 was the exemption of CDM projects undertaken in LDCs from contribution to the adaptation fund that has now been established under the Kyoto Protocol to assist developing countries particularly LDCs to adapt to the changing climate.

Mr. Chairman,

The Kyoto Protocol is in essence, a frame ' work of action, a work in progress and a number of challenges still lie ahead. While the agreements provide a general blue print for action many of the details regarding implementation of the protocol remain to be addressed. Some of them are currently being by the CDM Executive Board.

Further work is needed to set in the rules for the market-based mechanisms established in the Kyoto Protocol both at national and international level. Key building blocks will need to be put in place for a sustainable, market-based system for achieving reductions in the greenhouse gases and sustainable development. African countries still need to develop national and regional expertise to provide input into the detailing of CDM in this regard. This will involve Non governments] organizations, the business community, academic and research institutional and the private sector in general

Mr. Chairman

For the work of the day, I am informed that the workshop will dwell on awareness raising and information sharing on matters related to CDM particularly energy projects in the country, and how this meeting could be beneficial to the country. I believe, one of the many issues that will be deliberated upon is the development of CDM projects and relevant institutional issues. In this regard let me also urge you to deliberate upon the institutional interplay, which should enhance more the understanding of the role of Government, NGOS, the private sector, the business community and others. Let you deliberate on all these issues while keeping in mind the government priorities in order to use this new window of partnership with the developed world in the context of vision 2025.

Mr. Chairman

This workshop should also deliberate on the issue of the needed capacity and expertise in undertaking the CDM energy projects in the country. National Capacity and expertise in terms of technological aspects, CDM projects negotiations, determination of baseline, verification, certification and monitoring of CDM energy projects in the country is crucial. You also will need to address procedural issues, including environmental policy compatibility and macro economic policies that are relevant for consideration during the development and undertaking of the CDM projects.

Mr. Chairman

The issues of screening the CDM energy projects is very important, this should form a critical part of your deliberations, especially in making sure that the CDM energy projects address the sustainable development needs of the country and the expectations of the communities were the projects will be undertaken. Poverty eradication should be the overriding priority in such projects. We need projects that could improve the welfare of our people and address sustainable development needs of this country while mitigating the adverse effects of climate change.

Mr. Chairman

Another output of your workshop, I am informed, will be proposals on how development of CDM energy projects could take oh board different players in the process. It is my sincere hope that you will be able to come up with proposal, which may form good inputs for the guidelines for the development and implementation of CDM projects including energy projects in Tanzania, which the government is in the process of developing in consultation with various stakeholders.

Mr. Chairman

Distinguished participants, ladies and gentlemen, after these few remarks it is now my singular honour, privilege and duty to declare open the workshop on "Encouraging Clean Development Mechanism (CDM) in Energy Projects to Aid Poverty Alleviation". I wish you very thoughtful and fruitful deliberations.

I thank you for your attention

4. INTRODUCTION OF THE PROJECT

By,

Mr. Stephen Mwakifwamba

The Project Overview

- The aim of the Clean Development Mechanism (CDM) of the Kyoto Protocol is to encourage projects in developing countries which;
  - ✈ reduce greenhouse gas (GHG) emissions and
  - ✈ contribute to sustainable development in the host country.

- Conclusions from different projects undertaken in different parts of the world showed that small scale energy projects in urban/ rural areas can deliver direct poverty alleviation and other benefits to poor communities and operate in the LDCs.
- As a result of these conclusions specific reference is now made to small scale projects throughout the UNFCCC negotiating text which proposes that they should be fast tracked and be exempt from the CDM levy in LDCs.

- Renewables and energy efficiency projects are preferred.
- Equity in the distribution of projects among all DCs is also a requirement.
- Thus some resource flows under the CDM are likely to be targeted to small scale projects. There is a need to develop this work further to construct the CDM implementation modalities, which will be required.
- We intend to analyse a wider range of small scale project types (mainly min-hydros), further develop baseline methodologies, and develop a useable sustainability approach for project approval and implementation.
- Without capacity building measures (eg CDM training) such CDM projects will not be realised.
- DCs have already indicated at FCCC negotiations that there is a major need for such capacity building

What is the evidence of demand of this Project?

- The CDM is due to begin operation after the Kyoto Protocol is ratified, currently expected in 2002.
- A decision on the basic set-up of the CDM was due at the UNFCCC COP6bis in July 2001. A likely decision at that meeting was that a technical text, e.g., a 'reference manual' could be produced giving guidance to CDM project developers/ certifiers on assessment of GHG emissions reduction and sustainability.
- Small-scale projects are now in the negotiating text. Some guidance will be needed to ensure that these projects to tackle poverty alleviation are fast tracked.
- Further DC governments have stated that they require capacity building in order to take an active role in the CDM

How has poverty focus been incorporated into this project?

- The proposed study is 'enabling', i.e. it is intended to encourage a greater awareness of poverty-related issues within Climate Change policy, specifically that concerned with the CDM.
- It is intended to lead to an increase in the identification of CDM projects which directly benefit those suffering from poverty, both by proposing an extra source of funding for energy projects aimed at the poor, and by encouraging more of a poverty focus of those projects not directly aimed at the poor.

Which Crosscutting themes (i.e., gender, environment, sustainability) will be addressed by this project and how?

- One of the major aspects of the CDM is that it should 'contribute to sustainable development'. There is not yet agreement on how this may be achieved.
- One of this study's aims is to contribute to that discussion by helping to identify factors in energy sector projects which could be considered to be in line with sustainable development such as capacity building, poverty alleviation,

technology transfer, and environmental and social benefits, and indicate how these factors may be reliably assessed and used in a host approval process.
- Since the study is also concerned with capacity building for the CDM, discussion of the concept of sustainable development and its practical application will be a large part of the training given.
- Obviously, since poverty falls disproportionately on women and children, this will have to be taken into account in project assessment and in recommendations for the design of the CDM.

Collaborators
- Centre for Environment Strategies (CES) of the University of Surrey in UK.
- Intermediate Technology Consultant (ITC) – UK
- Technology East Africa (IT EA) - Kenya
- Kumasi Institute Technology (KITE) – Ghana
- Centre for Energy, Environment, Science and Technology (CEEST) – Tanzania
- The intended impact of the research among other is that, those in fuel poverty are likely to benefit from this research as there will be more assurance that CDM energy projects will contribute towards sustainable development particularly poverty alleviation.

Identification of CDM institutional needs
- Implications of CDM process for institutional structures in country
- Implications for legal and policy changes
- Capacity building needs for the CDM
- Barriers to be removed

CDM Implementation issues
- Way forward; what is required
- Investment procedures - How to put it in place
- Which financial instruments will be needed – how to put them in place
- How should participation be conducted
- How to ensure delivery of sustainable development benefits

Identification of CDM projects and Associated benefits
- Sustainable development issues and their community priorities
- Anticipated CDM Benefits - What can they gain from the CDM
- Identification of suitable project types
- What indicators do they think should be used

5. PAPER PRESENTATIONS

Four papers were presented during the first day and half of the second day, the aim of this papers was to give the highlights to the participants so that they could be able to participate effectively during the group discussions. Papers presented were as follows;

i. Status of the UNFCCC Negotiations and Marrakech Accord
Mr. R. S. Muyungi*: Assistant Director/Member of CDM Executive Board*
Vice President's Office

ii. CDM CONCEPTIAL FRAMEWORK

- CDM Project Appraisal - GHG accounting assessment baselines, additionality, monitoring, leakage using examples
- CDM Process: Who does what,
Dr. Katherine G. Berg (CES) and Mr. Hubert Meena (CEEST)

iii Introductory remarks: Country Context on CDM Perspectives
Hubert E. Meena - CEEST

Iv Sustainable Development and CDM (sustainable livelihood (S-L) criteria and others and benefit assessment: **Dr. Rona Wilkinson (ITC) and Mr. Stephen Mwakifwamba (CEEST)**

5. GROUP DISCUSSIONS

During the second day of the workshop participants were divided into three groups each group was assigned a topic to discuss as outlined in the workshop programme, the outcome of the group discussions were as follows;

5.1 Group 1: Identification of CDM institutional needs

Chairman: Mr. C. Swai – Vice President's Office
Rapotour: Mr. W.D. Kipondya – FREDIKA International
Members: Mr. Jorgen Fenhann – UNEP Centre, Riso, Denmark
Mr. Rumisha Maro – MNRT
Mr. Desideriks Mbekenga – EPMS
Mr. Arthur Mwakapugi – President's Office, Planning and Privatisation
Mr. Mr. L. J. Mgalula - TIRDO
Mr. Fredrick Lugiga – NEMC
Mr. Dorah Swai – SONGAS
Mr. S. J. Ntomola – Tanzania Investment Centre
Mr. Hubert E. Meena – CEEST

1. Implication of CDM process for institutional structure
    - Strong need for a National support system from national CDM Office to be in the DoE with major role of coordination
    - Need for National Steering Committee (multi-sectoral / stakeholders representation)
    - Have a dedicated secretariat for the steering committee to do the ground work,

- Have representation to local level
- Adjust CDM to be within the National 2025, CDM to address the vision goals
- Need for sensitisation and coordination of all key institutions and key players (e.g., TRA, PSRC, TIC task forces etc) with impact to investments in Tanzania

2. Implication for legal and policy Changes
   - Need for CDM legal and policy framework
     - Review of macro and micro policies and where applicable harmonise them
     - Review of legislation to accommodate CDM development in Tanzania
   - Need to develop national rules and guidelines for CDM implementation

3. Capacity building needs for the CDM
   - Capacity building needs assessment at all level from national to district level in terms of personnel, training, equipment and financial resources for sustainability
   - Need for training experts for CDM project design
   - Need for training in CDM project appraisal e.g., vilification, monitoring, evaluation, validation etc
   - Capacity building in CDM project baseline development

4. Barriers to be removed
   - Policy barriers – investment disincentives e.g., investments in power generation less than 100KVA are not recognised as capital item, therefore, no tax holiday is given to investor
   - Limited access of information and lack of awareness to some levels
   - Conflict of interest among institutions
   - Inadequate communication and information exchange among stakeholders
   - Inadequate skilled human resources on CDM issues
   - Proposed that CEEST to make an inventory of stakeholders to see to it inclusion of relevant stakeholders in the National Steering Committee

5.2 Group 2: CDM Implementation Issues

Chairman: Mr. J Kushoka – Tanzania Meteorological Agency (TMA)
Rapotour: Mr. R. Nindie- Tanzania Industrial Research Development Organization (TIRDO)
Members: Mr. F. Mkwawa – Commission for Science and Technology (COSTECH)
Mr. L. Lusambo – Tanzania Traditional Enenrgy Development Organization (TATEDO)
Mr. M. Hamduni – Tanzania Electricity Supply Company (TANESCO)
Mr. C. Musyani - Tanzania Electricity Supply Company (TANESCO)

Mr. E. Kilawe – Tanzania Greenhouse Gases Action Trust (TAGGAT)
Mr. M. Maingu – Centre for Energy, Environment, Science and Technology (CEEST)
Prof. J. Katima – University of Dar es Salaam

1. What is required
   - Establish clear framework mechanism consisting of ;
     - Focal point (VPO)
     - National CDM committee which comprises of; business community (eg TCCIA), investment centre, experts, NGO and relevant ministries
     - Other players

   - Review the existing relevant policies to include CDM issues
   - Revisit investment procedures to include CDM matters
   - Create awareness among stakeholders
   - Train people at different levels and disciplines
   - CDM framework should have legal status
   - Plan activities for capacity building and awareness campaign
   - Establish networking with relevant institutions
   - National focal point should recruit sufficient staff
   - Prepare Terms of Reference for CDM officers and a reporting system
   - Develop incentive packages to attract investors

2. Investment Procedures
   - Utilize the existing institutions by equipping with necessary packages instead of establishing new ones

3. Financial Instruments
   - Use the existing financial institutions like Banks and Poverty Alleviation Funds

4. Participation of Stakeholders
   - Divide stakeholders in groups
   - Carry out activities in phases

5. Delivery of Sustainable Development benefits
   - Part of income from projects should be re-invested on development activities
   - Build capacity in local areas
   - Use local resources
   - Monitor and evaluate projects

6. CDM Drive
   - Streamline procedures for investment
   - Design suitable incentive packages e.g., tax relief
   - Increase awareness of CDM to local stakeholders

Group 3: Identification of CDM projects and Associated benefits

Chairman: Dr. Ngatunga – Ministry of Agriculture and Food Security
Rapotour: Ms. Joyce Mbeyella – TAGGAT
Members: Mr. B. K. Kaale – TASONABI
Mr. N. Murusuri – UNDP/GEF Small Scale Grants
Mr. T. Hyera – TMA
Mr. Z. Ubwani – Freelance Journalist
Mr. M. S. Lungenja – Consultant (CEEST)
Mr. B. Mwambungu – Journalist (JET)
Mr. Stephen Mwakifwamba - CEEST
Mr. R.S. Muyungi - Vice President's Office, Division of Environment

1. Sustainable development issues and their community priorities
    - Sustainable Development Definition: Is any Development activity that can be done easily with appropriate technology using local expertise and available natural resources without compromising future generations
    - The development instrument for Tanzania now is in Poverty Reduction Strategy Paper (PRSP) and Vision 2025 as addressed in the following areas;
        - Agriculture
        - Rural roads
        - Health and HIV/AIDS
        - ICT
        - Good Governance
        - Education
    - The above criteria were developed from grassroots (village level) and hence serve the purpose for community priority

2. Anticipated CDM Benefits - What can be gained from the CDM
    - Country driven and consider country/community priorities
    - CDM project should have low transaction costs
    - Reduction of pressure on biomass resources
    - Capacity building (training personnel to undertake CDM projects)
    - Economic improvement – increase in job opportunity hence reduction of poverty
    - Power supply – rural electrification
    - Reduced dependence on imported fuel
    - Social infrastructure improvement in health care and education
    - Environmental additionality
    - Technology transfer
    - Financial additionality
    - Attraction of investment
    - Security of energy supply

3. Identification of suitable project types

- The selected projects should address the criteria in PRSP
- Be in off-grid (remote areas)
- Energy project leading to poverty alleviation (improvement of social well being of the community)
  - Hydro (Iringa) – available head and flow
  - Solar (Masasi) – long sunlight hours/day
  - Biogas (Kwimba) – raw material availability and forests
  - Irrigation (Tarime, Shirati) – lake water due to conducive geographical features

	PROJECT	PRIORITY	SUSTAINABILITY	ANTICIPATED BENEFITS	CDM PERSPECTIVE	INDICATORS
1	Wind Powered Irrigation Project	Irrigation	Renewable energy source and Efficiency	-Improved food security at household level -Improved water supply -Increased income -Employment opportunity -Improved shelter	Emission reduction changing form diesel to wind	-Change of life Standard - Increase harvest per acre
2	Biogas	Clean Environment for cooking	- Easy to fix - Renewable source	- Reduced workload to women -Fast and efficient - Reduced indoor pollution - Environmental conservation - Saving interms of expenditure	Reduction in GHG emissions	- Less incidence of respiratory diseases - Less murders of old women
3	MHP	Supply of Electricity	Renewable energy	- Reduced indoor pollution - Employment opportunity - Provision of social service to villagers - Improved transport - Increased income -Access to media	Reduction in GHG emissions	-Change in social life style
4	Solar Energy Project	Supply of Electricity (health centres and remote areas)	Renewable energy	-Student can study at night - Supply of power to laboratory -Employment opportunity - Increased morality - Improved means for storage of medicine	Reduction in GHG emissions	-Improved exams passes - Improved health services - Improved shelf life of medicine

6. STRUCTURE OF THE WORKSHOP

The structure of the workshop was as outlined below. There was an initial phase of information transfer and then an elicitation phase and finished with report back.

Programme

12 January 2002

TIME	ACTIVITIY
08:30 – 09:00 hrs	Registration.
09: 00 – 09:15 hrs	Introductory remarks **Hubert E. Meena**, Acting Director Centre for Energy, Environment, Science and Technology (CEEST)
09:15– 09:30 hrs	Opening Speech **Mr. E. K. Mugurusi**, Director of Environment Vice President's Office
09:40 – 10:00 hrs	Tea Break
10:00 – 10:30 hrs	Introduction to CDM and DFID CAPA project **Mr. Stephen Mwakifwamba - CEEST**
10.30 – 11.00hrs	Discussions
11:00 – 11:30 hrs	Status of the UNFCCC Negotiations and Marrakech Accord ***Mr. R. S. Muyungi: Assistant Director/Member of CDM Executive Board*** Vice President's Office
11.30 – 12.00hrs	Discussions
12:30 – 13.00 hrs	**CDM CONCEPTIAL FRAMEWORK** • CDM Project Appraisal - GHG accounting assessment baselines, additionality, monitoring, leakage using examples • CDM Process: Who does what, **Dr. Katherine G. Berg (CES) and Mr. Hubert Meena (CEEST)**
13:00 – 14:00 hrs	Lunch Break
14:00 – 14:30 hrs	Discussion
14:30 – 16.00 hrs	*Breakout sessions:* Topics according to target group
16:00 – 16.30 hrs	Tea Break
16.30 – 17:30 hrs	***Group presentations***
7.30hrs	*End of Day One*

13 March 2002

TIME	ACTIVITIY
08:30 – 09:00 hrs	Registration.
09: 00 – 09:15 hrs	Introductory remarks: Country Context on CDM Perspectives **Hubert E. Meena** - CEEST
09:15– 10:15 hrs	Sustainable Development and CDM (sustainable livelihood (S-L) criteria and others and benefit assessment *Ms. Rona Wilkinson (ITC) and Stephen Mwakifwamba (CEEST*)
10.15 – 11:00 hrs	Tea Break
11.00 – 13:00 hrs	*Breakout sessions:* Topics according to target group
13.00 – 14.00 hrs	**Lunch Break**
14.00 – 16.00 hrs	Group Presentations
14:00 – 14:40 hrs	**Government target group (Identification of CDM institutional needs)** • Implications of CDM process for institutional structures in country • Implications for legal and policy changes • Capacity building needs for the CDM ➢ Barriers to be removed
14.40 – 15.20 hrs	**Investor target group (CDM Implementation issues** • Way forward; what is required • Investment procedures - How to put it in place • Which financial instruments will be needed – how to put them in place • How should participation be conducted • How to ensure delivery of sustainable development benefits
15:20 – 16.00 hrs	**Receptor community groups (Identification of CDM projects and Associated benefits)** ▪ Sustainable development issues and their community priorities ▪ Anticipated CDM Benefits - What can they gain from the CDM ▪ Identification of suitable project types ▪ What indicators do they think should be used
16:00 – 16:30 hrs	Tea Break
16.30 – 17:00 hrs	Closing Remarks: Mr. Richard S. Muyungi ***Assistant Director/Member of CDM Executive Board*** Vice President's Office
7.30 hrs	***Reception and Close of Workshop***

PARTICIPANT CRITERIA

Host Governments

- Those who have attended COPs
- (Institutions and Govt. Departments) affected by CDM
- Officials involved in the CDM *process* (technical and at the policy level)

(Note: this could include potential people)

- Technical people involved in Climate Change

Project Partners (both from a financial side and also actual implementers)

- Institutions with a large number of members (network) to whom the CDM issues can be disseminated and advocated
- Institutions with links to potential investors
- Local (grassroots) organisations and individuals with the potential to be CDM partners
- Private sector companies with potential to be CDM partners

Financial/Legal sector

- Those with micro financing and rural banking experience
- Those with foreign investment interest and experience
- Financial institutions involved in foreign investment projects
- Those with legal expertise in environmental and climate change law (and in drafting laws)

Receptors

- Representatives of groups whose livelihoods are directly impacted by CDM projects

Special Groups

- NGOs
- Academic and Research Institutions
- Media

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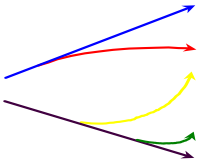
Initial Workshop in Ghana

KITE



KUMASI INSTITUTE OF
TECHNOLOGY AND ENVIRONMENT

CAPA NATIONAL STAKEHOLDERS CAPACITY BUILDING WORKSHOP REPORT

Prepared By KITE

March, 2002

TABLE OF CONTENTS

CAPA NATIONAL STAKEHOLDERS CAPACITY BUILDING WORKSHOP

REPORT

INTRODUCTION

The 1st. National Stakeholders Capacity Building Workshop was held at the STEPRI conference room, Accra on February 28, 2002. The workshop was the first of a series of capacity building activities on CDM under the CAPA project.

WORKSHOP STRUCTURE

Workshop objectives

The objectives of the workshop were:

- To transfer information on CDM particularly the institutional structure within the UNFCCC for CDM, CDM processes such as the accounting for emission reductions, registration, baselines, use of sustainability indicators for assessment of projects.
- To obtain feedback on the needs of the target groups (industry, governments, local community, legal and financial sectors) by target group.
- To encourage networking
- To identify a way forward for CDM (remove barriers, set up institutions, training etc).

Workshop Participation

Participants were drawn from four main groups; namely the Government, Investor, Financial and Receptor target groups.

Workshop Sessions

The workshop comprised an opening ceremony, delivery of presentations, group discussions and reports on CDM technicalities and case studies

OPENING

Mrs. Patience Damptey, Deputy Director, Environmental Protection Agency (EPA) Accra conducted the official opening of the workshop.

She noted with concern the changes in the environment and the need for participants to acquaint themselves with these changes to help reduce greenhouse gas emissions, a priority on Government's agenda for the environment. She also stated that since poverty reduction is a priority on government's agenda, the workshop should be used as a forum to contribute to poverty alleviation in Ghana.

Dr. Abeeku Brew- Hammond, Director of KITE, in welcoming participants placed the workshop in context; elaborated on the three CDM projects presently being undertaken by KITE. They were:

- Moving towards Emission Neutral Development (MEND) Project –whose objectives were to 1) raise awareness on CDM among key stakeholders in Ghana 2) define the institutional policy and technical needs that must be addressed in order to attract private sector investment flows into developing countries 3) identify major capacity building needs and provide DFID and other donors with guidance on how to assist in the capacity building process. This involved looking at the institutional and policy framework, identifying projects using different criteria, short-listing through basic screening and analysis.

- The IT Power ****project which helped to move the projects forwards

- CAPA aims at ensuring that the poor also benefit from CDM by facilitating the inclusion of small-scale projects that directly benefit the poor.

PRESENTATIONS

The presentations were in four parts; Overview of CAPA Projects, CDM and its technicalities, Assessing sustainability of projects and Case Studies.

Overview of CAPA Project.

Mrs. Harriette Amissah-Arthur, Senior Projects Manager, KITE, gave an overview of the CAPA Project. This was done by placing the CAPA Project in context, outlined and explained the rationale, the objectives, modalities, project outputs, project methodology, capacity building areas, target groups and project timeframe.

CDM and its technicalities

The next presentation was by Dr. W. K. Agyemang-Bonsu on 'CDM and its

technicalities'. The presenter traced the origin of the project, its current status and purpose. He said CDM was to assist non-Annex 1 countries to the Convention to achieve their emission reduction targets whilst contributing to sustainable development in non-Annex 1 countries. Therefore, non-annex 1 parties would benefit from project activities resulting in certified emission reductions whilst annex1 parties may use the CERs accruing from such project activities to contribute to compliance.

He also explained that an extensive institutional structure for CDM in a hierarchical order was envisaged in Art. 12 to comprise:

- The COP which is a meeting of parties to the Kyoto Protocol
- The CDM Executive Board
- Operational Entities

The presentation then elaborated on the roles and composition of these institutions and the processes for CDM operationalisation.
These were:

- Participation requirements
- Validation and registration requirements
- Registration
- Selection of baseline methodology
- Project crediting period
- Monitoring requirements
- Verification and certification requirements
- CDM registry requirements
- Project design documents requirements

After the presentation, a number of interventions were made on the focus, the attractiveness of the project and policy direction of the Government. It was stated that if CDM projects are to be geared towards benefiting the people of Ghana, the public would need to be educated. Even though considerable effort has been made in the past, the difficulty has been with getting members of identified groups to attend workshops. He indicated that ways would have to be found to make projects in Africa adequately large to make them attractive to investors as present typical project sizes in Africa are unattractive to the investor community.

To assist in the identification and development of CDM projects in Ghana, the Government has developed a concept paper that recognizes the transport sector as a major emitter of greenhouse gases in Ghana with the energy sector as the next highest. Consequently, the Government intends to focus on exploring projects in these two priority areas.

The problem associated with CDM project development in Ghana is lack of information on project specific baselines since most industries hitherto were not monitoring their emissions, where the information was available it was so formatted that it was not useful. Industries need to start and sustain efforts to build and maintain inventories of their

emissions in order to establish the baseline information necessary for the development of CDM projects. Data collected should be done in such a way that allows for future developments.

Assessing Sustainability of Projects

Mrs. Sarah Agbey, a Project Officer from KITE led this session. She made a presentation on methodology for assessing sustainable benefits of small-scale CDM projects, international and national targets for poverty alleviation, the need for sustainable development under CDM and the Sustainable Livelihoods Framework (SLF) as a project selection/assessment tool.

Questions were raised as to whether CDM was included in Ghana's report for the World Policy Summit on Sustainable Development to be held in August 2002 in South Africa. Participants intimated that this would be an appropriate platform for taking on board such issues to create awareness. Participants expressed concern about the use of SLF in assessing the development impact of mini hydro projects, they thought the ranking used was inappropriate and should be reviewed.

The assumption that rural electrification alone improves the living standards of people was questioned since lighting is not the only factors that contribute to commercialization and ensures that energy is used productively. The participants from the Ministry of Energy indicated that an assessment of the impact of rural electrification on the communities was underway.

Case Studies

Dr. Henry Mensah-Brown made a presentation on CDM case studies. He used the case studies as a means of identifying CDM projects, explaining GHG accounting assessment baselines, additionality, monitoring and leakages using small-scale energy projects. One project was discussed from each of the under listed areas.

- Solar home systems
- Mini hydro projects
- Energy efficiency projects
- Biomass co-generation (Projects)

Participants agreed that the present subsidized tariffs posed difficulties for qualification of CDM projects. Another problem was the low price of CERs being offered by the Annex 1 countries.

BREAKOUT SESSIONS

Participants were divided into 4 groups - the government, the investor, financial and receptor community target groups. Each group examined specific issues as outlined below:

Government target group

- Implications for CDM process for institutional structures in the country
- Implications for legal changes
- Capacity building needs for the CDM
- Identification of suitable project types
- Barriers to be removed

Investor target group]

- Way forward: what needs to be done
- How to put it in place
- How to ensure delivery of sustainable development benefits
- Participation requirements

Financial sector target group

- Which financial instruments will be needed
- How to put them in place

Receptor community group

- Sustainable development issues and their community priorities
- What can they gain from the CDM
- What indicators do they think should be used
- How should participation be conducted

GROUP REPORTS

Participants resumed in plenary to receive reports from the various target groups

The government target group came out with the following

Implications of CDM process for institutional structures in the country

- There is the need for a designated institution e.g. Commission which will have linkage with stakeholder organizations or institutions such as EPA, energy Commission, Waste Management Department to look at every issue regarding climate change

Implication for legal changes were identified as:

- Ratification of KP
- Legislative framework for the setting up of the designated body such as a Commission

Capacity Building needs for the CDM

Strengthening the regulatory agencies such as EPA Vehicle Examination and Licensing Department (VELD) and Police for enforcement of existing laws on pollution to make CDM attractive to the investor.

Capacity building for GHG mitigation cost-benefit analysis (industries should be able to calculate and assess their own emissions)

Institutional set-up such as Standards Board, Centre for Scientific and Industrial Research (CSIR), and Universities should be strengthened to carry out GHG emission monitoring, CDM project validation, verification and certification.

Identification of suitable project types:

Sector	Project Types
Energy	**Transport, power generation, energy efficiency, renewable enrgy promotion**
Forestry	**Afforestation, Re-afforestation**
Waste Management	**Properly managed landfill, Anaerobic and CH4 generation, Recycling of waste for power and heat**

Barriers to be removed

- Low Electricity tariffs
- Inadequate public transport systems
- Absence of punitive measures for inefficiencies

The investor and the financial group merged to report on the following

Way forward, what do they need?

- Search for and identify of renewable and Energy Efficiency projects as new areas of investment. The investor must know the viability of the sector
- Creation of enabling environment (legal infrastructure and procedures, political environment, local cost of doing business)
- Project must be demand driven –there should be a real need and willingness to pay for the services

How can these be achieved?

There is the need for the establishment of the appropriate legal framework by establishing the necessary

- Government legislation
- Marketing and advertising of CDM pilot projects and establishing Regulatory incentives for environmentally friendly technologies

How to ensure delivery of sustainable development benefits

The 4A test – affordable, available, acceptable and adoptable in addition to a long term environmental and economic sustainability must be applied.

Participation requirements

Appropriate and strong regulatory institutions and laws with clear rules of the game

Financial sector group

Fiscal incentives such as tax concessions or holidays, carbon tax rebates, guaranteed prices for embedded generations, clear technical requirements regulations and rules of the game would need to be established

How to put them in place

The appropriate regulatory institutions such as thePublic Utilities Regulatory Commission (PURC), Energy Commission (EC) and Internal Revenue Service (IRS) should be lobbied and worked with for the implementation of recommendations.

Receptor group

Sustainable development issues and their community priorities

- Allow community members to define their sustainable development needs and identify their priorities
- Sustainable development is defined as projects in community that are environmentally friendly
- Priorities of communities in Ghana-energy
- Some projects that will benefit communities include mini hydro Jatropha mini oil project and Bricks and tiles manufacturing.

What can they gain from the CDM

Community members will benefit from job creation, health improvement local participation in the construction of and operation of facilities at local level

What indicators should they think should be used –following indicators should be considered in assessing CDM

- Employment generation
- Improvement in health
- Education

- Infrastructure development
- Improvement in gender issues (reduce drudgery)
- Job security
- In sum improve upon the basic needs of life at the local level

How should participation be conducted?

- There should be local consultation and management of CDM projects
- CDM should involve community members in the whole project cycle –project identification, development, implementation and evaluation
- There must be an identified owner for the project and measure for monitoring the success of the project

Suggestion

Participants indicated that the time allotted for group discussions was not enough and that the organizers should endeavor to allocate more time for the elicitation phase to ensure that issues are adequately discussed.

CLOSING

The organizers thanked participants and requested them to forward any further suggestions to the Accra KITE Office.

Final Workshop in Kenya

Workshop on Encouraging CDM Energy Projects to Aid Poverty Alleviation (CAPA)

By

Daniel Theuri and Martha Mathenge
Energy programme
Intermediate Technology Development Group Eastern Africa (ITDG-EA)

6th – 7th March 2003, Nairobi Safari Club

LIST OF ACRONYMS AND ABBREVIATIONS

AG	Attorney General
BEA	Bureau of Environmental Analysis
CBA	Cost Benefit Analysis
CER	Certified Emissions Reductions
CDM	Clean Development Mechanism
CDM CAPA	Clean Development Mechanism Project for Poverty Alleviation
DNA	Designated National Authority
DOE	Designated Operational Entity
EADB	East Africa Development Bank
EAETDN	East Africa Energy Technology Development Network
EAPCC	East African Portland Cement Co. Ltd
EIA	Environmental Impact Assessment
ERB	Electricity Regulatory Board
ESCO	Energy Service Companies
ICTs	Information Communications Technologies
IFC	International Finance Corporation
ILO-JFA	International Labour Organisation - Jobs For Africa
ITDG-EA	Intermediate Technology Development Group, Eastern Africa
IPPs	Independent Power Producers
KEBS	Kenya Bureau of Standards
KIRDI	Kenya Industrial Research & Development Institute
KPLC	Kenya Power and Lighting Company
MCA	Multi Criteria Analysis
MHP	Micro Hydro Power
MOE	Ministry of Energy
MTI	Ministry of Trade and Industry
NARC	National Rainbow Coalition
NEMA	National Environmental Management Authority
NGOs	Non-governmental Organisations
PDD	Project Design Document
RE	Renewable Energy
SD	Sustainable Development
SL	Sustainable Livelihoods
SHS	Solar Home Systems
SMEs	Small Micro Enterprises
SONY	South Nyanza Sugar Company Ltd
UNFCCC	United Nations Framework Convention on Climate Change

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The Energy Programme of ITDG-EA wish to thank the organizations which contributed their resources, time, technical and financial support in making the Workshop on Encouraging CDM Energy Projects To Aid Poverty Alleviation (CAPA) a success.

We particularly wish to thank the Centre for Environmental Strategy (CES) at the University of Surrey and Intermediate Technology Consultants (ITC) in UK, together with ITDG-EA for their support in the preparation and convening of the workshop. Thanks go to the project sponsors, DFID-KAR (Department for International Development - Knowledge and Research).

Special thanks go to the organizations that were involved in the preparation and making of presentations in the workshop that include: International Finance Corporation (IFC), Kenya Industrial Research & Development Institute (KIRDI), the Kenya Association of Manufacturers (KAM), the African Centre for Technology Studies (ACTS), and Jomo Kenyatta University of Agriculture and Technology (JKUAT).

Our thanks also go to all the participants who took their time to attend the workshop, whose contributions were useful in identifying areas and strategies for CDM projects in Kenya and the whole global initiative on issues relating to climate change.

We also extend our sincere appreciation to the sectors that made it possible for the project to study the energy small-scale projects during data collection of the technical, financial and sustainability benefit delivery data that contribute to the CDM. These include South Nyanza Sugar Company (SONY), East Africa Portland Cement Company Ltd, Bamburi Cement Company, James Finlays, Kenya Tea Development Authority (KTDA) small scale factories, Tungu Kabiri micro hydro community, Kathamba and Thima pico hydro communities.

We hope the recommendations and suggestions from this workshop will make a positive impact in promoting foreign direct investment (FDI) that secures sustainable development and facilitates technology transfer in developing countries among the government, investor, financial, legal and receptor groups. Such capacity building forums in the host countries should ultimately aid the implementation of small-scale energy type of projects.

Daniel Theuri
Energy Programme Manager
Intermediate Technology Development Group Eastern Africa (ITDG-EA)

EXECUTIVE SUMMARY

BACKGROUND

A DFID funded project commenced to carry out research on the Clean Development Mechanism (CDM). The Clean Development Mechanism is a project-based mechanism under the Kyoto Protocol. Under the CDM, investors from Annex I[2] country with targets may invest in a project designed to reduce Greenhouse Gas (GHGs) in a developing country without targets and in return receive the credits for the emission reductions achieved. A CDM project should also contribute to the sustainable development path of the developing country host.

The DFID project, coded CAPA (CDM energy projects to aid poverty alleviation), was implemented in the period September 2001 to March 2003 (18-month project). It was designed to contribute to the design of the CDM under the Executive Board for the CDM so that poverty focused energy projects are encouraged. A major element of this has been capacity building in a host country to aid the implementation of these small-scale types of projects. A range of energy projects have been studied and issues such as baselines for accounting for GHG reductions for these small-scale projects and sustainability benefit delivery have been addressed.

The host countries involved are Kenya, Tanzania and Ghana and the respective country partners are Intermediate Technology Development Group (ITDG-EA) Eastern Africa, KITE (Kumasi Institute of Technology Environment*)* in Ghana and CEEST (Centre for Energy, Environment, Science and Technology) in Tanzania. The Co-ordinator of the project is Centre for Environmental Strategy at the University of Surrey with Intermediate Technology Consultants (ITC) both of UK.

Workshop Objectives

- Country specific results
- Disseminate technical and sustainability benefits/results
- Synergies between country projects
- Integrated approach to implementation
- Engage local participants for progressing small-scale energy CDM projects in Kenya

Agenda

- CAPA project GHG reductions
- CAPA project Sustainability benefit delivery
- Implementation of projects, capacity building for CDM
- Interfaces for small scale CDM
- Participatory sessions

[2] Annex I to the UNFCCC (United Nations Framework Convention on Climate Change) lists all countries in the OECD (Organization for Economic Co-operation and Development), plus countries with economies in transition in Central and Eastern Europe (excluding the former Yugoslavia and Albania). By default, the other countries are referred to as Non-Annex I countries. Under Article 4.2 (a and b) of the Convention, Annex I countries commit themselves specifically to the aim of returning individually or jointly to their 1990 levels of GHG emissions by the year 2000.

RECOMMENDATIONS

Action points post CDM CAPA project

- Kenya should speed up the ratification of the Kyoto Protocol.
- Need to bring all organizations working on CDM in the country together and have a meeting to identify the best organisation to serve as the secretariat based on the organisations' strengths and delegate the running of the secretariat.
- Effective co-ordination of all CDM activities in the country through a secretariat - ITDG-EA to take the lead in bringing all the players together at the initial stages.
- Need to move towards implementation, develop a communication system for all stakeholders and move forward.
- University of Surrey and local institution (to be identified) to develop a framework for capacity building on CDM.
- The bottom line in this region is poverty reduction therefore a key factor in approval of projects should be creation of jobs particularly in the rural areas.
- Data was available on what was going on in the country in the Ministry of Energy (MOE) and the Ministry of Trade and Industry in the past, but this is now lacking and needs to be updated. We should try to get the Ministries to collect the data. There is need to place emphasis on data collection, management and storage.
- To curb difficulties in getting data, need to get the government to give data and not use it as a source for income generation.
- The centres covered during the CDM CAPA project should get some facilitation and developed further namely: cement factories (East African Portland Cement Co. Ltd and Bamburi Cement), tea (James Finlays and small scale tea factories) and sugar factory - South Nyanza Sugar Company Ltd (Sony).
- Sony Sugar has pledged commitment to move forward with co-generation and incorporate the CDM process in their commitments.
- Need to redefine the role of NEMA in terms of CDM and to disseminate the information.
- Sensitisation of the government and financial institutions.
- Need to get people involved in the projects including the participation of local communities in CDM activities.
- Capacity building should also be targeted to the local people.
- Need to have a programme on the transport sector and address policy issues in this area.
- Need to know when ITDG is calling the first stakeholders meeting - need to get funds first.
- Need to get contacts of all participants so that people can share more information.
- Need to set up a directory of CDM actors so as to know who is who and what are they doing and what their capacity is.
    - This information could be distributed in the East African Energy Technology Development Network (EAETDN) database.
    - Emails from all participants to be collected.
- A report on the workshop should be prepared and distributed to the participants.

DAY 1

Introduction to the Workshop
The meeting kicked off, by welcoming guests and requesting participants to introduce themselves. Participants then introduced themselves, and the organizations they work for. The host at ITDG-EA went through the contents of the workshop and referred participants to important websites that have more information to the project. The background to the workshop and the objectives were explained and the participants were then taken through the workshop agenda (appendix 1 and 2)

Participants Expectations

Industry perspective

One of the participants from Sony Sugar indicated that he wanted a clearer way to look after the environment in a way that benefits all stakeholders. Added that his factory is located in a rural area where there is no pollution except for their factory and wanted direction as to how to clean up the environment.

Cement representative

A representative from East Africa Portland Cement Company Ltd was interested in knowing what the scope of CDM was? Who the stakeholders are? He noted that there was a difference between the stakeholders and shareholders and wanted to know who was who? How to interface between those who pollute and those who care about the environment? And how to bring the two together?

NGO perspective
A participant from Climate Network Africa was interested in knowing how the local process of CDM linked with the international CDM process. She noted that industries in Kenya are not participating but are just being fed information from the West. Her expectation was for local firms to begin participating and sharing their experience in the process.

Opening Speech

Elijah Agevi of ITDG-EA gave the opening speech. Among the issues noted in his speech were

- Issues of local participation (not to be passive actors in the CDM process), not to be recipients of process but to influence them as well.
- Defining who the stakeholders were.
- Developing a mechanism for sorting out conflicts that arise.
- The topic of the workshop was of national importance, addressing poverty reduction.
- Pointed out the effects of green house gases on Kenya.
- The need to network with other players and not only focus on the environment.
- The need to sustain the process and develop a mechanism of how to move forward.
- The time was right to introduce new ideas to the new government, and the need to develop strategies to influence the political and professional agenda. The need to inform the politicians with figures and facts to get political eminence, and likelihood of getting finances on board.
- Need to make sure the message gets to the right people at the right time.
- Noted that the energy scenario in Kenya is in a poor state. Energy is at the centre of the growth of the nation
- Need to link the project with the national goals such as employment creation.

Concluding remarks,

- He observed that the challenges were great and there was need to move fast, need to refine the timetable and time frame.

- The workshop should define ways of getting the stakeholders to work together i.e. the banks, industry and energy providers.
- Called upon experts to come to the point of saying what is it that they are able to do for our country and how they can share it with the rest of the world.
- The workshop should consider issues of scaling up issues to the region.
- Need to develop and beef up a secretariat

He hoped that the workshop would come up with some concrete solutions and SMART objectives. **Mr. Elijah Agevi** then declared the workshop open.

Comments:

Engineer Elijah Chindia (IFC), gave an overview of what the IFC does www.ifc.org. Highlighted the process of managing projects that included the financing of entrepreneurs, new projects small, medium and big. He placed emphasis on environmental issues and performance, and the prerequisite for firm to show compliance to environmental standards and legislation and efficiency levels. He highlighted the three project entry levels and what was entailed at each level.

Introduction to the CAPA project

Dr. Katie Begg. Coordinator CDM project, put the project into context i.e. UNFCCC and Kyoto Protocol and CDM (appendix 3).

Results for small scale energy projects in Kenya

Presentation given by Martha Mathenge, Peter Odhengo and Peter Orawo (appendix 4)

Martha Mathenge (ITDG-EA) gave the background information to the project, the firms studied (i.e. Bamburi, Micro Hydro, Sony Sugar and Finlay Teas) and the partners involved at the international and local level in the project.

Peter Odhengo (KIRDI) presented on Sony Sugar. He gave a background on the Sony Sugar project. How they came to select Sony Sugar and the results and its isolation from other industries so that results reflect only Sony and not other industries.

Peter Orawo (KAM consultant) presented the case of Finlays Tea MHP, Bamburi and East Africa Portlands Cement. He noted that the private sector was not very active in CDM, adding that Finlays should have benefited from CDM but did not.

Overall technical results for the project from Kenya, Tanzania and Ghana

Dr. Katie Begg then gave the overall results for the project from Kenya, Tanzania and Ghana (appendix 5)

Comments from the audience

One participant pointed out that the Finlays conduct maintenance on Mondays, and electricity at this time is not needed so the MHP is turned off and/or they inject some power into the grid. He wanted to know if this was considered in the computations.

The integrity of the distribution system was questioned. It was pointed out that the factory had expanded over the years but was still using the same 3 phase. Participants wanted to know if this had been expanded.

If Sony and Finlays were to be integrated to the national grid can feedback 15MW to the grid. Did you factor in the 15MW fed into the national grid? This benefit might be larger than that of the picos and micros, which serve only the 300 people?

Finlays had planned this for a long time. People around the area wanted electricity but output of system could not support this and so no power was supplied to the people.

On the Bamburi case, one participant wanted the inefficient railway network using diesel trains to be factored into the calculation.

One participant suggested that the transmission losses in Micro hydros given at about 25% may be too high and suggested a figure of 12% if using 11 watt or 8w bulbs..

Responses to the questions

Picos target lighting while Micro hydro has limited radius and therefore lower efficiencies.

Finlays no longer give electricity to the grid. However, they are in negotiations with ERB and KPLC to sell electricity to the national grid if the water level comes up.

Distribution network was put up in 1956 and is currently being refurbished.

With regard to the inefficient railway network, it was pointed out that CDM projects have specific boundaries therefore do not go into railway network. The Cement study focused on the clinker in Nairobi and operations in the Mombasa, but did not go into the transportation.

Comments/questions

One participant wanted to know what was the major source of electricity for Finalys. Is it hydro or thermal? He had the feeling that the main source is from thermal and only use grid electricity if supply is low. He pointed out that their grid system is different from that of KPLC.

Response

Demand of Finlays is 4.4MW. Only one factory produces its own electricity. This is the Maramara, which produces 60kW. The hydro can produce 2.2MW. They have to run diesel generators to make up for shortfalls.

The generators were installed in 1992 and 1993. The hydros are synchronised with the grid if the grid goes off they also go off so you have to run the diesel first. When electricity is in short supply, each factory has to run independently.

Comment/question.
A question was raised on the definition of small projects, not that there could be a conflict in terms of policy. It was noted that people usually look at projects in terms of finance. Project looks at small projects of about 15 MW. What are the project cost implications for the government?

In Kenya, 15 MW is large while small-scale projects are far less than this.

Response

Dr. Katie noted that there was need to look for ways on how to make the definitions work so that projects interested in CDM can work.

She went on to explain that the trouble was financing small projects, as it was not something the institutions were used to doing. Financiers need to learn how to do this, as they are more large scale oriented. There

was need to find ways on how to execute the costs, as there are costs that get into small projects that do not get into large projects for example transaction costs of projects.

East African Development Bank (EADB) has been thinking of some of these issues in relation to economic development of the East African region.

Observation

Grace Okumu (CNA) observed that while people in developing countries believe that small projects are good, and our countries are in a poor state with other priorities, for example capacity building. Bundling is becoming a bigger issue. We appear to be dealing with goals that are not ours. When people think of CDM people think that money will come. What they do not understand is that industry has to put in their own money first before they get the money back. It may be that multinationals are likely to benefit more as they are going to be the ones that can put up the money first. How then will Kenyan companies get the money to implement and build their capacity?

Response

Dr. Katie Begg highlighted that the project has cost savings. It is not a project that just takes money but has some return. Businesses therefore need to develop business plans for such projects. The CDM process is not all bad, and fears can be discussed during the break away sessions

Sustainable development and CDM

Presentation by Dr. Rona Wilkinson (appendix 6)

Introduction to the assessment model

Presentation by Dr. Katie Begg on the assessment model used - Multi Criteria Analysis (appendix 7)

Comments
Product of this work is to create capacity building. Biggest challenge has been how to decide what is beneficial and what is not? This work provides a model to be used in judging projects. MCA provides a rational way of addressing problems.
In the value tree, choosing a value will influence the decision tree. A developing country may not meet a criteria set by CDM. How do you go ahead?

Response

Projects are assessed on the basis of the benefits they give and how well they meet the benefits. Key factors for consideration in CDM is how the project is implemented and what is done in the project.

Comment

One participant pointed out that capacity building may be needed in modelling techniques for decision-making. He added that he had the feeling that we have a lot of data but we still need models for helping in making decisions.

Sustainability Results for Small Scale Projects in Kenya

Presentation by Martha Mathenge and Dr. Rona Wilkinson on the Sustainable Livelihoods (SL) Benefits Comparison (appendix 8)

Overall Sustainability Results for CAPA

Presentation by Dr. Katie Begg and Dr. Rona Wilkinson (appendix 9)

Comments/questions

Clarification needed on whether studies were based on actual projects that were requested. The participant went on to add that there was need for actual CDM projects to be implemented in the country because Kenya is always studied but nothing is ever implemented. There was need to have implemented projects, and the studies should be used to get actual projects implemented.

Comments/question

One of the participants wanted to know what were the challenges identified in terms of describing and weighting the variables for the sustainable development criteria and what were the under workings used in coming up with the criteria?

Response

Purpose of the study was to provide tools for assessing small-scale CDM projects, so that such small-scale energy could be evaluated and implemented. One major concern is on how to get such projects implemented. With regard to the challenges in weighting criteria, the team used the S-L approach to develop the criteria, and set up data collection sheets. It was pointed out that in some options there was no data, encoding subjective judgements into preference scales. Weights awarded on discussion basis between project partners.

Comment

In relation to the pico hydros, a participant from ILO-JFA wanted to know what aspect of education was likely to benefit most from the project e.g. access to education, retention, quality and equity? Which is likely to benefit more from such a project given that there is free education that has come up with the new National Rainbow Coalition (Narc) government?

Response

Because of better light quality, students able to study longer which will improve their performance i.e. a std 8 pupil will be able to go to a better high school.

Given that poverty does not allow for the use of better energy. Power can allow for the running of computers and television that has education programs. In relation to health, refrigeration of vaccines, lighting of hospitals.

Question

Comparing the MHP and co-generation projects, what do the bars reflect?

Response

Bars show the difference in performance. Green is MPH and Red is co-generation. (refer to appendix 8)

Comment/question

Concerning the uncertainties in the readings, what is the acceptable level of uncertainty?

Response

The baselines are a path in the future. However no body knows what is likely to happen in the future. According to CDM modalities, a project must be additional. Some of the projects might have been undertaken in the next 10 years.

There are uncertainties in the technology and fuel. In grid electricity there are issues of what may constitute the electricity in the country in the future. And how much difference does it make in the future.

The different levels in the uncertainty have an impact on the carbon dioxide produced.

Need to have some surveys in the future to see what were the important uncertainties?

Comment
Before we go into a project we need to have a criteria.

Response

The project is trying to develop variables to assess Small Scale Energy Projects, so that as a developer, you do not have to deal with the uncertainties. This is more of an academic exercise that can lead to a means of developing such criteria.

Comment

Universally projects are evaluated financially. However, here projects are being evaluated in terms of S-L. Sustainability as a criterion for evaluating is a rather broad scale. Can the project be translated into monetary terms?

Response

Sustainability is just one aspect of assessing CDM projects. Multi Criteria Analysis (MCA) says that money is not the best way of evaluating projects. Where money alone is used, it is not easy to take into consideration other important variables e.g. environmental impacts. Many people only take decisions on the basis of the information that can be measured.

Our energy sector planning has been based on least cost development planning and this has led to poorly planned systems.

There is need to understand CDM. CDM is all about money. CDM projects involve saving due to less energy used. For a project to qualify as a CDM project, it needs to have passed all other project evaluation criteria.

In some of the projects there is more income. There is need to measure the increase in the income. In CDM sustainability is key. Projects meant to contribute to national development have to be sustainable. There is need to take into account all broad issues that show sustainability. There is no need to implement a project today and we cannot sustain it in the future.

Question

Mr. Mbuthi, Ministry of Energy raised the issue about picos: households are getting electricity but at what cost and can the households afford the electricity? Need to indicate the cost so that the layman can know what the value aspect of the project is.?

Response

The pico project cost, $2400/1kW installed for Picos and hydro. These are community owned and each household contributed $58 per kW[3]. The issue was affordability. Poor communities may require cushioning on initial cost.

Comment

International standards indicate that 1 MW is $1 million. Need to show the international standards for cost /MW so as to show viability. The project appears costly at $3000/kW installed.

Response

The project costs were quite high due to lack of manufacturing capacity and construction of civil works (turbines imported from Ethiopia. Local manufacture may be able to bring down project costs. Duties and taxes could also have led to higher costs.

Fact sheet[4]

Community micro hydro power project -Chuka, Meru South

Project Location	The project is located in Mbuiru village, Meru South District, about 185 Km North of Nairobi and about 12 Km from Chuka town, on the Chuka-Tharaka Road
Implementers	▪ Intermediate Technology Development Group ITDG-EA ▪ The Ministry of Energy, Renewable Energy Department.
Donors	▪ UNDP GEF Small Grants Programme ▪ Ashden Trust funded the Training component
Project period	Started in 1998 and is expected to end December 2002. Experienced some delays especially in the procurement of equipment
Cost	Cost/Kw produced US$ 3,494
Area of coverage	The scheme serves 300 household (1800 individuals) dotted within $3Km^2$ and draws membership beyond this margin. Currently, over 150 members are active.
Area of distribution	The power is distributed to a 1acre plot to serve Micro-enterprises 300m away from the power house. If policy environment improves, the power will be distributed to households within $3km^2$ radius
Source of water	River Tungu
Total Installed capacity	18kw, though 13kw is produced.

[3] Nigel Smith, Nottingham Trent University

[4] Information and data supplied courtesy of the Energy Programme, ITDG-EA, Ministry of Energy, Renewable Energy Department and UNDP Small Grants Program

Applications	Power used to power micro-enterprises e.g. Welding, salon, barber, posho mill, refrigeration, water pumping, oil processing, tobacco curing Currently 4 shed have been constructed. It is hope that a total of 14 stalls will be constructed at the site.
Technical Summary	
Intake water level	1106m
Tail race water level	1093m
Gross Head	13m
Net head	12m
Average daily flow	1.038 Cu. M
Design flow	0.2 Cu. M
Intake facility	
Intake Weir	Type: Masonry Overflow Dam, Upstream Slope Crest height: 1.4m Crest width: 0.5m Base width: 0.9m Span: 13.9m
Flood Spillway	Masonry, upstream slope Crest height: 0.75m Crest width: 0.5m Base width: 0.9m Span: 4.9m
Inlet	Horizontal direct inlet Width: 0.81m Depth: 0.51m Trash Rack: Inclined metal rack
Desiltation bay	Desiltation tank Length: 7.0m Width: 2.0m Collection depth: 0.6m Turbulence reduction section: 2.5m Sand flushing gate: Vertical Sliding Gate

Water Way	**Head race canal:** line masonry walls and concrete bed-rectangular X section Length: 250m Width: 0.85m Depth: 0.60m Slope: 1:1000 ***Surge Tank*** Length: 5.9m Width: 1.9m Collection depth: 0.6m Turbulence reduction section: 2.0m Penstock inlet depth: 1.6m Sand flashing gate: vertical sliding gate Trash rack: Inclined metal grate 12mm spacings
Penstock	Seamless mild steel Diameter: 0.3m Length: 18.45m Thickness: 4.0mm
Generating Equipment	Turbine: Crossflow - Output 18Kw Generator: Synchronous, AC, 1-Phase, Output 14Kw Controller: Electronic Load Controller Ballast Load: Air Cooled No transformer
Power house	Reinforced concrete base and masonry walls Dimensions: 4m x 4m x 3m Tail race: Open channel - Length: 3.5m
Transmission and distribution system	
Transmission Line	Double insulated sheathed cable, single phase 300m long
Cables	Transmission cables - 25mm2 copper bare conductor
Poles	8 poles used for distribution
Tariffs	Community formulates and charge tarriffs
Beneficiaries	
Households	

Comment

The international standards for picos are $2400/kW installed, $50/kWh, Variable costs –nil and carbon dioxide tax-nil.

Response

Affordability was factored into the discussion. Cost of project related to the alternative of not having the project e.g. 30% of income paid for solar home systems (SHS). Some technologies are still quite expensive for poor people.

CDM projects need to pass through normal project screening criteria. CDM comes in when you consider the environment. The starting point is the EIA. When doing the cost benefit analysis, the Environmental Impact Assessment (EIA) result will affect the overall project cost.

Overview of Problems in Capacity Building for CDM Projects: a Kenyan Case Study

Presentation by Josiah Wambua and Paul W. Magoha (appendix 10)

Areas to be addressed for capacity building

- Baseline data and baseline surveys

Observations

- Questionnaire response is low
- Questionnaire quite long- need to shorten
- Lack of awareness
- Information may not be easily available.
- Energy data does not need to be seen as confidential.
- Enthusiasm is low among SMEs in Kenya
- Level of enthusiasm is same in Annex 1 and non-Annex one countries
- Little assistance from government
- Energy conservation is to be used as a benchmark as uncertainty is low,
- Majority of SMEs in Annex 1 have expressed interest.
- Corporate interest in environment seemed low
    - Need to have impact on bottom line of the firm

Need to network with international partners.

How to sort out the problems

These are related to policy, finance, creating awareness, involving interest groups, human resources.

Role of companies

- Must get in to make money.
- Developed countries should provide funds, train local personnel, adapt technology.

Role of Govt in developing countries

- Provide clear line of communication
- Ensuring cohesive approach to project implementation
- Prepare standards
- Provide security for the loan or development assistance
- Provide guidelines for repayment of funds

Role of Local Renewable Energy sectors

- Need to put in some finances
- Localise communities to support RE projects
- Administer management of projects

Rural communities

- Need to involve the local community

Potential for projects in developing countries

- Wind firms
- Solar

Make it more business like

- Forum should identify what areas they need capacity building.

Potential Role of NGO's in the CDM

Presentation by Evans Kituyi (appendix 12)

Discussion Groups

The question addressed in the group discussions was what is needed to implement small scale energy projects under the CDM, in order to achieve GHG reductions and sustainable development benefits?

- What are the barriers
- What are the actions needed to overcome these?
  - Long term and short term actions and by whom?

Presentations of the groups

Group 1

Barriers and solutions

Resources to carry out capacity building

- Private organizations to finance as part of social responsibility
- Establishment of trust fund managed by government and private sector and stakeholders
- All stakeholders to provide finances i.e., government private sector and development partners

Lack of trainers

- University of Surrey to link with local institutions (CDM institution e.g. the universities) for capacity building
- Train in CDM project development
- Providing skills definition for CDM practitioners
- Establish a centre for CDM training
- This project should come up with a follow-up capacity development project to assist the locals participate in CDM projects as equal partners

Ways of organizing skilled people

There may be people who are capable to implement but scattered

Need to bring these people together

- Strengthen institutional partnerships for training, capacity building, information exchange (NGOs, Universities etc.)
- Exchange programmes with international institutions

- Network all stakeholders of CDM projects
- Organizing collaborations with successful CDM practitioners in and outside Kenya

Institutions to coordinate activities

Lack of simple procedures and policies to implement projects

- Need to explain what the small scale energy projects entail (from biomass, wind, solar, hydro etc.)
- Training in development of baselines
- Operate CDM projects as a business venture
- Sensitise governments and stakeholders in needs and benefits of CDM
- Development of climate friendly policies specifying clear roles of stakeholders including NGOs/Government/target groups

Access to finances

- Provision of credit-banks, government and development partners
- Private sector to finance as tax incentives
- Provide innovative financial products

Technical facilities

- Make facilities more available
- Transfer of technology to local enterprises to ensure sufficiency

Cultural barriers

- Affirmative actions and empowerment of marginalized groups e.g. women, Pastoralist etc by NGOs and Government
- Involve target groups in CDM projects to overcome social and cultural barriers)

Other enabling polices

- Develop favourable legal and fiscal environment

Awareness Creation

- Use ICT to create information exchange nationally and internationally
- Develop appropriate media content and deliver to the public through national and local media in various languages. By focal point offices and NGOs.
- Awareness creation for politicians, financiers and communities.
- Advocacy for CDM stakeholders.
- Popularise CDM

Local Infrastructure not conducive for CDM

- Improve local infrastructure which includes all the stakeholders including government

Group 2
Barriers
Technical barriers

- Lack of appropriate technology
- Lack of skills and capacity
- Assessment
- Technology management
- Lack of data
- Complexity of CDM

Policy Barriers

- No clear policy for CDM in the country to determine and regulate modalities.
- Lack of political will because not knowledgeable on the subject.

- No legal framework for CDM projects in the country. No body established by parliament but the National Environmental Management Authority (NEMA) is the Focal point.
- Energy policy is limiting.

Financial barriers
- Difficulty to borrow
    - high cost of finance
    - high risk factor
- Cost of capital is high vs cost recovery is too long. If you engage in CDM it takes 7 year to receive CER
- Concentrate only on commercial aspects

Institutional barriers
- Accreditation body is not available in the country

Lack of Information and Awareness barriers
- Very few managers knowledgeable in the area
- General population is unaware of climate change and CDM

Capacity barriers
- Lack of a critical mass of people/organizations e for project design and implementation
- Limited people to do PDD
- Limited institutions so cannot follow on –provide continuity
- Lack of resources (especially NGOs)

Cultural Barriers
- High resistance to change, people may resist CDM
- People in rural areas need to be convinced of the project so that they are committed to the projects

Solutions Identified

Technical Barriers
- Training, encourage suppliers, users training by institutions
- Develop manuals for different technologies
- Warranties for maintenance
- Standards need to be developed so that good technology is adopted
- Simplification of the CDM process to be addressed in COP 9 and made easy to implement
- Accessibility to data, sharing and acknowledge best practice, transparency, give credit where due, acknowledge

Financial barriers
- Create awareness with bank for viability of small scale energy projects
- Long term profitability/return/benefits
- Off shore Guarantors to reduce risks
- Create community awareness with banks
- Tax benefits
- Establish energy service companies (ESCO)
- IFC should fund these projects

Institutional barriers
- Lobby Government to ratify the Kyoto protocol

- Establish accreditation bodies e.g. Kenya Bureau of Standards (KEBS), NEMA, KIRDI, National Council of Science and Technology

Policy barriers

- Awareness raising
- Sensitisation of relevant government ministries on opportunities in CDM as a continuous process
- Sensitisation of the political and legal institutions (Cabinet, Parliament and AG) with regard to the CDM
- Keep abreast on information on CDM and Climate change
- Immediate ratification of Kyoto protocol
- Establish an effective legal institution dealing with CDM through an act of parliament
- Mainstreaming CDM into the NARC agenda
    - Make it a cross cutting issue like AIDS

Awareness on Capacity and cultural barriers

- Involve the private sector
- Need for skills in project management
- Develop criteria for mass education
- Provide resources to both private sector and government, not just an NGO affair
- Communication at all levels i.e. technical policy makers, implementers and beneficiaries i.e. trickle down information system
- Decentralize information access points like media print and electronic
- Cultural
    - Need to advocate for support and prepare people prior to project implementation
    - Advocacy at rural level
    - Community participation throughout project cycle.

Overview

Dr. Katie noted that there were commonalties between the two groups, e.g. awareness and use of media and Internet.

She added that interesting ideas coming out of the two presentations included standards developed which are long time actions, technology transfer so that it is not technology dumping, response to culture such as resistance to change, need for much more education and consultation between parties.

She said when these are looked at more closely we will come up with solutions. The different countries appear to have different objectives.

Interest areas include coming up with a project for capacity building and had thought of coming up with an education exchange programme that will build much more long-term solutions to capacity building. She then thanked everyone for their hard work.

From the presentations, **Dr. Rona** pointed out that there was need for Kenya to ratify the Kyoto Protocol, address the complexity of the process and lack of awareness barriers. She noted that the two groups came up with short and long term actions, however what was lacking was who is to implement the actions.

Comment

One critical barrier is the attitude to CDM leading to resistance. How can we develop a positive attitude?

Some felt that this was an issue while the majority did not.

There was a suggestion of having the contribution of the two groups re-organised in a way that they can be emailed to the participants.

Dr. Katie mentioned that the outputs of the meeting would be summarised and put into the project reports and these will be circulated to the meeting participants.

Daniel Theuri gave thanks and highlighted the agenda for the next day.

DAY 2

Main steps and interfaces

Presentation by Daniel Theuri (appendix13)

Comments/Questions

Questions were raised on how to minimise the transaction costs in Kenya. It was stated that some costs may be due to administration, and the lead-time can contribute to higher costs.

Response

The day's discussion should look at means of overcoming these costs.

Question

Bundling of projects - With regard to bundling, a question was asked as to how bundling was intended to be undertaken? Was it to be looked at in terms of regions or is it by technology or is it by organisation?

Response

Nothing has been decided on this as yet. There are many options. The question is what are the overall benefits of bundling. People have thought in terms of programmes like solar and cook stoves all of the same type, where you say if you do so many cook stoves, you get a certain level of emissions reduction.

For an organization the key concern would be on administrative issues and the personnel to administer the bundled projects. The best way may be through trial and error.

In article 12 it may be difficult to bundle across country boarders. Within the same country, this is still under discussion.

Comment

For small scale projects why not start with the Project Design Document (PDD)?

Response

Here we are looking at the institutional interfaces that are needed. Since these projects have special need from large projects, what interfaces are needed to make these projects work? What are the needs for the investors, host country, projects? What needs to be set up to make this thing work?

This is an opportunity to think through what are the best ways of getting small-scale projects done.

Comment

If you go to NEMA you are likely to find someone who may not know what to do. What would you do if you want to get CDM projects to meet development goals? What would you do to get this working? We still need government involvement in coming up with the solutions.

Response

The solutions developed during the workshop can be fed into the government procedures. The government currently has no one stop shop for CDM. What we are looking for here is how to set up the Government institution. The institution is there but does it have the ability to cope?

There is a set of guidelines available for CDM projects in the government department but these were prepared by five people and are not working. These guidelines have not been disseminated locally. **Dr. Patrick Karani (BEA)** had to go to India to get information on Kenya.

Do we have the institutional capacity to implement CDM projects?

We need to accept and recognise the process. What do we need to look at for small-scale energy projects?

We still have a serious problem in coming up with the PDD. We do not have the capacity to develop the project. Very few people can develop baselines. Even the ones being developed have so much uncertainty that it may not be possible to trust them.

Rural participants also need capacity building.

Assuming that the CDM board set up these rules in COP 7. Even using the rules to get a project in Kenya is almost impossible. An outcome of this project should be to come up with a project to build the capacity of Kenyans (DFID and University of Surrey can assist). There is a need to have local universities collaborating with other international universities on CDM.

Comment

The contents of the folder circulated by BEA, indicated that a workshop was held on the CDM in June 2002 and one of the outputs was to identify an institution to act as a think tank to host a Centre of CDM. As a consequence of that a few visits were paid to NEMA. There has been a bit of interaction between BEA and NEMA. The strategy has been to change slightly from addressing the environment as a whole while at the same time how to develop it into a CDM centre. A report of this has been prepared and is currently at the NEMA on how they can become a CDM centre. This workshop can act as a reminder. This information is available on the website: www.BEAINTERNATIONAL.ORG

Comment

The arrangement of CDM is to have NEMA act as the DOE. We need another institution outside of NEMA.

NEMA is dead at the moment

Group Presentations.

Items to discuss

- What are the interfaces?
- What are their attributes?
- What should they do?

Group 1 Presentations

Recognising the host country and investors concerns
Investor Concerns

- High quality offsets
- Low costs

- Simple transparent process

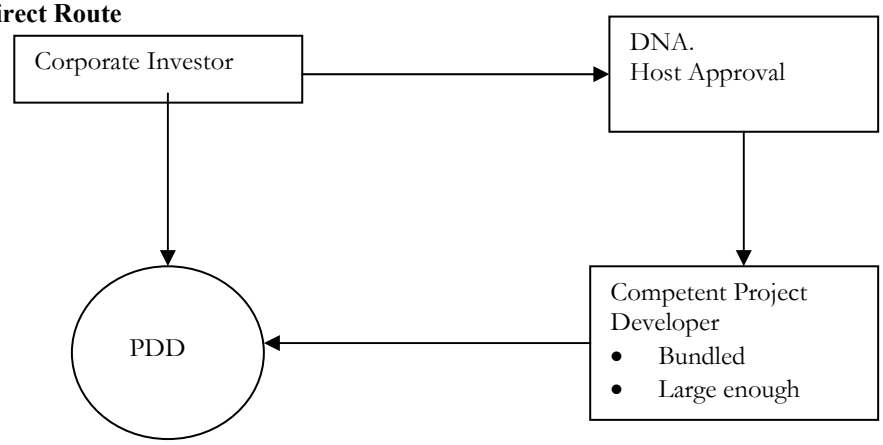
Host Concerns

- Meeting S-D goals, equity, poverty alleviation
- Development plan priorities
- Local ownership
- Technology transfer
- Local technology capacity building

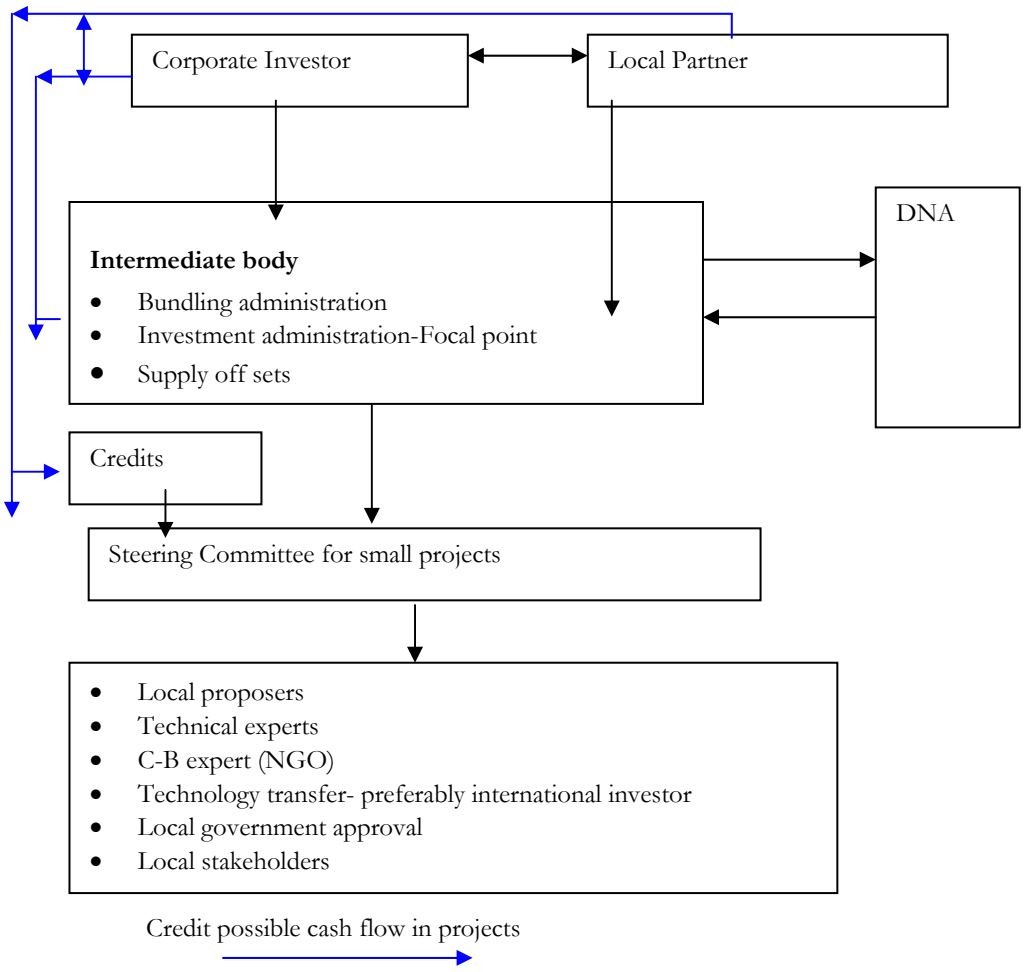
Three routes identified and discussed

- Direct route
- Indirect route
- One stop shop

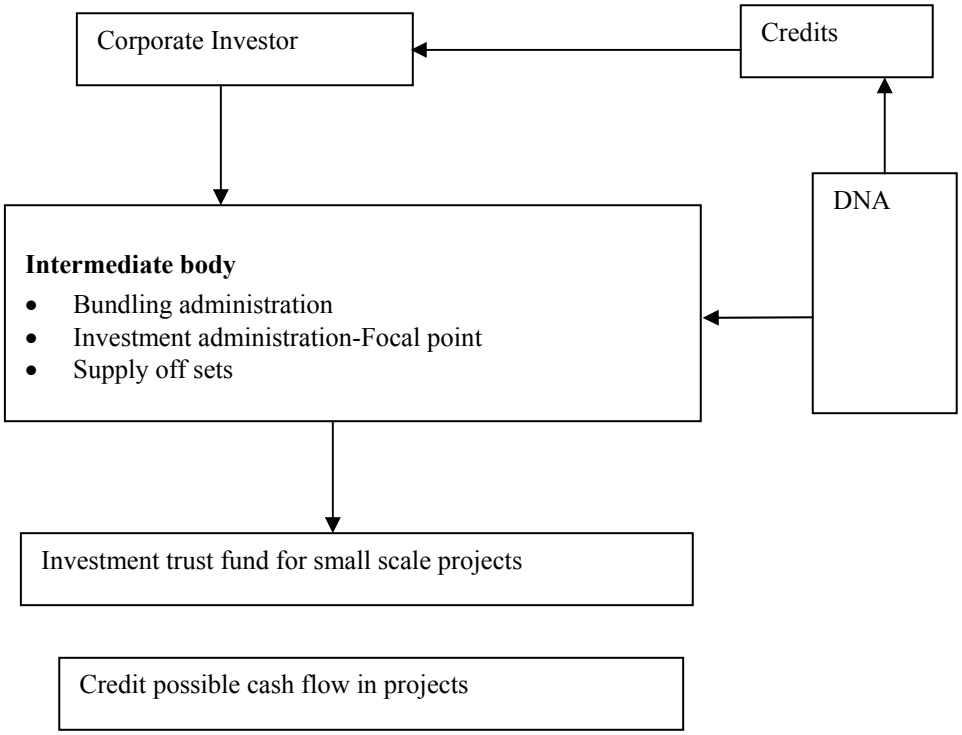
Direct Route



Indirect Route for Small Individual Projects



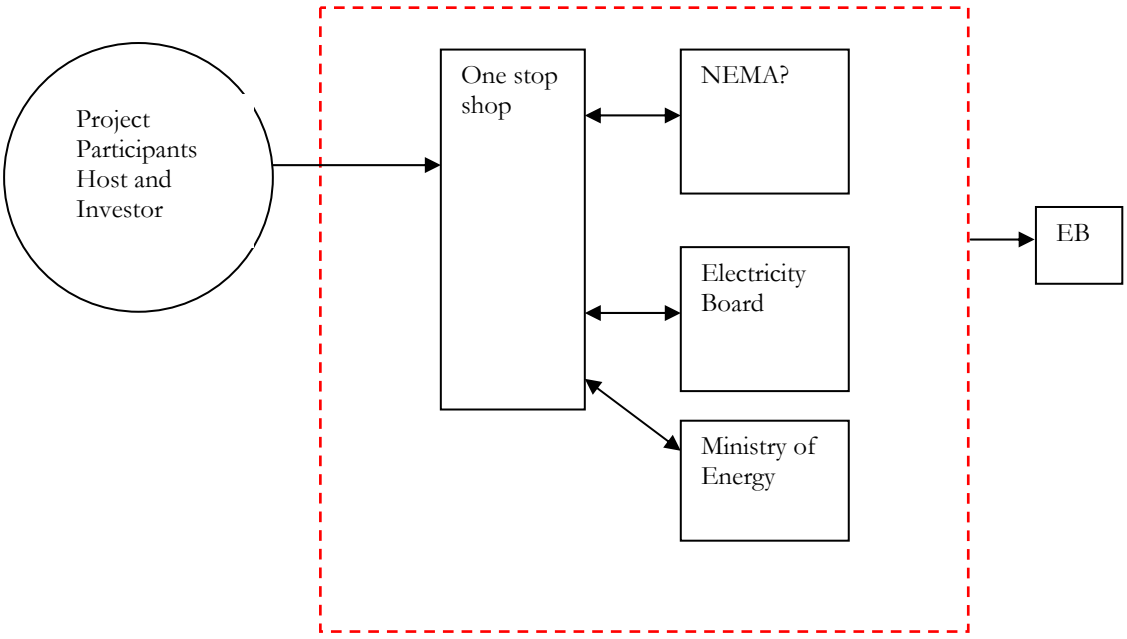
One Stop Shop Version one.



Group 2 Presentation

Key issue was any project must address poverty alleviation. Which was taken as a critical issue.

Had **One Stop Shop**



One Stop Shop

One suggestion was for NEMA to be the one stop shop, which would play a key role in the CDM process, and its composition should be flexible so that expertise matches the projects.

A question was asked on its involvement in the preparation of the PDD or if it would be consultants.

Key roles of the One stop shop

- Coordinate and link up groups
- Perform the role of bundling
- Link up project proposers with government institutions depending on the proposal
- Act as a resource centre where information on CDM is stored. Proposers can get information there.

Some suggested institutions

- Climate Network Africa (CNA)
- African Centre for Technological Studies (ACTS)
- Intermediate Technology Development Group - Eastern Africa (ITDG-EA)

It was noted that if there were so many players in the approval institution, it was likely to discourage potential investors and thus the rational for the one stop shop.

Comment

- There is need to take into consideration the investors interests in order to attract them.
- Since there are different types of investors there may be need to have different types of frameworks to deal with the investors.

Concerns

- NEMA is a coordinating body and not an implementing organization. The different roles must thus be kept separate.
- There is need to recognize what NEMA is because it has a lot of authority given to it by the government.
- The one stop shop can be within NEMA or outside NEMA.
- NEMA must be involved in regulating the environment and attracting the investors but it should not be involved in implementing the CDM i.e. issue of licenses.

Some key issues

- Need to revisit the issue of the role of NEMA.
- What can the NGOs do including the NGO Council.

Final Workshop Comments

- Every one to visit the relevant websites including BEA website to find out more about the ongoing activities.
  http://www.surrey.ac.uk/CES
  http://www.surrey.ac.uk/eng/ces/research/ji/index.htm
  http://www.itdg.org
  www.BEAINTERNATIONAL.ORG
  http://unfccc.int and www.unfccc.org

http://prototypecarbonfund.org
http://www.undp.org/seed/eap/html/climate.htm
http://www.ifc.org

- Building on the projects studied, need to see how to get this initiative on board at government level.
- Consider getting SME's involved in the process.
- More inclusion of the community in the process so that they get some equity from this.
- Use of Sustainable Livelihoods approach in this and the MCA.
- Is there any positive thing we can say on CDM?

Need to develop a complementary project approach instead of trying to discredit KENGEN and the micros.

- This relates to policy.
- There is an approval process that involves the government. This approval process will help government look at the project in terms of government objectives.
- Approval process is bureaucratic. Panpaper has been trying to get a Micro Hydro - a 20 MW plant on river Yala but approval never came through.
- Need policy shift to focus on energy supply, i.e. generate more with local resources than the use of independent power producers (IPPs) using thermal power.

Comment
A participant noted that solar home systems (SHS) were left out and Kenya has very good cases of solar that can contribute to bundling.

Response
- Solar home systems were studied in Tanzania and solar photovoltaics (PV) was looked at in a different study.
- The possibility of studying PV was considered but availability of data was a problem.

Dr. Rona's Summary
Need to coordinate efforts, get some outputs from workshop to feed into Emily Massawa's workshop on Monday that is focusing on sensitisation of decision makers.

Dr. Katie Begg's summary
- Will develop templates and baselines, and share the outputs of the project.
- Wished to take this forward including capacity building.
- Noted that coordination of CDM activities was important and data needed to be consolidated so that people did not have to do this more than once.
- Pointed out that the work within the groups was good, and would summarize the work of the groups and hopefully this would be fed into the work of the governments.
- Gave an appreciation for the hard work put in by all the participants, thanked the ITDG team for bringing in all the people together and also thanked Peter Orawo (KAM consultant) and Peter Odhengo from KIRDI for their inputs, data collection and their hard work.
- The industries were also thanked for their involvement in the project, provision of information and time spent. I.e. EAPCC team (Charles Obock, Rosemary Gituma) and SonySugar Co. Ltd (Ambrose Otieno and the CEO).

Closing remarks

By **Fanuel Tolo (Climate Network Africa)**
- Observed that some of the projects were quite impressive and wanted to know why they had not been replicated.
- Daniel Theuri noted that MHP was limited by policy and that the ERB had started the process of reviewing the act.
- He also pointed out the need to move from workshops to implementation. Need to have projects on the ground that make a difference to the majority.

- As much as the small-scale projects are good, there was need to look at large scale projects like the transport system which is the heaviest polluter. In India, buses use compressed gas.

APPENDICES

APPENDIX 1: WORKSHOP AGENDA

DAY 1: 6th March 2003

TIME	ACTIVITIY
08:30 – 09:00 hrs	Registration.
Session 1: The CAPA Project: GHG reductions	
09: 00 – 09:20 hrs	Welcome and introduction **Elijah Agevi**, Regional Director **Daniel Theuri**, Energy Programme Manager Intermediate Technology Development Group (ITDG-EA)
09:20 – 09:40hrs	Opening Speech **PS, Ministry of Environment**
09:40– 09:55 hrs	CDM activities in Kenya **NGO representative** **Financier representative** **Government representative**
09:55 - 10:10 hrs	Introduction to the CAPA project: ***Dr. K. Begg - The University of Surrey***
10:10 – 10:25 hrs	***Tea Break***
10.25 – 10.55 hrs	Results for Small Scale Energy Project from Kenya **Martha Mathenge**, **Peter Odhengo, Peter Orawo**
10:55 – 11:10 hrs	Overall results from other country offices, Synergies for an integrated approach ***Dr. K. Begg – The University of Surrey***
11:10 – 11:40hrs	Discussions
Session 2 The CAPA project: Sustainability Benefit delivery	
11:40hrs – 12:00 hrs	Introduction to Sustainable livelihoods Approach and CDM ***Dr. Rona Wilkinson – ITC***
1200hrs – 12:30hrs	Introduction to assessment model ***Dr. Katie Begg - The University of Surrey***
12:30 – 13:05hrs	***Discussion***
13:05 – 14:.00 hrs	***Lunch***
14.00-14.20 hrs	Results for Small Scale Energy Project from Kenya **Martha Mathenge and Rona Wilkinson**
14:20 – 14-40hrs	Overall Results from all country offices (Kenya, Tanzania and Ghana) Dr. Katie Begg - ***The University of Surrey***
14:40 – 15:15 hrs	Discussion
Session 3: Implementation of projects-Capacity Building for CDM	
15:30 – 15:50 hrs	Overview of problems in capacity building for CDM projects: Government / private sector representative
15:35 – 15:50hrs	***Tea Break***
Interactive Session: Short term and long term measures	

15:50 – 16:50 hrs	Discussion groups: ***Problems and Short and long term solutions to Capacity Building***
16:30 – 17:30 hrs	Feedback and Action plan
17:30 hrs	End of the first day
DAY 2: 7th March 2003	
Interfaces for the CDM	
09:00 – 9:30hrs	Outline of CDM: a brief introduction to actors, process, country interfaces and where costs arise **Daniel Theuri**
09:30 – 10:30 hrs	Discussion
10:30 - 10:45 hrs	***Tea Break***
10:45 – 11:30 hrs	Discussion groups: **Problems and new approaches**
11:30 – 12:00hrs	Feedback from groups
12:00 –12:10hrs	Summary / Action plan
12:10hrs ----	Close

APPENDIX 2: Introduction to the Workshop, Daniel Theuri, ITDG-EA

List of Items in package

- **Workshop Agenda**
- **Initial List of Participants**
- **Registration form**
- **Handouts and Presentations**
- **CDM Background Paper**

Important Websites

- **http://www.itdg.org**
- **http://www.surrey.ac.uk/ces**

Workshop Objectives

- **Country specific results**
- **Disseminate technical and sustainability benefits/results**
- **Synergies between country projects**
- **Integrated approach to implementation**
- **Engage local participants for progressing small-scale energy CDM projects in Kenya**

Agenda

- **CAPA project GHG reductions**
- **CAPA project Sustainability benefit delivery**
- **Implementation of projects, capacity building for CDM**
- **Interfaces for small scale CDM**
- **Participatory sessions**

APPENDIX 3: Encouraging CDM Energy Projects to aid Poverty Alleviation (CAPA), Centre

for Environmental Strategy ,Katie Begg

Context

- **UNFCCC and the Kyoto Protocol**
  - **Annex I countries with targets**
  - **Flexibility Mechanisms**
- **Clean Development Mechanism (CDM)**
- emission reduction project
- sustainability benefits in developing country
- carbon credits accruing to investor

CDM

- **Prompt start for the CDM**
- **Fast track for small scale projects**
- **Executive Board and expert groups**
- **Small scale PDD template**
- **Methodological guidance for baselines and project boundaries**
- **Bundling**

Project Design Document

- **To guarantee successful registration and validation, the PDD must include:**
- calculations of baselines and additionality
- description of boundaries,
- leakage potential,
- national policy and context of host country,
- crediting period.

Project Design Document (PDD)

- EIA
- Description of (local) public consultation and resulting adjustments to the plan
- Proposed monitoring methodologies conform M&V requirements
- Project must not divert ODA,

- Technology (transfer) must be sound and safe.
- Written approval must be obtained from donor and host countries, stating their voluntary participation

Validation and Registration

- **Validation: PP contracts DOE to review the PDD and confirm that all validation requirements have been met.**
- **Registration: after validation by DOE, the project is registered by Executive Board (EB). Validation by the EB is automatic 30 days after registration, unless a review is requested by a UNFCCC party, or stakeholder, or approved NGO, or 3 members of the EB.**

Monitoring

- **Monitoring: emissions must be monitored during project life time. PP (or the third party they contracted) must monitor and report as set out in the PDD. Changes to monitoring methodology must first be approved by DOE**
- **Monitoring of environmental and social impacts is implicit in EIA**

Verification and Certification

- **Verification : A different DOE verifies monitoring data and certifies emission reductions. Verification by DOE includes site visits, checks of monitoring data and calculation of emission reductions**
- **Certification: (written assurance that emissions are reduced by X amount) is provided by DOE after satisfactory verification (ex post determination) of emission reductions presented in the monitoring report. Monitoring, verification and certification reports are made publicly available.**

Issuance

- **Issuance: EB will issue Certified Emission Reductions**
- **Automatic issuance 15 days after certification unless there is a request for review of DOE (only if fraud, malfeasance or incompetence of DOE is suspected)**

CAPA Objectives

- **Develop CDM modalities for implementation of small scale projects and others under the CDM to deliver poverty alleviation benefits for input to EB**
- **Capacity Building for the CDM**

Approach

- **Small scale energy projects**
- **CEEST in Tanzania, ITDG in Kenya and KITE in Ghana**
- **Analysis of existing projects in these countries which could act as a templates for CDM projects**
- **Transfer through capacity building**

Accounting Modalities

- **Project Boundaries**
- **Baselines**

–range of project types, sectors, sizes

–development of accounting methodologies

–uncertainties

- **Additionality &Leakage**
- **Monitoring and verification**
- **Input to EB/EB expert groups**

–Templates for in country partners and any project participants

Capacity Building

- **Sustainability Benefits in a Sustainable Livelihoods Context**

–develop criteria with focus on poverty alleviation

–how to implement: develop key actions

–evaluate project types

–develop process for in country appraisals

- **Input to National Project approval by host (FDI,CDM) and to project participants through country partners**

Capacity Building

- **Project Design Document requirements for validation and registration for national project participants through templates for project partners**
- Identification of country specific requirements/barriers

APPENDIX 4:Results for small scale energy projects in Kenya: Martha Mathenge (ITDG-EA), Peter Odhengo (KIRDI), Peter Orawo (KAM)

Projects Selected

- **These are projects already undertaken but which are investigated as possible templates for CDM projects.**
- **Tungu MHP**
- **Kathamba Pico Hydro**
- **Sony Sugar Cogen**
- **Finlays tea**
- **Cement Kilns**

Tungu MHP

- **What – a 18 kW mechanical turbine producing 14 kWe, targeting 300 HH direct beneficiaries and about 4000 individuals indirectly (water supply and micro enterprise)**
- replacing diesel for grain milling
- Replacing Kerosene and candles for lighting
- Replacing firewood and charcoal for tobacco curing
- **Where – Chuka, Meru District**
- **When – 1999 – 2002**

Tungu mini hydro

- **Project Boundary: "The** project boundary **shall encompass all anthropogenic** emissions **by sources of greenhouse gases under the** control **of the project participants that are** significant **and reasonably** attributable **to the CDM project activity."**
- project itself
- any activities which may be offset by the project (eg diesel for grain milling)
- **Additionality: "A CDM project activity is** additional **if anthropogenic** emissions **of greenhouse gases by sources** are reduced below those that would have occurred in the absence of the registered CDM project activity**."**
- **Barriers to implementation e.g. lack of investment, policy, legal, institutional. Also additional to ODA**

Baselines

- **Baseline**
- **"The** baseline **for a CDM project activity is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that** would occur in the absence of the proposed project activity**."**
- **Scenario baselines approach**
- **Number of plausible future emission pathways can be generated to look at uncertainties and how baseline might be streamlined without loss of integrity**
- **Crediting lifetime : 3 X 7 years**

Tungu MHP baselines

- **Baseline 1**
- 75% diesel generator (grain milling) and 25% firewood tobacco curing
- **Baseline 2**
- 25% diesel generator (grain milling) and 75% firewood tobacco curing

Tungu MHP Results - table

	Emission **Reductions** **$ktCO_2e$**	**Specific ER** **(ave 20y)** **tCO2/MWh**	**Incremental Costs** **MUS$**	**Specific IC** **USD/tCO_2e**
Baseline 1 **75%milling 25%wood**	**0.34**	**1.37**		
Baseline 2 75%wood **25%milling**	**0.57**	**2.32**		

Tungu Uncertainties

- **Total emission reduction uncertainty**
- **0.45Kt CO_2± 25%**
- **No Project additionality uncertainty**
- **uncertainty in data for pre project technology ±25%**

Kathamba/Thima Pico hydro

- **What – 2 Pico hydro power schemes rated at 1.2 kW and 2.2 kW respectively. Supplying 226 HH with power using a micro grid**
- providing electricity for lighting replacing kerosene lamps
- **where – Near Kerugoya town in Kirinyaga district**
- **When – 2000 - 2001**

Kathamba Pico hydro

- **Project Boundary: pico plants**
- project itself
- any activities which may be offset by the project (e.g. kerosene for lighting)

Additionality

- Barriers to implementation e.g. lack of investment, policy, legal, institutional. Also additional to ODA
- **Kathamba pico baselines**
- **Baseline 1**
- Kerosene for lighting; High Case
- **Baseline 2**
- Kerosene for lighting; Low Case
- **Baseline 3**
- Kerosene for lighting low case for 10y then the project is carried out

Kathamba Pico Results - table

	Emission Reductions *$ktCO_2e$*	Specific ER **(ave 20y)** **tCO_2e/HH/y** **tCO2/MWh** $kgCO_2$/cap	**Incremental Costs** *MUS$*	**Specific IC** *USD/tCO_2e*
Baseline 1 ***Kerosene high***	*1.10*	*0.34 57 11.7*	*-0.12*	*-15*
Baseline 2 ***Kerosene low***	*0.77*	*0.24 40 8.2*	*-0.08*	*-6*
Baseline 3 **Kerosene low for 10y then project**	*0.38*	*0.12 20 4.1*	*-0.05*	*-24*

Kathamba Uncertainties

- **Total emission reduction uncertainty**
- **0.74 Kt CO_2± 48%**
- **Project additionality in the baselines**
- **uncertainty in pre project technology ±17%**

Sony Sugar Cogeneration

- **Where – Awendo – Sare, South Nyanza**
- **What – proposed 15 MW cogeneration replacing grid electricity for lighting using biomass (bagasse)- in future substitute fossil fuel in the grid**
- **When – 2002 - 2007**

Sony Sugar Cogen

- **Project Boundary: "The** project boundary **shall encompass all anthropogenic** emissions **by sources of greenhouse gases under the** control **of the project participants that are** significant **and reasonably** attributable **to the CDM project activity."**
- plant itself (zero emissions)
- any activities which may be offset by the plant (eg use of grid for lighting)
- **Additionality: "A CDM project activity is** additional **if anthropogenic** emissions **of greenhouse gases by sources** are reduced below those that would have occurred in the absence of the registered CDM project activity**."**
- Barriers to implementation eg investment, policy, legal, institutional. Also additional to ODA

Sony cogen baselines

- **Baseline 1**
- Grid electricity high case
- **Baseline 2**
- Grid electricity low case
- **Baseline 3**
- Low case grid electricity for 10 y then biomass project

Sony Cogen Results - table

	Emission **Reductions** $ktCO_2e$	**Specific ER (ave 20y)** tCO_2e/MWh	**Incremental Costs** *MUS$*	**Specific IC** USD/tCO_2e
Baseline 1 ***Grid Electricity high***	*79*	*0.11*	*-15.6*	*-196*
Baseline 2 Grid electricity low	*68*	*0.10*	*-15.6*	*-226*
Baseline 3 *Grid electricity 10y then project*	*34*	*0.05*	*-9.2*	*-269*

Sony cogen Uncertainties

- **Total emission reduction uncertainty**
- **56 Kt CO_2 ± 40%**
- **Project additionality**
- **counterfactual uncertainty in pre project technology ±7%**
- **Data uncertainty**

Finlays Tea MHP

- **Describe as for mhp**
- **what – 1.4MW Mini Hydro serving the 7 Factories**
- **where – Kericho District**
- **When – 1999 - 2002**
- **emissions reduction due to grid and diesel electricity for machinery in the tea factories**

Finlays tea MHP

- **Project Boundary: Programme of plants**
- project itself -
- any activities which may be offset by the project (eg use of grid electricity and diesel generators)
- **Additionality**
- **Barriers to implementation eg investment, policy, legal, institutional. Also additional to ODA**

Finlays tea MHP baselines

- **Baseline 1**
- Grid (high emission factor) plus 30% diesel standby
- **Baseline 2**
- Grid (constant emission factor) plus 30% diesel standby
- **Baseline 3**
- Grid (constant emission factor) plus 30% diesel standby for 10y then project

Finlays tea MHP Results - table

	Emission Reductions *ktCO$_2$e*	Specific ER **(ave 20y)** *tCO2/MWh*	**Incremental Costs** *MUS$*	**Specific IC** *USD/tCO$_2$e*
Baseline 1 ***Grid plus diesel standby high***	*15*	*0.15*	*-3.4*	*-230*
Baseline 2 ***Grid plus diesel standby low***	*14*	*0.14*	*-3.4*	*-246*
Baseline 3 ***Grid plus diesel standby low for 10y then the project***	*7.0*	*0.07*	*-2.0*	*-291*

Finlays tea MHP Uncertainties

- **Total emission reduction uncertainty**
- **11ktCO2 ± 36%**
- **Project additionality**
- **uncertainty in pre project technology ±17%**
- **Data uncertainty**

Cement Kilns - Bamburi

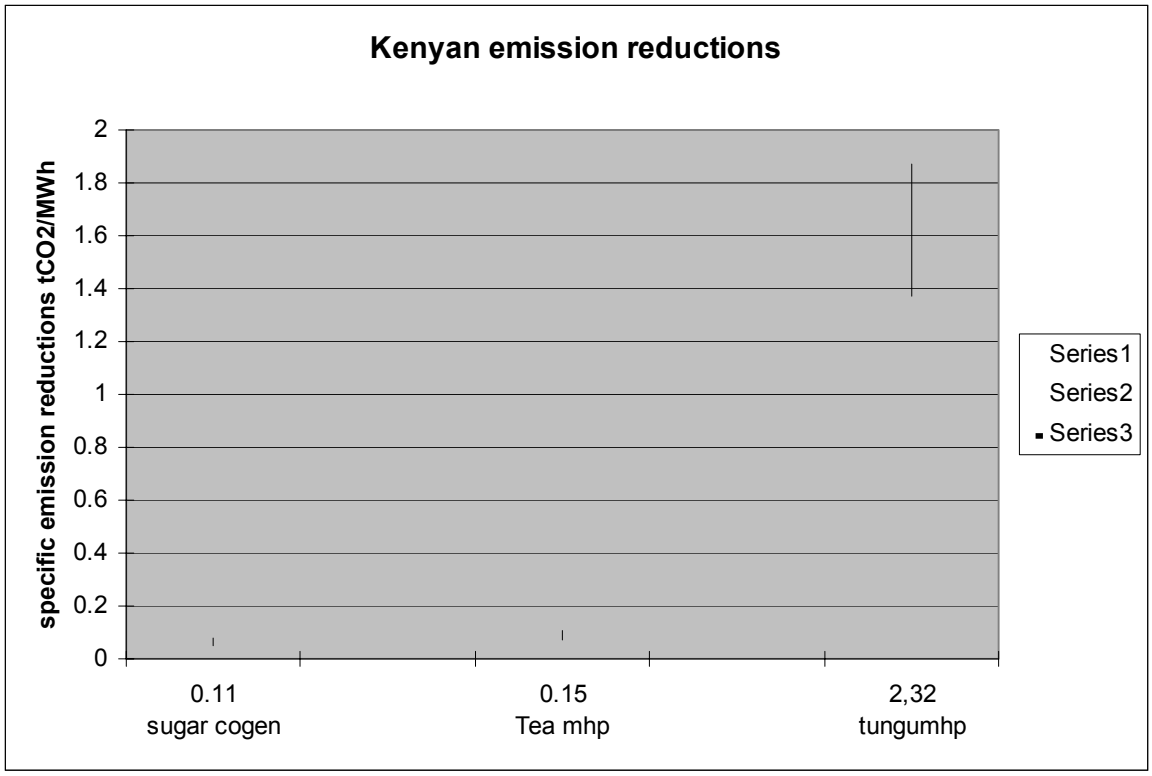
- **What – cement production replaces 4 vertical wet kilns with 1 more efficient horizontal dry kiln**
- **Where – Mombasa and Athi River**
- **When – 1998 - 2001**

Cement kilns – East Africa Portland Cement

- **What – cement production replaces 2 vertical wet kilns with 1 more efficient horizontal dry kiln**
- **Where – Athi River**
- **When – 1998 - 2001**

Emission Reductions

Sonysugar 15MW	**56 ± 40%**	**-232**
AHPtea Mhp 1,4MW	**11 ± 36%**	**-260**
Kathamba pico 3.4kW	**0.73 ± 48%**	**-115**
Tungu MHP 18kW	**0.45 ± 25%**	



GHG Reductions

The projects the reductions relate to are given on the x-axis

Implications

- **Potential for reductions depends on size lighting, other services, cooking**
- **Data requirements monitoring**
- **Uncertainties - technology/fuel, continued additionality of the project, data uncertainties**
- **Minimise cost/tCO2 and maximise reductions through large programmes**

APPENDIX 5: Overall Technical Results for CAPA, K. Begg and Stuart Parkinson

Centre for Environmental Strategy, University of Surrey

Projects

Kenya

- **Sugar co-generation**
- **Tea micro hydro power**
- **Pico hydro**

Tanzania

- **Micro hydro power (MHP)**
- **Improved cook stoves (ICS)**
- **Solar**

Ghana

- **Charcoal kilns**
- **Biogas**
- **Solar Home Systems (SHS)**

Overall reductions - table

Country	project	baseline	size	Reduction over 20y $ktCO_2$
Tanzania	ICS	Trad stoves	144MW	3200
Kenya	Cogen	Grid electricity	15MW	56
Tanzania	MHP	Diesel generator	843kW	40
Ghana	Eff charcoal kiln	Inefficient kiln		20
Kenya	MHP	Grid and diesel	1.4MW	11
Ghana	SHS	Kerosene	21kW	2.7
Kenya	Pico	Kerosene	3.4 kW	0.73
	MHP	Diesel and firewood	18kW	0.45
Ghana	Biogas	Kerosene	12.5kW	0.09
Tanzania	solar	Diesel	0.9kW	0.026

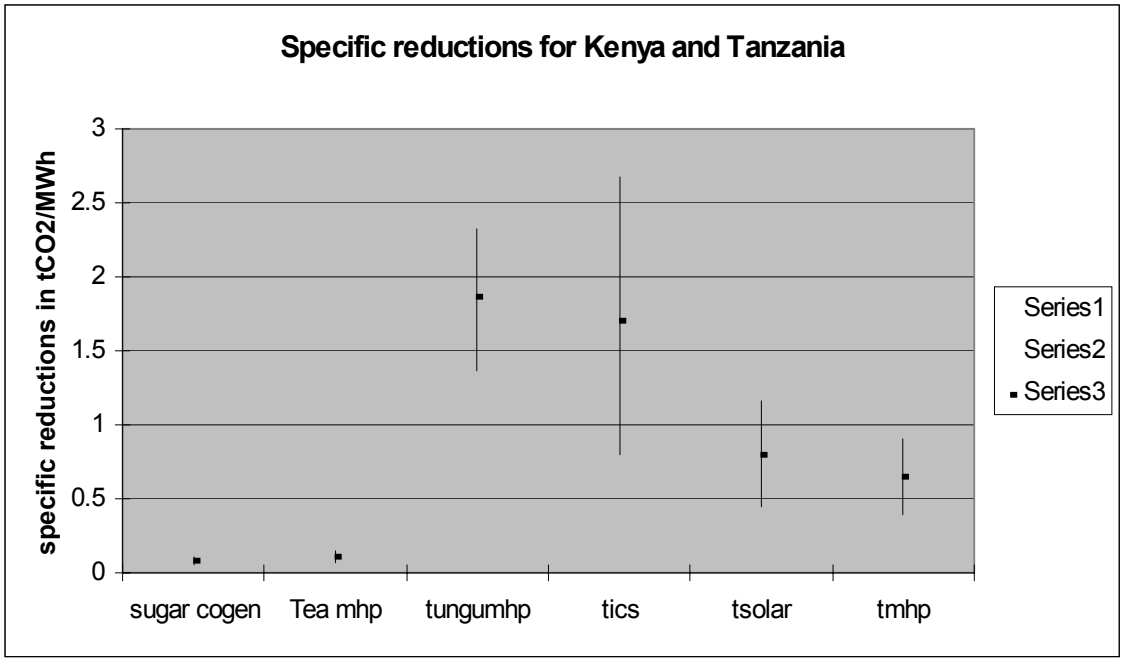
Trends

- **Project reductions depend on size and baseline technology/fuel**
- **eg cooking service gives large reductions compared to lighting service**

Across country comparison- table

Country	project	baseline	Reduction $ktCO_2$	tCO_2/MWh
Tanzania	Utete hospital solar 0.9kWh	Diesel generator	0.026	1.1
ghana	Kpasa shs 21kWp	kerosene	2.69	
Tanzania	Uwemba mhp (843kW)	diesel	40	0.65
Kenya	Tungu mhp (18kW)	Diesel and firewood	0.45	1.87
	Kathamba pico (3.4kW)	kerosene	0.73	
	AHP tea MHP (1.4MW)	Grid and diesel	11	0.11

Specific emission reductions across Kenya and Tanzania - graph



The projects the reductions relate to are given on the x-axis

Implications

- **Streamlined baselines have to take account of specific baseline technology and fuel substituted not just the project type**
- **Equivalence of service**
- **Comparison with current small scale recommendations from EB to test**

Synergies

- **Integrated planning approach**
- **eg 2 projects : sustainable wood projects plus efficient charcoal kilns but plan together**

  or
- **industrial energy efficiency on a process plus capacitor project**

Integrated approach

- **Think upstream and downstream so that inputs have low carbon emissions and**
- **process is efficient to minimise use of energy and**
- **outputs are recycled.**

APPENDIX 6: Sustainable Development and CDM, Dr. Rona Wilkinson, ITC

Presentation Overview

- **Article 12 states that the CDM should contribute to a host country sustainable development path but how should this be achieved?**
- **How can we prove that small-scale energy projects** do **contribute to poverty alleviation and help sustainable development?**
- **Is there a checklist or framework that can be used to assess and evaluate?**

International Development Targets Strategic Level

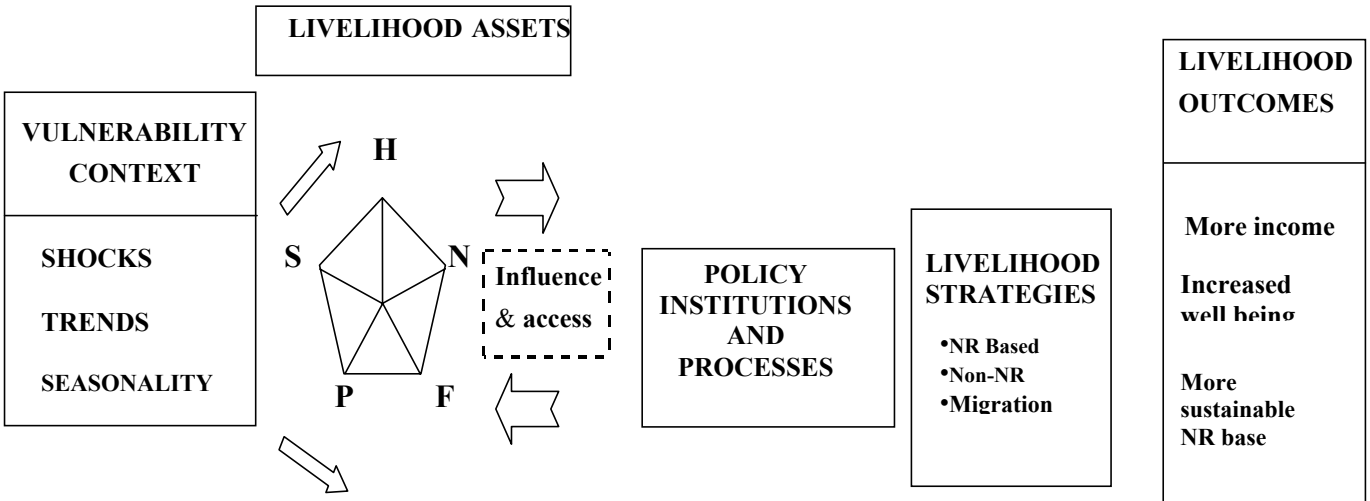
- **Reducing extreme poverty by 50% by 2015**
- **Current trends in the loss of environmental resources are reversed at global and national levels by 2015**
- **Universal primary education by 2015**
- **Eliminate gender disparity in primary and secondary education by 2005**
- **Death rates for infants and children under 5 should be reduced by two thirds by 2015**
- **Maternal mortality reduced by 3/4 by 2015**
- **Access to primary healthcare by 2015**

At the Project Level..

- **The small scale energy projects should also be improving people's livelihoods**
- **What is a livelihood- it is** assets **(material and social) and activities required for a means of living**
- **A livelihood is** sustainable **when it can cope with shocks and stresses, and can develop its assets and capabilities without undermining the natural resource base**

What is a Sustainable Livelihoods Framework?

- **The S-L framework assesses the main factors that influence livelihoods to assist the design of interventions**
- **Looks complex and 'jargon' based. It does not need to be followed rigidly - can be broken up.**
- **It is a logical checklist and can provide an analysis to the strengths and constraints to livelihoods.**



ASSETS & CONTEXT
What we have to work with...

STRATEGIES & OUTCOMES
…what we want to achieve

The SL Framework

Livelihood Outcomes

- *Increased well-being*
  - ICS: reduced indoor air pollution and accompanying health risks
  - less drudgery in collection of wood
- *Increased income*
  - ICS: more opportunities for income generation
  - savings from less charcoal used
- *More sustainable natural resource base*
  - ICS: conservation of forest with less wood and charcoal use
- *Improved food security*
  - MHP irrigation
- *Reduced Vulnerability*
  - ICS: due to above

Assets

- ***Human Capital***
  - **(skills, knowledge, health, labour)**
- ***Social Capital***
  - **(social relationships on which people can draw to expand livelihood options; kinship, friendship, patron-client relations, membership of formal groups and of organisations that can provide loans/ grants)**
- ***Natural Capital***
  - **(Land, water, forests, wind, solar)**
- ***Physical Capital***
  - **(privately owned assets that can be used to increase labour and land productivity (such as farm animals, tools and machinery) and publicly owned economic infrastructure (e.g. roads, electricity supply) and social infrastructure (e.g. schools and hospitals)**
- ***Financial Capital***
  - **cash (income and savings) and readily convertible liquid capital.**

Policies, Institutions and Processes

- **The policies, institutions and processes are the elements that can influence a project and the supporting structures so it is sustainable**
- **eg Kenyan law needs to change to allow other players to supply electricity (MHP)**
- **Policies to support renewables, e.g. tax on solar equipment**
- **ICS Implementation**

Benefits of Using SL Approach

- **Many factors affect people's livelihoods. The relationships between these factors are also important in shaping livelihoods.**
- **The SL framework is a systematic approach to listing the main factors, their importance and the links between them - so can help to identify the best way to support poor people.**
- **The framework acts as something of a checklist, helping us not to overlook less obvious issues in our investigations**
- **The DFID SL framework is centred on people's livelihoods. Its aim is to help various stakeholders with different viewpoints to appreciate the issues listed above.**
- **This understanding should lead to constructive debate, which in turn should help determine how best to support the poor people to move out of poverty.**

How Can SL Framework Be Used?

- **Can conduct an SL review of an existing project, to assess impact in reducing poverty, and see if needs modification**
- **For designing a project or programme - before designing project, can carry out SL analysis of target community or groups, to determine priorities and key entry points**
- **To provide a framework for monitoring and evaluating the impact of a project on people's livelihoods**
- **Can be used as a basis to assess a range of projects and rank them in terms of preference for the delivery of sustainability benefits**

APPENDIX 7: Introduction to Assessment Model, K. Begg, CES, University of Surrey, UK

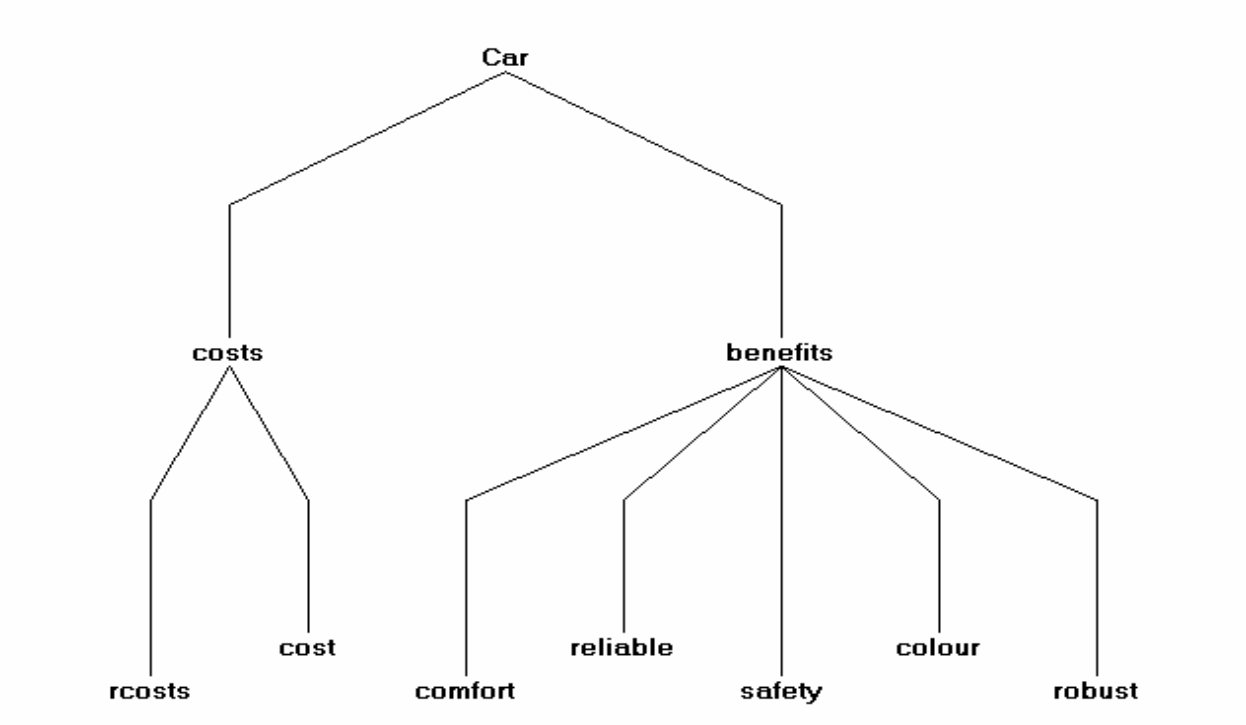
Objectives

- **To assess the small scale projects to provide insights into how project sustainability benefit delivery may be maximised**
  - **evaluate the project options on a range of relevant criteria to assess their performance**
  - **to identify the key criteria for assessment**
  - **to identify the key conditions for sustainable benefit delivery**

Decision Framework

- **Multi Criteria Analysis**
- **All decisions subjective, multiple and conflicting objectives, uncertainty**
- **Example: Buying a car?**
- **Evaluate different options**
- **Projects in countries**

Value tree for choosing a car



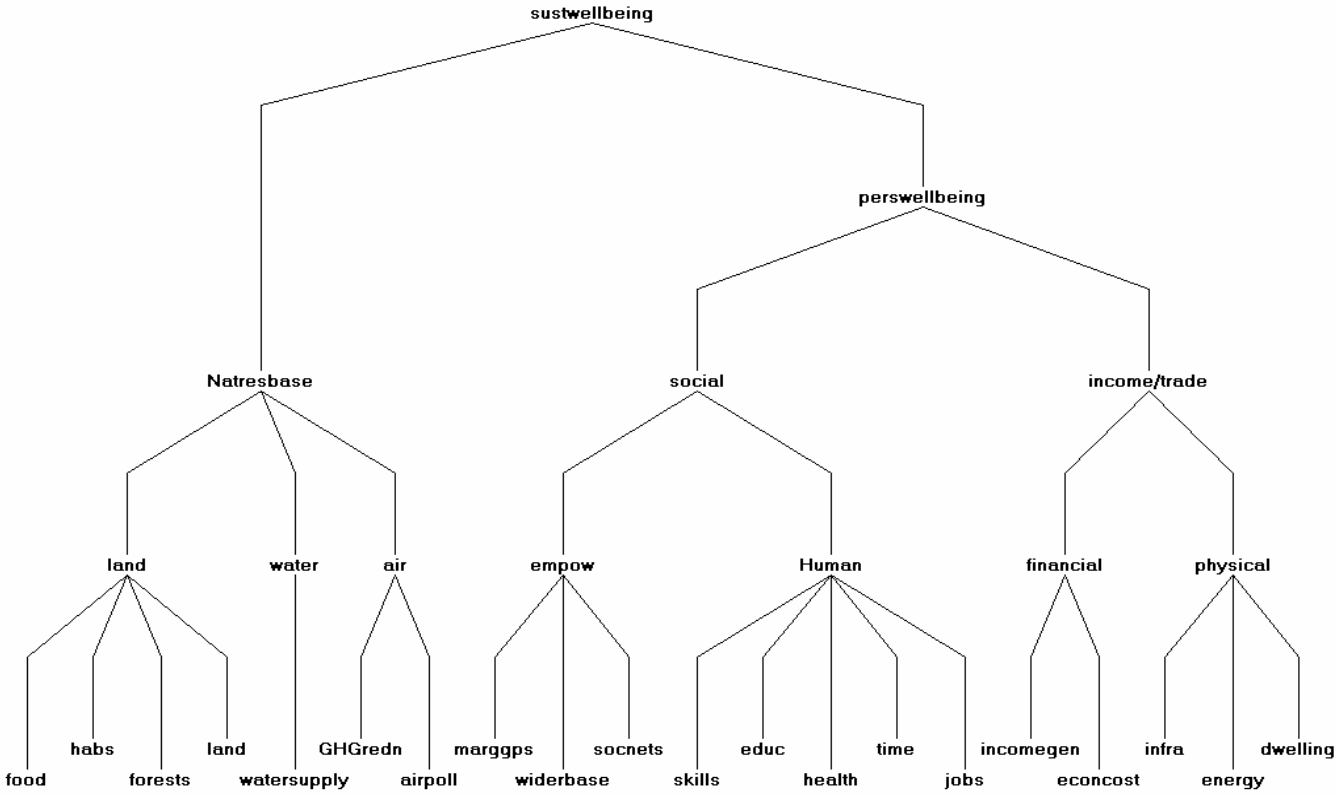
Rcosts = running costs; robust= robustness off road

MCA to assess projects

- **Use S-L framework as a basis to develop the criteria for the assessment of the projects**

Mapping the S-L framework to MCA

- **Sustainable wellbeing outcomes:**
  - **more income**
  - **increased wellbeing**
  - **reduced vulnerability**
  - **improvement in natural resource base**
  - **increased food security**
- **Assets**
  - **Natural, social, human, physical, financial**



The criteria are explained in Attachment 3

Process

- **Analysing what could be achieved by the project**
- **How to ensure these benefits are achieved and that there is a balance in the benefits**

Possible Uses of the model

- **Identify Key criteria**
- **Use the key criteria as a checklist to judge projects**
- **Use model to rank order small scale project types**
- **Discourse identifies implementation actions to help the delivery of benefits**
- **Use by governments in approval procedures or by other organisations (with training)**
- **Can be used for other decisions**

APPENDIX 8: Sustainability Results for small scale projects in Kenya: Martha Mathenge, ITDG EA and Rona Wilkinson, ITC UK

Options Analysed

- These are projects already undertaken but which are investigated as possible templates for CDM projects.
  - **Kenyan Status Quo**
  - **Tungu Mini Hydro Power (MHP)**
  - **Sugar cogen**
  - **Kathamba Pico**

Project S-L Benefits

- ***Tungu Micro Hydro Project***
  - **owned by community**
  - **replaced services from diesel generator; wood for tobacco curing**
  - **number households 300 membership**
  - **available to all**
  - **new enterprise centre**
  - **education**
  - **other businesses**

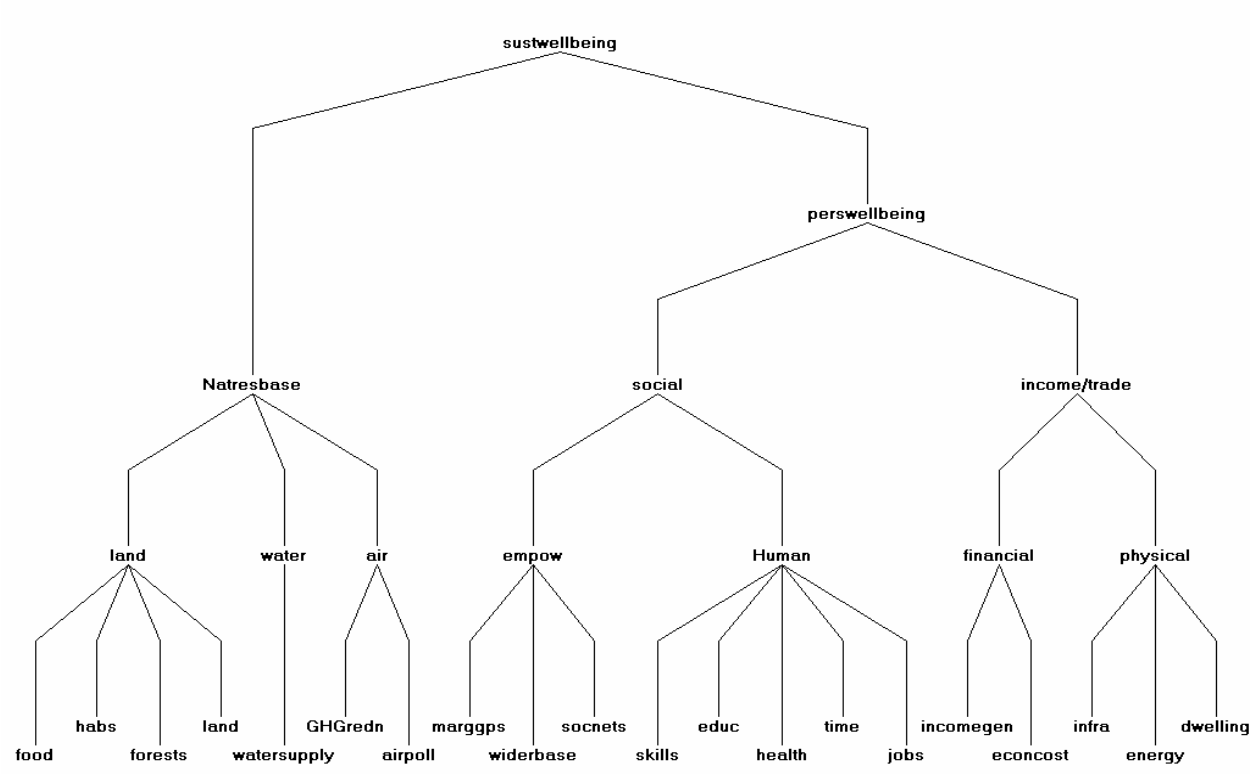
Project Performance

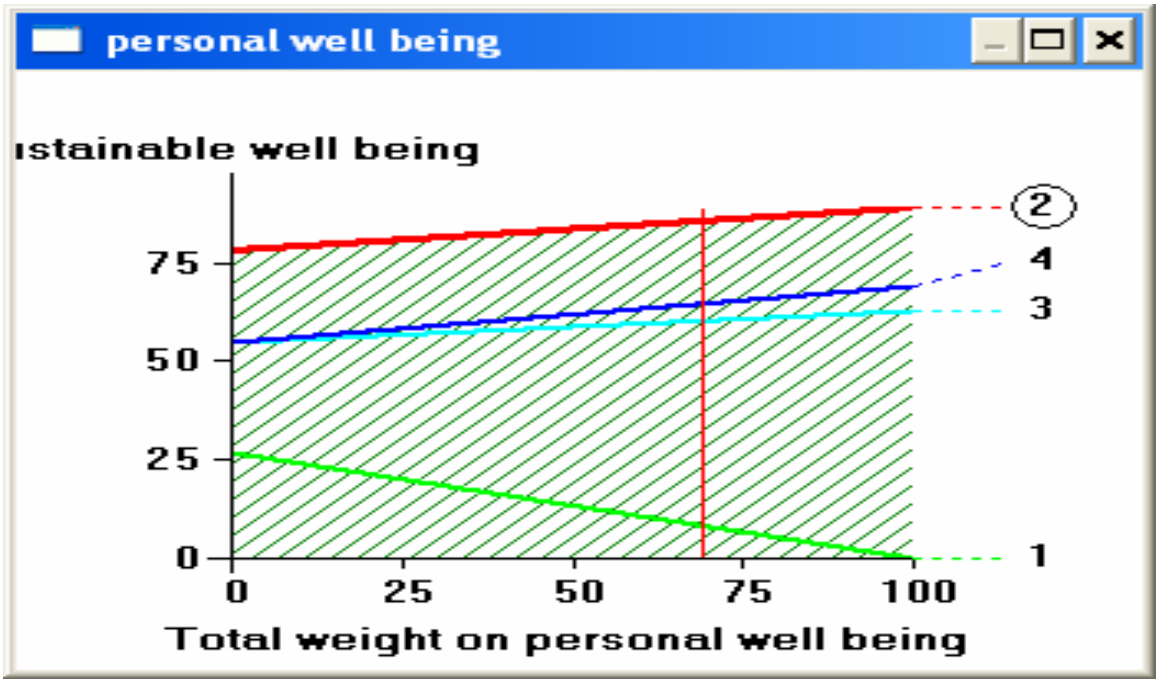
- ***Sony Sugar Cogeneration with bagasse***
  - **replacing grid electricity for lighting**
  - **community participation**
  - **natural resource conservation through tree planting**
  - **more roads built**
  - **education**

Project Performance

- ***Kathamba/Thima pico***
  - **community owned**
  - **domestic lighting 226 HH**
  - **available for membership fee (soft credit for participation of all)**
  - **education**
  - **other businesses**

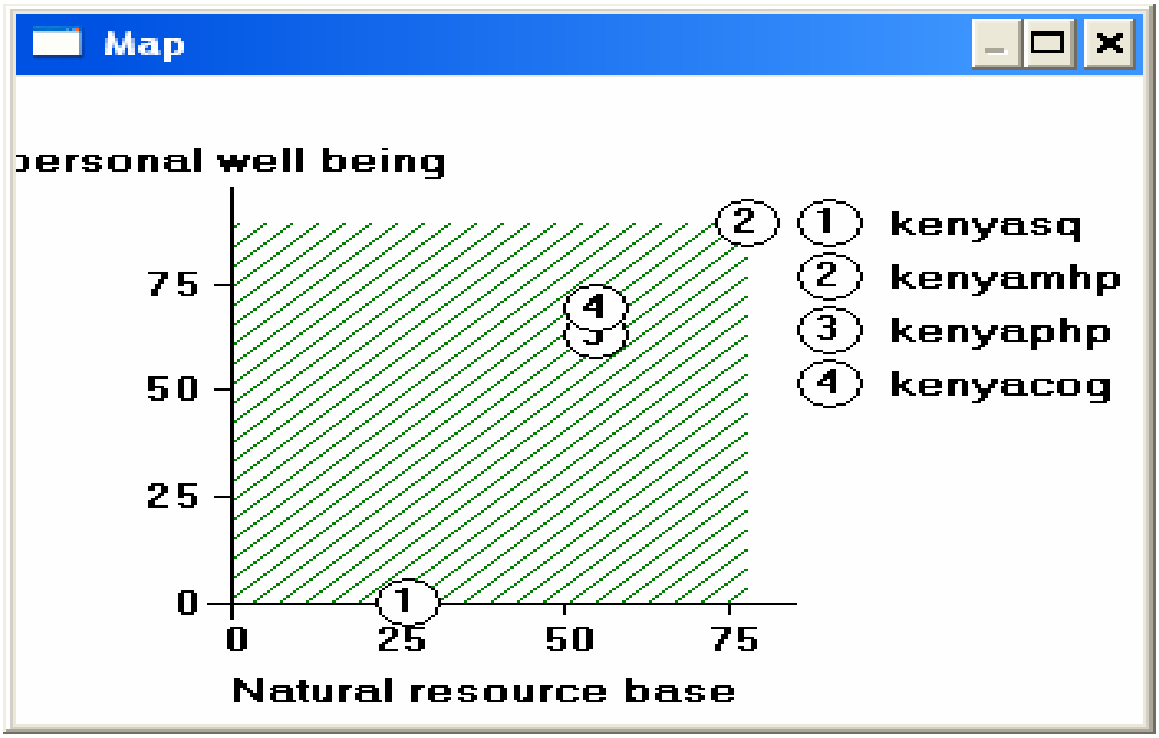
Value Tree (Multi-criteria assessment)





ALL diagrams are explained in Attachment 3

Balance in Kenyan options



MHP vs Cogen

Display Sorts

kenyamhp vs kenyacog

		MDL ORDER	CUMWT	DIFF	WTD	SUM
empow	marggps		8.2	70	5.75	5.75
land	food		5.6	100	5.58	11.33
air	airpoll		4.9	100	4.93	16.26
Human	health		7.0	70	4.89	21.14
empow	socnets		6.2	50	3.08	24.22
empow	widerbase		4.1	60	2.46	26.68
financial	funds		3.7	50	1.85	28.53
physical	energy		5.9	30	1.77	30.30
Human	time		5.5	30	1.65	31.95
land	habs		2.1	75	1.54	33.49
water	watersupply		7.0	20	1.40	34.89
land	land		0.1	100	0.08	34.97
financial	econcost		5.2	0	0.00	34.97
air	GHGredn		5.3	0	0.00	34.97
Human	skills		4.1	- 10	- 0.41	34.56
physical	infra		2.2	- 20	- 0.44	34.12
empow	security		1.6	- 30	- 0.49	33.62
Human	jobs		1.4	- 50	- 0.70	32.93
physical	dwelling		1.5	- 80	- 1.18	31.74
financial	incomegen		7.4	- 30	- 2.22	29.53
Human	educ		4.9	- 50	- 2.46	27.06
land	forests		6.2	- 100	- 6.24	20.83
			100.0		20.83	

Conclusions

- Analysis has allowed us to identify key criteria for assessment and these can be compared across the different project sets
- Allows us to identify the advantages of the different projects
- Shows where options balance personal well-being benefits with natural resource base conservation to provide sustainable solutions

APPENDIX 9: Overall sustainability results for CAPA, K.Begg (CES University of Surrey) and Rona Wilkinson (ITC Rugby UK)

S-L benefits comparison

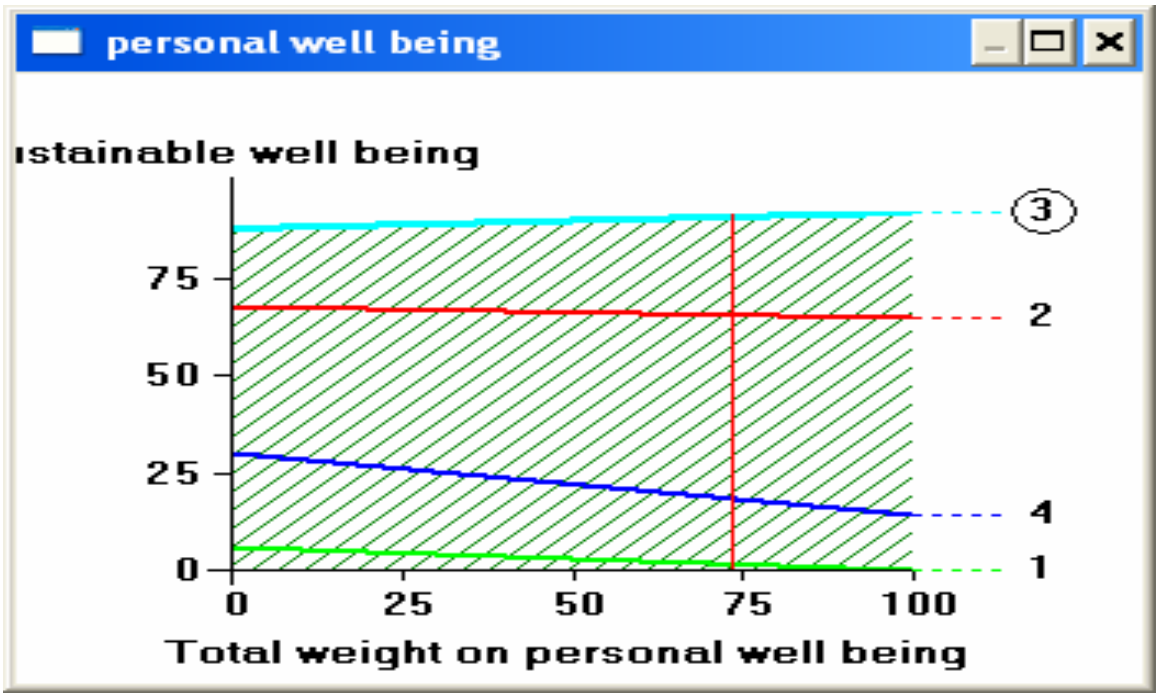
- **Compare performance of the projects in the countries**
- **Start to identify key criteria in common**
- **Start to identify key actions**
- **Advantages and disadvantages….improving the options**

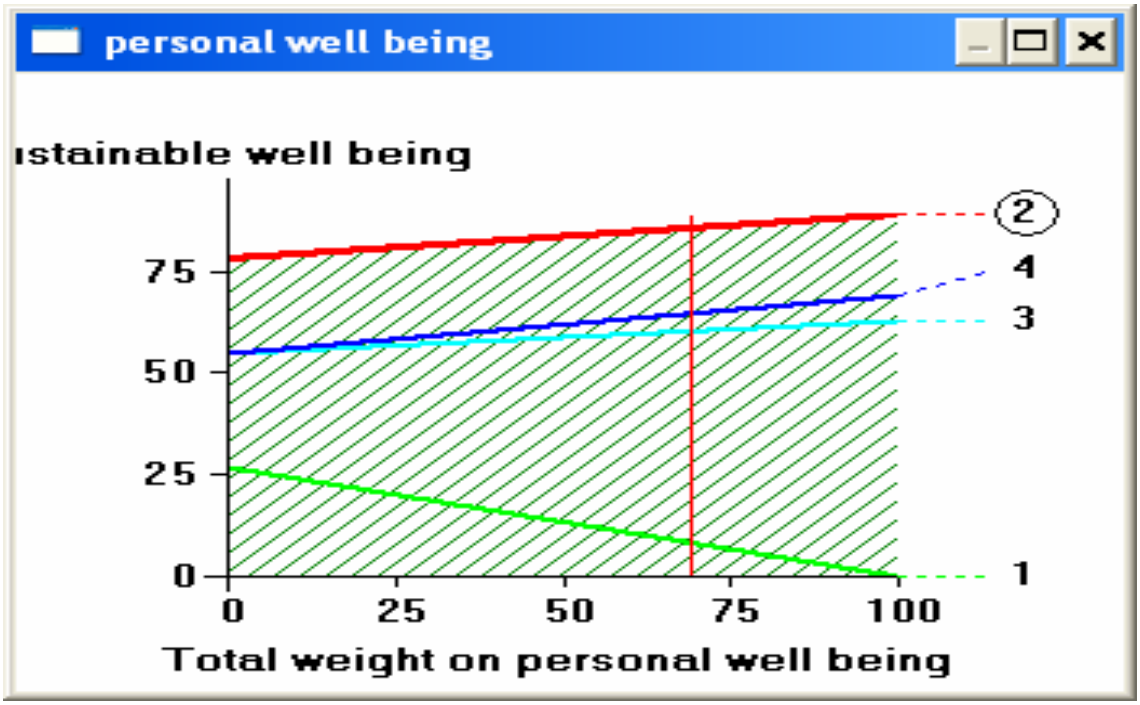
Options Analysed in Tanzania

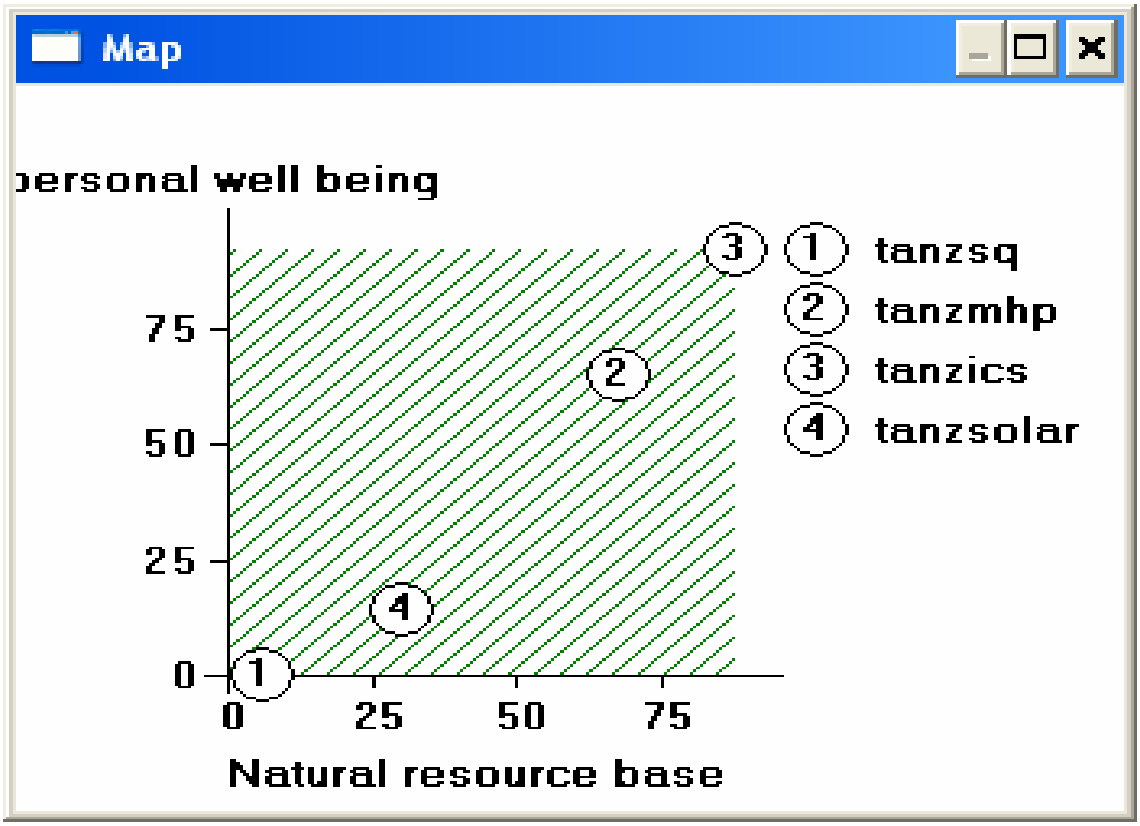
- **These are projects already undertaken but which are investigated as possible templates for CDM projects.**
- **Status quo in Tanzania**
- **Uwemba Mini Hydro Power (MHP)**
- **IREDECT Improved Cookstoves (ICS)**
- **Utete Solar for hospital research**

ALL the following diagrams are explained in Attachment 3

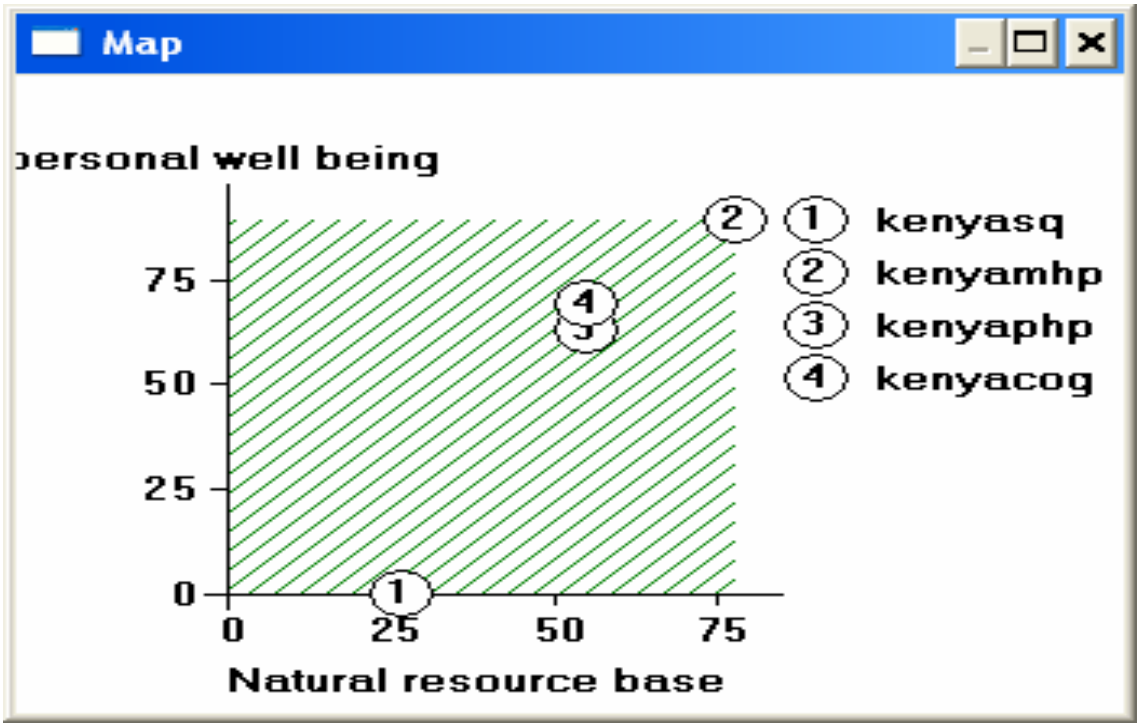
Performance of Tanzanian projects




personal well being
ıstainable well being
75
50
25
0
0
25
50
75
100
Total weight on personal well being
2
4
3
1

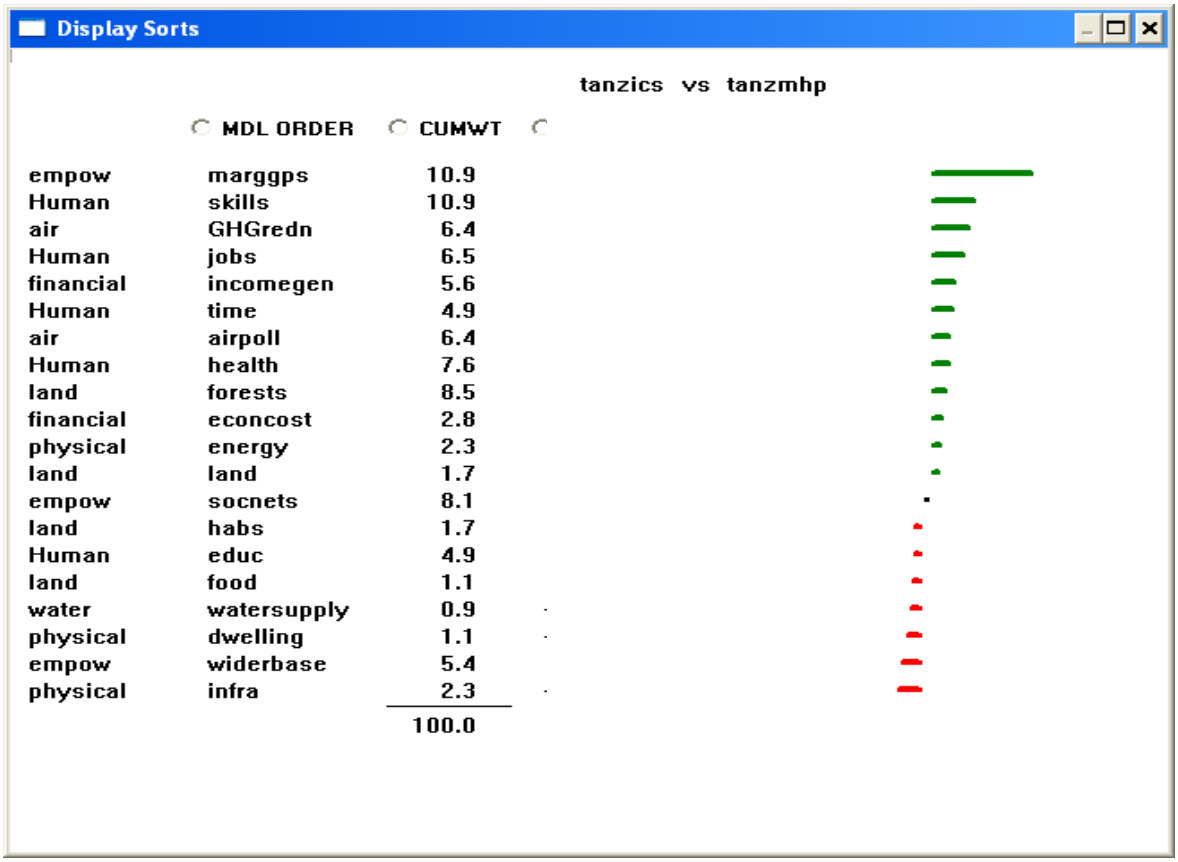

Map
personal well being
75
50
25
0
0
25
50
75
Natural resource base
1 tanzsq
2 tanzmhp
3 tanzics
4 tanzsolar

Balance in Kenyan options



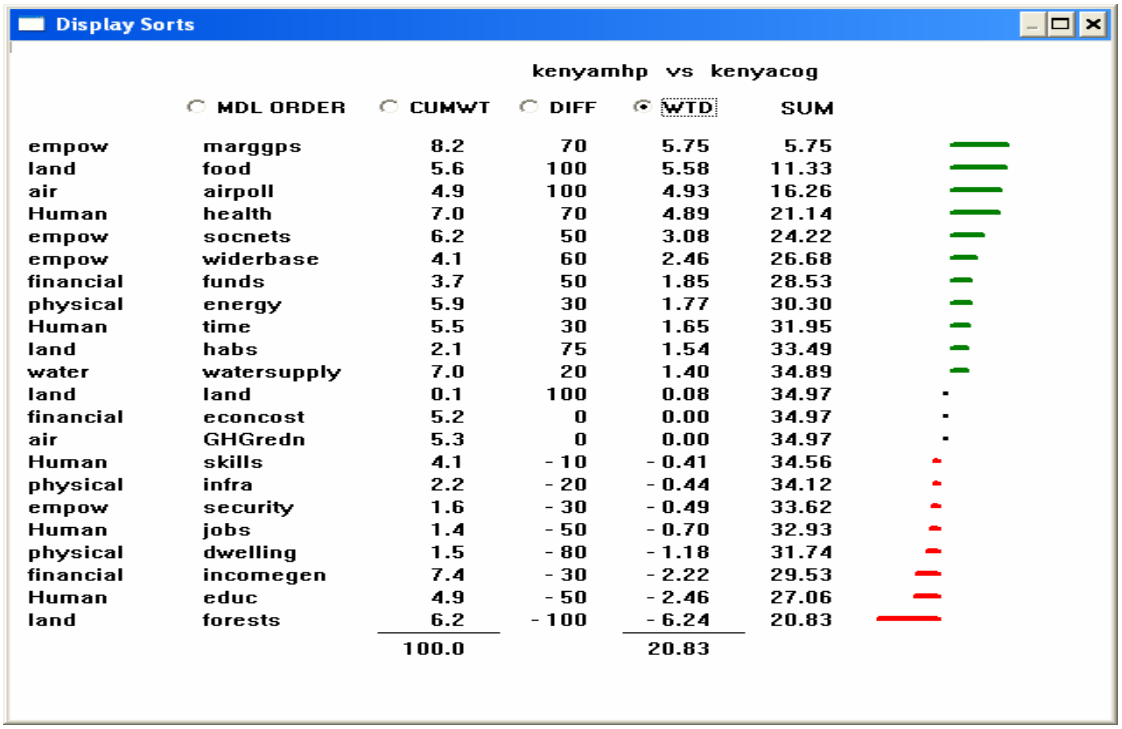
Comments

- MHP well balanced in both cases
- ICS well balanced and preferred
- Status Quo is relatively not a preferred option
- Options can be improved



ICS vs MHP projects

MHP vs Cogen



empow	marggps	8.2	70	5.75	5.75
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land	habs	2.1	75	1.54	33.49
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land	forests	6.2	- 100	- 6.24	20.83
		100.0		20.83	

Key Criteria at the small scale projects level

- **In both models the highest weight was on empowerment of marginal groups**
- **criteria set with 90% weight in decision**
  - **marginal groups, income generation, health**
  - **water, forests, socnets, energy, food, time,**
  - **GHG, affordability, air pollution, education, jobs, infrastructure**
- **Habitats, land use, dwelling always low weight**

Implications

- **Many of the key criteria reflect HOW the project is implemented rather than what is implemented e.g. marginal group empowerment, skills**
- **Some are dependent on project type e.g. air pollution**
- **Some also depend on what is being replaced**
- **Many reflect all three considerations e.g. health**
- **Can identify actions which can maximise delivery of benefits reflected in key criteria to help in approval procedure**
- **eg ICS programme training for jobs and skills etc**
- **Can use model to develop simplified approval procedures for small scale projects to maximise sustainability benefits**

APPENDIX 10: Overview of Problems in Capacity Building for CDM projects: a Kenyan Case Study, *P. W. Magoha (*Jomo Kenyatta University of Agriculture & Technology) *& Josiah Wambua (*Kenya Association of Manufacturers)

1. **Introduction**

Pollution from industrial waste is one of the most common ways that the environment gets contaminated. Pollution is costly and industries can ill-afford it. Waste is money down the drain! It costs money to generate waste, to treat and dispose it. Cleaner production saves money. While industry is seen as a means of solving problems of poverty, it is also causing environmental problems. The challenge now is how to regulate the environmental performance of this sector, the quality of products not withstanding. The call is to have a strategy that can combine positive effects on the environment with substantial economic savings for the industry and society – sustainable development. Achieving this is the goal of Cleaner Production Mechanism (CDM) projects, which entails the continuous application of a preventive strategy to industrial processes and products to increase efficiency, to prevent the air pollution, water, and land, to reduce the wastes and to minimize risks to man and the environment. Industries in developing countries have often cited lack of expertise and technical information as major problems for implementation of CDM projects.

RENEWABLE ENERGY TECHNOLOGIES

Renewable energy technologies (RETs) can provide the least cost energy service, particularly when social and environmental costs are included. Focussed support for solar power and non-grid electrification, as well as solar electric and water heating systems for homes, solar cookers, solar water pumps, PV for schools and clinics, hybrid electrification systems and wind power in rural communities. Rapid development of RETs is taking place in many parts of the world. In contrast to the world trends, however, Kenya has neglected the development and implementation of renewable energy applications, despite the fact that our renewable energy resource base is extensive and many appropriate applications exist.

RE DEVELOPMENT IN KENYA

Current Status of RE in Kenya

Over the past decade, there has been gradual increase in the use of RETs in Kenya. This has been as a result of donor support of RE projects by either NGOs or international organisations, – such as World Bank and UNDP. RETs that have been successfully implemented include; micro-hydro, photovoltaics, solar water heaters. Stakeholders should keenly monitor these developments since it will be interesting to see how they impact on the rural population. There is need to fully understand the implementation issues of these projects to make sure we learn from the past and, if possible pass on the experiences elsewhere. The uniqueness of these RE projects underline Kenya's commitment as a national to seeking energy solutions that are friendly to the environment – in line with international conventions on environmental protection.

Needs for Further Promotion of RE in Kenya

Many rural areas in Kenya are too remote or too poor to support energy systems that are connected to the grid. Moreover, Kenya face population growth that far exceeds planned rates of grid capacity connection, so that many people will either remain without energy, or be forced to migrate to urban areas where the infrastructure is already overburdened. The shortage of electricity and poor supply of the power available in Kenya has had a spillover effect on the country's economic sector and the generation of financial resources, particularly in rural areas. Also, the demands of industry and a growing population put tremendous pressure on leaders to raise the standard of living in villages.

Barriers that Kenya Face in Promotion of RETs

The government of Kenya lack policy frameworks that stipulate provision of energy to the rural population. This poses a great challenge to promoters of RETs in the country, and suitable policies are required to successfully implement RETs. Although policy directives have been issued, stakeholders have not been advised on how to implement them – strategies and vision, i.e. implementation guidelines, are lacking. The contribution

of RE to the total energy mix is still small, due to lack of knowledge about their potential and insufficient social and environmental policies and programmes to encourage their use/implementation.

Kenya has found it difficult to implement the existing RE policies and enforce the laws due to lack of infrastructure. The diffusion of RETs has been hampered by lack of training, maintenance and capacity to purchase the technology. In the past, the government has relied on bilateral or multilateral funding to support RE activities. The external financial aid is not guaranteed and is sometimes tied to meeting donors' conditions, which vary from country to country. The policies that require more attention are those that restrict dissemination of RETs. The present policies have serious shortcomings as they lack provisions on standards to ensure quality in the provision of energy. The techno-economic boundary conditions – lacking infrastructure, capital and the tradition of technical standards – represent severe restrictions to rapid diffusion of RETs.

Another problem has been the tendency by policy makers to compare RE with conventional sources of energy in terms of amount of energy generated. Yet, in rural communities the emphasis is on how the provision of electricity can improve the lives of the people, and not simply the production of electricity as such. We cannot eat or drink electricity, and therefore it is only useful in providing electric-power for small-scale activities like pumping water for irrigation, desalination of drinking water, preservation of food and medicines, power for radios and television is meaningful to the population. These activities consume relatively small amounts of electricity that can be adequately supplied by RE sources. Successful reports on the extension of the electricity grid to rural areas in some developing countries have also undermined people's confidence in RETs. These collective conditions and restraints on Kenya hinder the implementation of RETs.

Policy Options

The philosophy behind any energy related policy shift should be to provide electrical energy to improve the living standards of the rural inhabitants. Policies should make RETs people orientated, i.e. policies that will involve or take into consideration saucy-economic needs and cultural background of the beneficiaries in its implementation are preferred. Incorporating the local people into new RE projects is part of the solution to the problem. A successful RE programme must be based on the wishes and needs of the people who will use it, and must be driven by their demand for services (such as light, and water pumping) rather than simply focusing on providing energy technologies.

With increasing problems of accessing external financial aid the Kenyan government should not rely on donor support to fund RE projects but devise or look for other ways to get funds for RE programmes. In order to move forward, formulations of strategies that stimulate development of RE markets are required. The governments can encourage the development of RETs by creating legal and fiscal environments, which are favourable to RE development. Measures, which may encourage the development of RETs, include: removing tariffs on equipment needed for RE development, contributing financial resources such as direct funding or subsidies, and encouraging partnerships between local industry and RE companies in developed countries.

It is also suggested that renewables be stimulated through development of information and database network systems and a possible environmental levy to fund development of renewables. Implementation of renewable energy policies will require substantial funding, and the government should call for innovative approaches to reduce the risks and to optimize private sector financing.

As a medium-term target, the government of Kenya should propose that the share of renewables in energy consumption should increase to 10% from the current 1% by 2012.

Four key strategic areas that should be addressed:

Establish financial instruments to set targets and to introduce appropriate fiscal incentives for renewables;
Develop a legal and regulatory framework for tariffs, which support integration of renewables and Independent Power Producers (IPPs) into existing system and which attract investment;
Promote standards which facilitate the use of renewables; and
Raise awareness of the benefits of renewables and persuade government institutions to implement training for renewables, including the need to actively involve women in decision-making and empowerment in renewable energy activities.

Support for the renewables will be based on the concept of full cost accounting and prices, which are based on the full economic, social and environmental costs and benefits of generation, as well as equitable access for all citizens in Kenya. There is need to support individual renewable technologies in the market until they have achieved the necessary economies of scale, technological development and investor confidence. Certain RETs are well developed, and the challenge is to start implementing those technologies that are most suitable for wide spread application, both to increase energy supply and to boost employment.

RENEWABLES AS A CDM OPTION

Kenya is yet to ratify the Kyoto Protocol and although the global agreement does not require developing countries like Kenya to reduce GHG emissions in the first period to 2012, its CDM offers high potential for low-cost emission reduction options. Potential CDM projects are: windfarms, solar energy and electricity from biomass, solar water heating. Low-income residential housing represents a very large potential for domestic solar water heating, but this CDM market has not yet been addressed by any commercial firm.

ENERGY CONSERVATION AND ENERGY EFFICIENCY PROGRAMMES: KENYAN PERSPECTIVE

Although the energy conservation awareness was created in the technical personnel of some industries, the top decision-makers were not well informed. Reports of the government sponsored global energy audits were sometimes shelved because they were free to the companies and contained too many recommendations which sometimes left management wondering as to what to tackle first. Where management was aware of the implications of energy conservation on their operational costs, lack of commitment always hampered the implementation of audit recommendations. Energy efficiency related issues were not given the needed attention. In the cases where initially some funds were allocated for energy efficiency activities, the lack of commitment hampered follow-ups resulting in deterioration of the efficiencies of equipment to their pre-audit states after 2-3 years.

Other causes of low patronage of energy efficiency and energy conservation are:

- Low entrepreneurial capabilities of local Energy Service Companies (ESCOs)
- Lack of knowledge of specific problem areas that need urgent attention and the solution of which could yield immediate results.
- Lack of codes, standards and guides on energy efficiency.

Some local industries have demonstrated some appreciable level of energy management capacities and have put in place energy management schemes on their own, but this category of firms require further assistance to improve their capabilities to exploit the full potential for improving energy efficiency. The bulk of Kenya firms, however, have little or no energy management skills. The lack of adequate internal energy management capability in local firms, constraints local industrial/commercial managers from making sound and informed judgement on energy efficiency investments. This threatens to undermine any efforts to eliminate other financial and technical constraints. The need to introduce effective energy management tools and techniques to these industries is thus critical to improving energy efficiency in these sectors. CDM is one of such tools and enabling environment should be prepared for its phasing in.

CONCLUSIONS

The provision of energy efficiency services and alternative energy options – both which are CDM best options - can be sustained in Kenya and Africa through a series of interventions ranging from technological through financial in an enabling economy and political environment, with the private sector as the main driver. Importation of prototype technology into Africa as is, although the goal is common, different strategies may be required for different countries, even in Africa. With the incentives and financial intermediation available, backed by a vibrant supply CDM network, Kenya's energy efficiency and alternative energy programme can make a new turn for success.

APPENDIX 11: Problems in Capacity Building for small scale CDM Projects, CAPA Team

Capacity Building for Small Scale Projects

- **Technical Capacity**
  - **Training on methodologies (PDD)**
  - **Awareness on CC issues at various levels (individuals to policy makers)**
- **Financing Capacity**
  - **To develop and implement process for small scale project funding**
  - **Awareness among financial institutions**
  - **New procedures**

Issues

- **Institutional Capacity**
  - **Legal, regulatory framework**
  - **Institutional arrangement for CDM**

Objectives

- **What needs to be done and by whom so that small-scale energy projects can be implemented under CDM to achieve the GHG reductions and sustainability benefits.**
- **What are the barriers**
- **Actions to overcome**
- Long and short term actions

APPENDIX 12:Potential Role of NGOs in the CDM, Evans Kituyi, African Centre for Technology Studies

Typical CDM Project Domain

- **Land use (mainly sinks)**
- **Infrastructure (focus on Energy*)***

Typical NGO Functions

- **Research**
- **Advocacy/campaigns**
- **Training**
- **Awareness raising**
- **Development**
- **Other?**

Interests of the Parties

- Investor
  - CERs
  - Low transaction costs

- **Host Country**
  - Technology transfer
  - Environmental integrity

Initial Challenge - Integrating CDM into National Priorities

- Creating necessary host-country environment to attract:
  - Early-stage project development
  - Potential investment
- Cultivate political support
  - Awareness raising up to highest political level
  - Adopt inclusive approach
- Develop appropriate legal frameworks
  - To address CDM contractual issues
  - For issuing CTOs etc.

- **Build endogenous capacity to undertake:**
  - Facilitation activities
  - International project marketing

A Role for NGOs

- ***Training***
  - Project design, monitoring, evaluation (emphasising CER and additionally measurement)
  - Project management skills
- ***Research***
  - Bundling of projects vs transaction costs
  - Country-specific pre-requisites for attracting CDM investment
- ***Watchdogs***
  - Ensure transparency and accountability in all CDM projects
- ***Advocacy***
  - for policy, legal and institutional reforms
  - for inclusive roles for civil society and business
  - for integration of CDM into development plans eg NDP, PRSP
- ***Awareness***
  - Politicians and policymakers
  - Business community
- ***Project Development***
  - Agro-forestry, efficient stoves, wind, pico/micro hydros, etc.

Conclusion

- **CDM unlikely to be attractive to investors or meet national development goals without supportive host-country programmes**
- **Need for appropriate political support and institutional frameworks to attract investment**
- **To protect Kenya's interests in the CDM investment, knowledge of all aspects of project is mandatory**
- **NGOs have a key role to play, working alongside business and government and should develop their projects/programmes based on this knowledge.**

APPENDIX 13: Interfaces for the CDM, Theuri Daniel, ITDG-EA

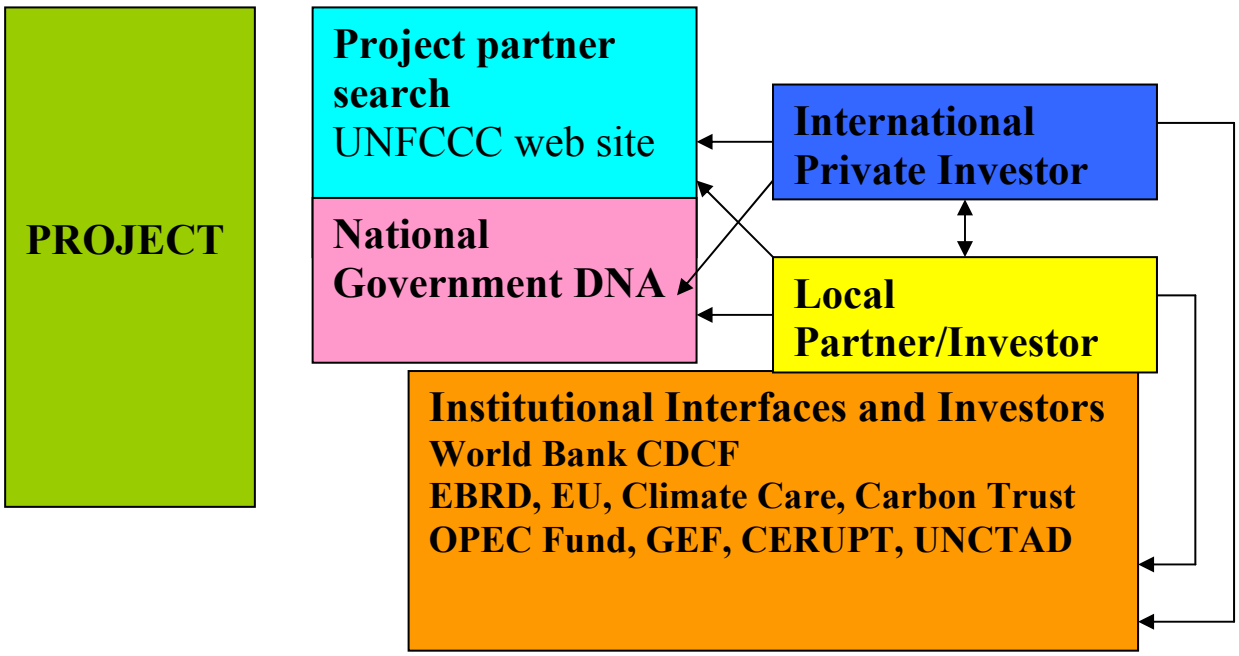
Main Steps and interfaces

- **Project Initiation**
  - **UNFCCC participation requirements (DNA)**
  - **Project partner search**
    - eg http://unfccc.int/cdm/bazzar.html
    - national website

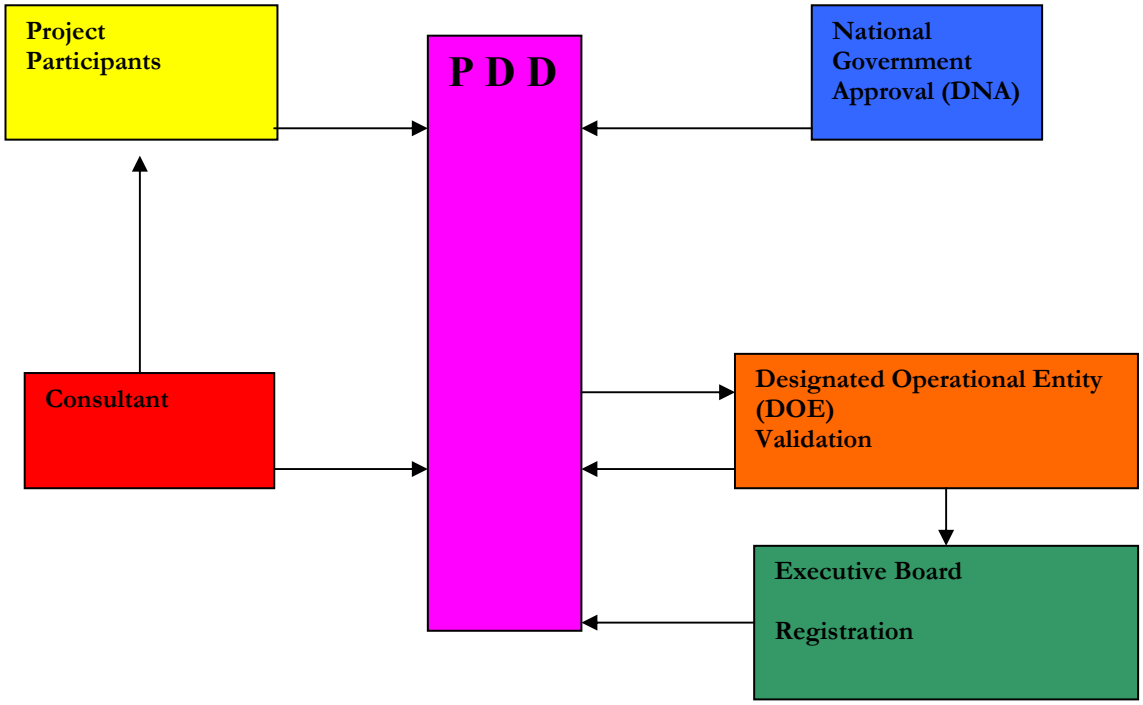
- **Project Development**
  - **design document (PDD) preparation**
  - **national approval procedures and interface**
  - **validation of PDD by DOE**
  - **registration with EB**

- **Project operations and credits**
  - **verification of monitoring report by DOE' (monitoring)**
  - **issuance of certified emission reductions by EB**

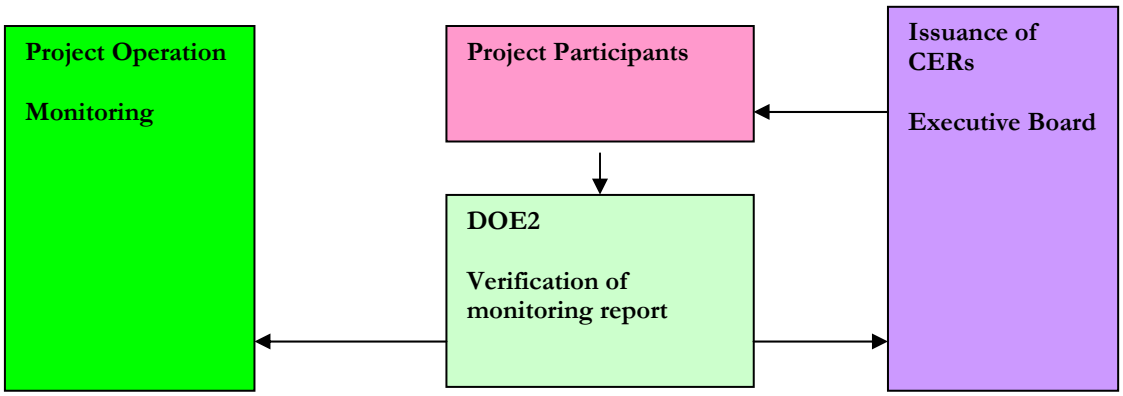
Project Initiation



Project PDD Development



Project operations and credit



Challenges for National interfaces

- **Kenya yet to ratify the Kyoto Protocol**
- **Designated National Authority - NEMA ?**
- **no national office for CDM for project developer such as Annex 1 country, or entity or local investor ?**
    - **Effective committee for streamlined project appraisal**
    - **Investment Centre for small scale projects**

Problems with small scale projects

- **Need to be implemented with capacity building**
- **Incur transaction costs which represent high percentage of investment costs**
- **Need to be 'bundled' and administered to reduce costs**

Transaction Costs

- **PDD costs**
    - **Project identification**
    - **Data collection**
    - **Additionality assessment**
    - **Baseline calculation**
    - **M&V plan**
- **Validation – DOE 1**
- **Verification – DOE 2**

Discussion Groups

- **How can the interfaces for small-scale projects be improved?**
    - **Financing**
    - **Capacity Building and participatory implementation**
    - **bundling administration**
- **What are the Barriers?**
- **What actions could overcome them?**

APPENDIX 14: WORKSHOP PARTICIPANTS

NAMES	EMAIL ADDRESS	PYSICAL ADDRESS	TELEPHONE NO.
AMBROSE OTIENO	Administrator@sonysugar.co.ke	South Nyanza Sugar Company Ltd Kisii-Migori Rd P. O. Box 107 Sare-Awendo OR Utalii House 2nd Flr - North Wing P. O. Box 48979 Nrb	Tel: 0387-43004/5, 43009/43620 (Factory) 02 220795/221380 Fax: 0387-43245 or 02-310038
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Final Workshop in Tanzania

PROCEEDING FOR THE FINAL WORKSHOP ON ENCOURAGING CDM ENERGY PROJECTS TO AID POVERTY ALLEVIATION

HELD ON 3RD – 4TH MARCH 2003

COURTYARD HOTEL, DAR ES SALAAM, TANZANIA

1. BACKGROUND

The Centre for Energy, Environment, Science and Technology (CEEST) in collaboration with the Centre for Environmental Strategy at the University of Surrey and Intermediate Technology Consultants (ITC) both of UK organised a second workshop on encouraging Clean Development Mechanism (CDM) energy projects to aid poverty alleviation. The workshop was held in Dar es Salaam, on 3rd – 4th March 2003, at Courtyard Hotel**.** The workshop brought together participants from various sectors and stakeholders in Tanzania, including energy, environment, climate change, business, academics and research institutions, industry, meteorology, the press, NGOs, financial sector and others.

CDM is an initiative defined in Article 12 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC). Its major objectives include, among others, to assist developing countries (non-Annex I-countries) in achieving sustainable development and in contributing to meeting the quantified Greenhouse gases (GHGs) emission reduction commitments of developed countries (Annex I – countries). CDM is envisaged to provide opportunities for developing countries to promote sustainable development through enhancing capital flows for investment, technology transfer and capacity building. The modus operandi for this initiative is still being moulded.

CEEST in collaboration with the Centre for Environmental Strategy at the University of Surrey and Intermediate Technology Consultants (ITC) is undertaking the above mentioned research project, which is a UK DFID funded project to carry out research on Clean Development Mechanism in small scale energy projects (e.g., Solar, mini-hydro, improved stoves, and co-generation in sugar industries)

The host countries involved in the project are Kenya, Tanzania and Ghana and the respective country partners are Intermediate Technology (IT) Kenya, KITE in Ghana and CEEST in Tanzania. The Co-ordinator of the project is Centre for Environmental Strategy at the University of Surrey with Intermediate Technology Consultants (ITC) both of UK.

The objectives of holding the second ~~an~~ in country workshop were as follows:

- Increasing awareness and knowledge on different aspects of CDM and discuss avenues of opportunities for country involvement in CDM projects
- Encouraging networking and information sharing on the CDM particularly the institutional structure within the UNFCCC, the processes involved for CDM registration etc, the accounting for emission reductions eg baselines and the use of sustainability indicators for assessment of projects. Governments and projects developers could use the outcome of this workshop.

- Feedback on the needs of the target groups (industry, government, local community and financial sector)
- Identifying a way forward for the CDM eg remove barriers, set up institutions, training etc
- Disseminate technical and sustainability benefits result i.e., country specific results and explore synergies between country project
- Awareness and engage local participants for progressing CDM in Tanzania

2. INTRODUCTION TO THE WORKSHOP

By; Mr. Hubert Meena
The Centre for Energy, Environment, Science and Technology

Mr. Hubert Meena, the Acting Managing director of CEEST gave a brief introductory remarks on the workshop, mainly he talked about the objectives and the agenda of the workshop. He also used the opportunity to welcome the participants to the workshop as the organiser of the workshop.

Workshop objective

- Disseminate technical and sustainability benefits results
- Country specific results
- Explore Synergies between country projects
- Integrated approach to implementation
- Engage local participants for progressing CDM in Tanzania

Workshop agenda

- CAPA project GHG reductions
- CAPA project Sustainability benefit delivery
- Implementation of projects, capacity building for CDM
- Interfaces for small scale CDM
- Participatory sessions

3. OFFICIAL OPENING

The official opening speech was given by Mr. E. K. Mugurusi, Director of environment, in the Vice President's Office, at the workshop on Encouraging CDM Energy Projects to Aid Poverty Alleviation, at Courtyard Hotel, Dar es Salaam, 3rd - 4th March 2003. His speech was as follows;

Mr. Chairman,
Distinguished Participants,
Ladies and Gentlemen,

It is with great pleasure that I take this opportunity to officiate the opening ceremony of this important workshop on **Encouraging Clean Development Mechanism (CDM) in**

Energy Projects to Aid Poverty Alleviation. I wish to express my sincere appreciation for the invitation and for your presence. I commend the organizers, The Centre for Energy, Environment, Science and Technology (CEEST), The Centre for Environment Strategies of the University of Surrey, UK and Intermediate Technology Consultant of UK for the timely organization of this workshop.

Mr.
Chairman,
The focus of your workshop is a subject of international relevance. As you know, because of concerns with the growing threat of global climate change from increasing concentrations of greenhouse gases in the atmosphere, more than 186 countries have become parties to the UN Framework Convention on Climate Change, which entered into force on 21 March 1994, i.e. within two years of its adoption.

The parties to the Convention drafted the Kyoto Protocol in December 1997 in the historic city of Kyoto, Japan in order to further the implementation of the convention. The Protocol requires developed country parties as a whole to reduce their aggregate emissions by at least 5.2% below 1990 levels in the timeframe of 2008-2012, allowing for varying commitments by country. The Protocol is the first ever-global agreement for an instrument that is legally binding to commitments by industrialised countries to curb their anthropogenically induced greenhouse gas emissions. The emergence of the Kyoto Protocol was a historic moment and ushered in the beginning of an ongoing debate on its key provisions, particularly the project-based mechanisms for activities across countries. Article 6 of the Protocol allows for Joint implementation projects between developed country-parties (Annex 1), in which case, project-level trading of emissions reductions can occur among countries with greenhouse gas emission reduction commitments under the Protocol-transferable emission reduction units. Article 12 of the Protocol provides for the Clean Development Mechanism that allows legal entities in developed countries to enter into co-operative projects to reduce emissions in developing countries.

The CDM was created to provide developed countries with the flexibility in reaching their emissions reduction targets through investments in developing countries. The major issue in the international climate negotiations was whether developed countries should reach their greenhouse gas emission reduction targets through domestic action alone or through projects abroad as a credit towards their reduction targets. It was argued that from an economic point of view, it is efficient to give countries with emission targets flexibility concerning the location of emission reduction. Since greenhouse gas emissions mix globally, there is no hot-spot problem. Therefore, the cheapest measures should be taken first regardless of where they take place.

The opportunity to engage in emissions reductions through investing in developing countries and to gain carbon credits to trade in an international market was tied to a commitment for sustainable development in those countries. The CDM is therefore of direct significance to developing countries; this is why these countries have expressed their interest in the opportunity to gain access to financial and technological resources. However, there are several levels and dimensions for consideration with respect to the potential development benefits that the CDM might bring about to the global, national and local levels.

The debate on the CDM and sustainable development lies in the fact that the CDM is a market-based tool for producing credits for a global trading market. Sustainable development and the corresponding focus on poverty alleviation relate to national-scale local development. Synergies between the two must be demonstrated. The project concept to address development is not new, especially in the field of foreign aid. Application of the concept to a carbon market is at its infancy stage. One of the agreed principles is that the CDM should not replace development assistance. It has also been agreed that each country hosting CDM projects should set its own sustainable development criteria for CDM projects. The debate on article 12 is largely about how sustainable development will manifest itself in CDM projects, We are at an early stage of discovery, and there will be many mistakes made in the process. Perhaps, by the end of the first commitment period of emissions reductions, i.e. 2008-2012, we will be a little wiser about the links between CDM and sustainable development.

Mr.
Chairman,
The workshop should provide an opportunity to deliberate upon the issues embodied in the CDM concept, particularly as they relate to poverty eradication efforts in Tanzania. Tanzania acceded to the Kyoto Protocol in April 2002 and is therefore eligible to participate in CDM investment activities. It is important that CDM, as a new window of opportunity for possible financial flows, capacity building and technology transfer is well understood by the various stakeholders particularly the private sector, the non-governmental organizations and the academic and research community so as to ensure their effective participation. As you know Tanzania has all along actively participated in all negotiations and processes relating to the global regime on climate change. At the moment, Tanzania is the chair of the Least Developed Country parties under the UNFCCC processes. You will also recall that Tanzania led the G77 and China during the negotiations that resulted in the adoption of the Kyoto Protocol in December 1997 in Kyoto, Japan.

Mr.
Chairman,
The Kyoto Protocol allows for flexible market mechanisms; namely Joint Implementation, CDM and Emissions Trading for Annex I countries to reach their targets. Bubble reduction is also allowed. Among these four flexible mechanisms, CDM is the one which is relevant to the developing country Parties under the Protocol. Specifically, Article 12 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change defines the purpose of CDM as "... *to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention and to assist Parties included in Annex I in achieving compliance with their quantified emission limitations and reduction commitments under Article* 3." Thus CDM serves a dual purpose: firstly, it provides developing country parties the opportunity to participate in the global efforts to reduce greenhouse gas emissions while in so doing helping them to achieve their sustainable development goals. Secondly, CDM is envisaged to provide them opportunities for promoting sustainable development through enhanced capital flows from investment, technology transfer and capacity building.

Mr.
Chairman,
The Clean Development Mechanism is both an opportunity and a challenge to developing country parties, particularly the least developed countries such as Tanzania. Given the necessary capacity, infrastructure and institutional frameworks, CDM will allow investors in the developed world to undertake projects in the developing countries. Developed country-parties will receive emission credits at lower costs than they could achieve at home; at the same time, such projects will contribute to sustainable development initiatives in developing country-parties through capital flows, technology transfer and capacity building. As an LDC party, the challenge is to attract CDM projects in all relevant sectors, particularly the energy sector. Undoubtedly, incentives for facilitating large-scale transfers of technology that relates to energy efficiency and renewable energy technologies are very important. CDM investment is like other investments. The necessary infrastructure conditions determine the direction and magnitude of investment flows.

Mr.
Chairman,
The Kyoto Protocol is in essence, a framework of action, a work in progress and a number of challenges still lie ahead. While the agreements provide a general framework for actions, some of the details regarding implementation of the protocol remain to be addressed, including issues of additionality, leakage, aforestation and reforestation. Some of them are currently being worked out by the CDM Executive Board and it is expected that the controversy encompassing issues relating to land use, land use change and forestry will be resolved at the forthcoming Conference of the Parties.

Further work is needed to set in the rules for the market-based mechanisms established in the Kyoto Protocol both at national and international levels. Key building blocks will need to be put in place for a sustainable, market based system for achieving reductions in the greenhouse gases and sustainable development. African countries still need to develop national and regional expertise to provide input into the detailing of CDM in this regard. This will involve non-governmental organizations, the business community, academic and research institutions and the private sector in general.

Mr. Chairman,
It is therefore most befitting that this workshop is being held. The workshop should serve for awareness raising and information sharing on matters related to CDM. Of particular significance is the development of energy projects in the country, and how such projects could be promoted in the context of CDM. The development of viable CDM projects and relevant institutional issues should be the focus of your workshop to enhance the understanding of the roles of Government, NGOs, the private sector, the business community and others. The issue of the needed capacity and expertise in undertaking the CDM energy projects is crucial. National capacity and expertise in terms of technological aspects, CDM projects negotiations, determination of baseline, verification, certification and monitoring of CDM energy projects lie at the heart of CDM project investments. It is also important to address procedural issues, including policy compatibility and macro economic policies that are relevant for consideration during the development and undertaking of CDM projects in the country.

Mr.
Chairman
The issue of screening CDM energy projects especially to make sure that CDM energy projects address sustainable development needs of the country and the expectations of the communities where the projects will be undertaken should be a measure of the suitability of a project. Poverty eradication should be the overriding priority in such projects. The priority is to promote projects that could improve the welfare of the people and address sustainable development needs guided by national policies.

Mr. Chairman
Distinguished participants, ladies and gentlemen, after these few remarks it is now my privilege and duty to declare open the workshop on "Encouraging Clean Development Mechanism (CDM) in Energy Projects to Aid Poverty Alleviation". I wish you very thoughtful and fruitful deliberations.

I thank you for your attention.

4. PAPER PRESENTATIONS

Eight papers were presented during the first day and on the half of the second day; the aim of these papers was to give the highlights to the participants so that they could be able to participate effectively during the group discussions. Papers presented were as follows; (All these papers have been attached as annexes to this report)

- Introduction to the CAPA projects
  Dr. Katie Begg – University of Surrey

- Results for Small scale energy projects in Tanzania
  Mr. Hubert Meena - *CEEST*

iii. Overall Results from other countries (Kenya and Ghana)
Dr. Katie Berg - University of Surrey

iv Introduction to sustainable livelihoods approach and CDM
Dr. Rona Wilkinson – ITDG

v Introduction to Assessment Model
Dr. Katie Begg – University of Surrey

vi Sustainability Results for Small Scale Energy Projects for Tanzania
Mr. Stephen Mwakifwamba - CEEST

vii Overall Sustainability Results for all countries (Kenya, Uganda and Tanzania)
Dr. Rona Wilkinson - ITDG

viii Overview of problems in Capacity Building for projects in Tanzania
Mr. Richard Muyungi – Division of Environment (VPO)

ix Interfaces for investments and New interfaces for small-scale projects
Mr. Hubert Meena - CEEST

5. GROUP DISCUSSIONS

During the first and second day of the workshop participants were divided into three groups all groups were assigned the same topic to discuss outlined in the workshop programme, the outcome of the group discussions were as follows;

Day One: 3rd March 2003

What can be done and by whom so that small scale energy projects can be implemented under the CDM to achieve GHG reductions and sustainability benefits in terms of short term and long term measures.

5.1 GROUP 1

This was the result from the interfaces discussion

Barrier 1. Lack of Knowledge of CDM for Small Scale for Decision makers, Financial sector and general public

Actions to overcome

Short Term

- Introduce policy maker to different ways of obtaining information on CDM e.g. Website

- Set pilot Projects as models
- Training & workshop (formal)
- Make use of it to convey information
- Use media
- Undertake training and conduct awareness raising, This can be done by
  - Expert on CDM
  - Universities
  - Media
  - Politicians
  - NGO's --CEEST
  - CBOS
  - Teachers

Short term:

- Organize awareness creation workshops/seminars/meetings to stakeholder on CDM

- Institution arrangements
- Formulations of policies and regulations
- Implementation statistics
- Educational awareness campaigns by the already aware organizations/Institutions e.g. CEEST NEMC DOE NGO's
- Training TRAINERS
- To avoid lack of knowledge
- Conduct public awareness campaigns to educate on CDM
- Production of teaching materials to sensitise on CDM

Long term

- Create an enabling environment (laws/regulations Institution set up) for the CDM Projects to be successfully implemented
- Awareness rising campaigns for local investors/financial institutions
- Knowledge of criteria for eligibility of funding

Barrier 2.Financial capacity to implement projects

Actions to overcome

Short term:

- National budget should be allocated to this project
- Use of private sector to invest in this sector
- Assistance as provided for in the Kyoto protocol To be done by:
  - Government
  - Private sector
  - Financial institutions
  - Kyoto Protocol

Long term:

- Encourage establishments of Trust funds for CDM (Long term)
- Set financing facility for loans or grants
- Incentives in fiscal policies e.g. tax reduction
- Regulatory frameworks clear for investors

Barrier 3. Lack of capacity for local technology

Short term:

- Integrate CDM Projects in our company strategic plans as priority Projects
- Assessment technology training needs and provide the same
- Encourage local innovativeness

- Encourage local initiatives & improve their skills
- Training in special skills
- Encourage technology transfer
- Training to build capacity on developing local technology by tatedo and ministry of energy and mineral.
- Conduct a targeted training programmes on CDM relevant technologies
- Establishment of information and data center for small-scale CDM projects. TATEDO, CEEST, COSTECH
- Sharing of available local technology to be emphasized

Long term

- Putting in place a mechanism to establish revolving fund for CDM project
- Conduct training & awareness campaign
- Train more trainers
- Technology transfer
- Fully utilization of the available technology
- Curriculum development to include CDM in schools, technical institution and institutions of higher learning
- Solicit funding for capacity building on local technologies
- Cooperation between donor and scientific community to be encouraged
- Participatory training
- Pilot/Demonstration projects
- Encourage information flow from grassroots

5.2 GROUP 2

BARRIERS

- Lack of finance – credits
- Lack of awareness about CDM
- Lack of institutional capacity
- Lack of socio-economic set up and poverty
- Lack of expertise – Low capacity in project identification, formulation and implementation
- Low funding priority to CDM projects
- Low education on CDM issues

ACTIONS TO OVERCOME and by whom

- Education – Curriculum changes (Ministry of education & universities)- long term
- Purchasing power – financing through Banks and other financial institution-short term

- Policy and laws (Regulatory frameworks) – Enforcement and compliance - Ministries short and long term
- Public awareness raising (NGO, politicians, private) - short term
- Involvement of local people – participatory at grassroots level (NGO, CBOs, Local government)-long term
- Networking through government and NGOs -Long Term
- Policy focus on relevant interventions (lead agency, line ministries) - long term

5.3 GROUP 3:

Capacity Building Barriers and actions to overcome them

1. Lack of Credit Schemes:

    - Creation of financing schemes
        - revolving funds
        - loans and guarantee
        - subsidies
        - tax holidays

2. High cost of small-scale project for the poor

    - As for point 1
    - locally designed, cost effective equipments etc

3. Lack of Awareness
   Short Term
    - Workshops eg by UN organisations and donors
    - short courses eg by NGOs
    - demonstrations by government
    - newspapers/pamphlets etc
    - Newsletters,
    - TV
    - Pamphlets

Long-Term
- Include CDM projects in curricula in school, colleges and universities
- E-training sponsored by government , universities, donors

4. Limited technical support especially in rural areas

    - Train extension personnel e.g., technician, vocational assistant,
    - create volunteer schemes/ national service
    - Vocational courses from technical colleges

5. Taxes and Import duties

- Sensitisation of deceiesion makers especially government officials
- Reduce / remove import duties
- Awareness to government official and policy makers
- Encourage local manufacture

6. Technical information on reduction GHG emission

   - Develop methodologies and methods of collecting data and involve schools, colleges and universities
   - Use of students to collect emission data as part of their thesis (whatever practical)
   - NGOs in communities to address technical energy/fuel issues

7. Lack of high level Expertise

   - Training on how to implement small scale energy projects under CDM
   - Project management courses in university and institutions to be introduced so that we can have enough experts in this area (Government to act)
   - Create clean technology courses at degree level

8. Lack of community involvement

   - Local involvement from project inception to implementation

9. Infrastructure limitations

   - Government to invest in infrastructure

10. Existing Baseline data

    - Initiate centres at village level to collect data
    - More researches are needed to provide enough data so that we can know where to locate which project

This is the interfaces report
Day two: 4th March 2003

- ***How can the interfaces for small-scale projects be improved?***
  - ***Financing***
  - ***Capacity Building and participatory implementation***
  - ***Bundling administration***
- ***What are the Barriers?***
- ***What actions could overcome them?***

5.4 GROUP 1

What does Investor want?

- Capacity / ability to implement in country
- Character – willingness to pay
- Collateral (loan) history
- Returns on investment – favourable environment (tax)
- Convinced benefits from investment
- Nature of investment

What does host country want?

- Improved project benefits
- Funds
- Investors
- Impact to community and services to project developer
- Institutional support (NGO)
- Technology
- Sustainability

BARRIERS

- Inadequate capacity to implement and process CDM small scale projects from design, implementation, monitoring and verification
- Policies not favourable for small scale project due to threshold level
- Taxation
- Capacity and skills
- Infrastructure (i.e., reaching projects in rural areas
- Acceptance by community
- Access to funds
- Bureaucracy

ACTIONS TO OVERCOME BARRIERS

- Training at all levels
- Review policies, especially investment thresholds
- Awareness in CDM issues
- Reducing red tape
- Improve infrastructure in rural areas
- Government interaction to reduce taxes, interest rates and lending policies

5.5 GROUP 2

BARRIERS

- Lack of credit schemes
- Higher cost of small scale project for poor

- Awareness
- Limited technical support especially in rural areas
- Higher imports duties and tax rates
- Information on reductions (technical capacity and information)
- Lack of expertise
- Limited community involvement
- Infrastructure limitations for communications
- Existing baseline

What investors want

- Minimised risk in the investment (viability, feasible carbon stock) Viable project with low risk
- Good investment climate (tax breaks)
-
- Facts / information (information point)
-
-
- Infrastructure communication
- Simple – transparent – efficient
- Low cost technology

What the host wants

- Employment – use locally available resources / raw materials and locally available labour skills
- Sustainability benefits
- Share carbon credits
- Attract investors)

ACTION TO achieve investor and host goals

- Minimising the risk of investors
    - clear government policy on investment and stable government
    - Locals carryout basic studies to determine project viability
    - Investors need information / assurance of future market of her/his project
    - Legislation and good governance in place
    - Good information and future market for product
    - Local needs maximum involvement of the local community for the sustainability of the project

- Put in place Good investment climate
    - Incentive package required

- Needs appropriate policies that encourages investment such as tax relief
- Develop CDM investment policy
- Train local host on contracts / business partnership. This will help them understand terms and agreements during contract signing

- Information point
  - Create information centre e.g., website, email etc
  - Create capacity within Tanzania Investment Centre (TIC)
  - Establish database and information centres

- Low cost technology
  - Use locally available raw materials
  - Provide tax exemption to imported small scale CDM energy project equipment
  - Environmentally friendly project

- Infrastructure and communication
  - Investor needs to know the status of the infrastructure such as reliable roads, communications etc
  - Low cost and reliable communication system
  - Government to improve infrastructure using road fund

- Simple , transparent and efficient system
  - Avoid corruption
  - Minimise bureaucracy

- Sustainability benefits
  - The project should provide employment opportunities for the people / local community
  - Train NGOs to implement projects
  - Develop sustainability indicators
  - Observe business ethics (reduce overspreading / fraudulent), study the market before investing, involve end-users in project formulation and implementation

5.6 GROUP 3

BARRIERS

- Low institutional capacity of DNA – no full time CDM official
- No effective technical CDM committee or expert committee
-
- Lack of capital investment in CDM projects

- Bureaucracy
- Complex land laws
- Lack of technology / technical capacity
- Lack of funds for DNA office
- Lack of clear policies / regulations

ACTIONS TO OVERCOME (Long and short term actions)

- Strengthen DNA capacity to enhance initiation of CDM *(Responsible VPO)*
- Designate full time CDM staff *(Responsible VPO)*
- Government appoint a Technical CDM committee *(Responsible VPO)*
- Raise awareness / publicity *(Responsible VPO/ media)*
- Funding *(Responsible financial institution, Bank)*
- Management codes of conduct *(Responsible VPO)*
- Institutionalise CDM concept in the existing legal instruments *(Responsible VPO)*
- Training on CDM issues *(Responsible higher learning institutions)*
- Prepare national guidelines for CDM *(Responsible VPO)*
- Harmonise conflicting aims (NEMC, DOE)
- DOE as a UNFCCC focal point should be prepared to handle CDM related issues
- TIC and DOE should disseminate the knowledge on CDM. Other institutions also should assist (COSTECH, CEEST).

6. SUMMARY OF THE DISCUSSIONS

- What are the criteria used for the selection of the baselines?

—The scenario baselines presented are exploratory for the identification of the uncertainties to explore uncertainty in additionality of the project and in the absence of reliable data

–The uncertainty in the emission reductions calculated ranged from ± 7 to 50 per cent

- How can a charcoal improved cook stove be a good CDM project?

—There is a large emission reduction associated with the project. The other main benefits are in training for manufacture, health effects from reduced wood combustion, reduced wood collection freeing time and less backache, charcoal savings and forestry conservation among others.

- Paucity of data was a critical issue for the charcoal kilns and co-generation projects

- The implementation of energy projects normally requires an integrated approach that includes non-energy projects. Would the implementation of an energy project using an-integrated approach that includes other energy projects be viable?

—The integrated approach referred to is with respect to maximising reductions and sustainability benefits and relates to planning project programmes which could complement each other.. It is important to network with other energy projects for maximum benefits

- What are the similarities or differences between MCA and CBA?
  –MCA takes account of subjective judgement and non-monetary criteria. MCA provides a framework for exploring the uncertainties in a decision , the robustness of the result and provides insights for improving or changing the options

  –CBA converts all benefits into monetary values and does not make explicit the subjective judgements involved and appears to give an objective result. It also neglects any benefits that are not easily quantified. It has been shown to fail for complex policy decisions.
- What are the basic requirements for using additionality as a basis for CDM project selection?
  –According to the latest guidance from the expert group on small scale projects , if the project assessment includes overcoming barriers, policy , legal , financial etc, then the project is acceptable for CDM funding

- At what level of gas emission reduction should energy project attain to qualify for CDM funding?

–This is an issue of additionality and bundling of projects. If the project depends on the carbon credits for most of its income stream then the reductions will have to be compatible with the business plan and so the range of reductions vs transaction costs can be calculated.

- What should be the linkage between Power Sector reform and CDM requirements? Lack of discrimination against low carbon technologies, equal development for demand side measures as well as decentralised and mini grid projects compared to grid connected projects have to be built in.

- What is the significance of involving Bankers in CDM process?

–Local banks normally lack experience in funding energy projects and new mechanisms are needed as small scale projects do not fit the normal large investment criteria.

–WB and ADB are the traditional donors for financing energy projects

- Why are sinks projects not considered in the CAPA project?
  –The CAPA project is carried out under the DFID KAR programme theme on energy. For LULUCF projects there is a problem of permanency, uncertainties, and methodological issues which need to be resolved at COP level (COP 9)

- For Uwemba the emissions are known. So why is monitoring necessary?

–A project operational data must be monitored to determine whether its performance is as envisaged in the PDD and MVP . The output is used to calculated the level of emissions in the baseline where there is equivalence of service.

7. STRUCTURE OF THE WORKSHOP

The structure of the workshop was as outlined below. There was an initial phase of information transfer and then an elicitation phase and finished with report back.

DAY One: 3rd March 2003

TIME	**ACTIVITIY**
08:30 – 09:00 hrs	Registration.
Session 1: The CAPA Project: GHG reductions	
09: 00 – 09:05 hrs	Welcome and introduction **Hubert E. Meena**, Acting Director Centre for Energy, Environment, Science and Technology (CEEST)
09:05– 09:20 hrs	Opening Speech **Mr. E. K. Mugurusi**, Director of Environment Vice President's Office
09:20 – 09:40hrs	Introduction to the CAPA project: ***Dr. K. Begg - The University of Surrey***
09.40 – 10:00hrs	***Tea Break***
10.00 – 10.30hrs	GHG Results for Small Scale Energy Project for Tanzania **Mr. Hubert E. Meena *CEEST***
10:30 – 10:45hrs	Overall results from other countries, (Kenya and Ghana) Synergies for an integrated approach ***Dr. K. Begg – The University of Surrey***
10:45 – 11:40hrs	Discussions
Session 2 The CAPA project: Sustainability Benefit delivery	
11:40hrs – 12:00 hrs	Introduction to Sustainable livelihoods Approach and CDM ***Dr. Rona Wilkinson – ITDG***
1200hrs – 12:30hrs	Introduction to assessment model ***Dr. Katie Begg - The University of Surrey***
12:30 – 13:05hrs	***Discussion***
13:05 – 14:.00 hrs	***Lunch***
14:00 – 14-20hrs	Sustainability Results for Small Scale Energy Project for Tanzania **Mr. *S. Mwakifwamba – CEEST***
14:20 – 14-40hrs	Overall Sustainability Results for all countries (Kenya, Tanzania and Ghana) ***Dr. Rona Wilkinson - ITDG***
14:40 – 15:15hrs	Discussion
Session 3: Implementation of projects-Capacity Building for CDM	
15:15 – 15:35hrs	Overview of problems in capacity building for projects: ***(Mr. Richrd Muyungi – Vice President's Office***
15:35 – 15:50hrs	***Tea Break***
Interactive Session: Short term and long term measures	
15:50 – 16:30	Discussion groups: ***Problems and Short and long term solutions***
16:30 – 17:00	Feedback
17:00	End of the first day

DAY Two: 4th March 2003	
Interfaces for the CDM	
09:00 – 9:30hrs	Interfaces for investments, and New interfaces for small scale projects **Mr. Hubert E. Meena –*CEEST***
09:30 – 10:00hrs	Discussion
10:00 – 10:15hrs	***Tea Break***
10:15 – 11:15hrs	Discussion groups: **Problems and new approaches**
11:15 – 11:45hrs	Feedback from groups
11:45 –12:00hrs	Summary / Action plan
12:00hrs ----	Close

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Final Workshop in Ghana

KITE

Kumasi Institute of Technology and Environment

Encouraging CDM to Aid Poverty Alleviation (CAPA) Project

CAPA Stakeholders' Final Workshop Report

Prepared by KITE

April 2003

LIST OF ABBREVIATIONS

AREED	Africa Rural Energy and Enterprise Development
BIRD	Bureau for Integrated Rural Department
BRRI	Building and Road Research Institute
CAPA	Clean Development Mechanism for Poverty Alleviation
CDM	Clean Development Mechanism
CDS	Centre for Development Studies
CEEST	Centre for Energy, Environmental Science and Technology
CES	Centre for Environmental Strategy
CFL	Compact Fluorescent Lamps
COP	Conference of the Parties
CSIR	Centre for Scientific and Industrial Research
DFID	Department for International Development, UK
DHPR	Department for Housing and Planning Research
EB	Executive Board
EPA	Environmental Protection Agency
GAEC	Ghana Atomic Energy Commission
GHG	Greenhouse Gas
GPRS	Government Poverty Reduction Strategy
ITC	Intermediate Technology Consultants
ITEA	Intermediate Technology in East Africa
KITE	Kumasi Institute of Technology and Environment
KNUST	Kwame Nkrumah University of Science and Technology
MCA	Multi Criteria Analysis
MES	Ministry of Environment and Science
NGO	Non-governmental Organisation
NBSSI	National Board on Small-Scale Industries
PURC	Public Utility Regulation Commission
STEPRI	Science and Technology Policy Research Institute
UCC	University of Cape Coast

Table of Contents

Final CAPA Stakeholder' Workshop Report

1.0 Background

The Clean Development Mechanism (CDM) is a project-based mechanism under the Kyoto Protocol. Under the CDM, investors from an Annex 1 country with emission targets may invest in a project designed to reduce Greenhouse Gases (GHGs) in a developing country without targets and in return receive the credits for the emission reductions achieved. A CDM project should also contribute to the sustainable development path of the developing country host.

As part of the Bonn Agreement reached at COP6 (part ii) in July 2001, small-scale projects were to be allowed to use simplified procedures in order to encourage their implementation under the CDM. This is to ensure that the poor benefit from CDM.

The (Encouraging CDM Energy Projects to Aid Poverty Alleviation) CAPA project was therefore funded by DFID to investigate opportunities for streamlining procedures to make it possible for small-scale projects to access CDM. This 18-month project started in September 2001 and was officially to have ended in March 2003. The final workshop was held on March 25, 2003. The project report is currently being prepared. The project was designed to contribute to the design of the CDM under the Executive Board (EB) so that small-scale poverty focused energy projects can qualify for CDM**.** A major element of the project is capacity building in the host countries to aid the implementation of these small-scale type projects.

Counterparts for the project are:

- Kumasi Institute of Technology and Environment (KITE) in Ghana
- Intermediate Technology in East Africa (ITEA) in Kenya
- Centre for Energy, Environmental Science and Technology (CEEST) in Tanzania.
- Intermediate Technology Consultants (ITC) the consulting arm of ITDG
- Centre for Environmental Strategy (CES) at the University of Surrey. The coordinator of the project is Dr K. G. Begg.

Under the project a range of energy projects were studied and issues such as streamlining baselines for accounting for GHG reductions for these small-scale projects and sustainability benefit delivery were addressed.

The aims of the study were:

- To contribute to the design of the CDM so that poverty focused projects are encouraged

- To provide some of the design of the capacity building required in implementing poverty focused CDM projects in developing countries.

As part of activities leading to the completion of the study, a final Stakeholders' Workshop was held on the 25th of March 2003 at the Science and Technology Policy Research Institute (STEPRI), Accra as a follow up on the first workshop held in February 2002. This Workshop was part of the process of broad consultation necessary for building greater awareness on issues relating to the procedures and modalities for small-scale CDM project activities.

2.0 Workshop - Opening

2.1 Purpose of Workshop

The purpose of the final CAPA Stakeholders' Workshop was to present the results obtained from the various projects studied in Ghana together with results from other countries. In presenting the results, emphasis was placed on the technical and sustainable livelihood benefits from the various projects.

The output of this workshop and previous ones would be used to develop templates for the development and implementation of CDM projects in developing countries.

2.2 Participation

There were thirty-one (31) participants, drawn from Public and Private Institutions, International Development Agencies, NGOs, Universities, Research and Financial Institutions. [Refer to Appendix B: List of Participants].

3.0 Working Sessions

3.1 First Session: GHG Reduction

Chair: Dr. Essel Ben Hagan Deputy Director of BRRI, KNUST.

In his welcome address, Dr. Brew-Hammond acknowledged the presence of all the participants and alluded to the fact they have now become loyal friends of KITE. He also touched on the partnership that has existed between KITE, Centre for Environmental Studies (CES) and Intermediate Technology Consultants

(ITC). He acknowledged the relationship that has been cultivated as a result of the many projects they collaborated on. They are:

- Energy use in Peri-Urban areas in Kumasi
- Energy efficiencies in sawmills
- Follow up work on Sustainable Livelihood in small-scale wood processing area (Anloga, Kumasi)

There were three presentations in the first session. Dr. Katie Begg of the Centre for Environmental Studies, Surrey, UK, delivered the first presentation on the "Introduction to the CAPA project" [Refer to supporting document: Appendix D]

She outlined the context within which CAPA project was operating and the objectives were explicitly stated as well. The type of projects that qualified under the projects were said to be small-scale projects. A detailed definition of small-scale projects was given and the associated requirements clearly stated. The presentation also covered the various steps involved in coming up with a project design document and the purpose of the project was stated.

The second presentation was by Mr. Samson Atubga, Assistant Project Officer, KITE and was on the "results from the Ghana projects" [Refer to supporting document: Appendix E]. He presented the various projects that were studied. He gave detailed description of the various projects, their size, purpose for which they were implemented (the service they provide), their location and the year in which they were started. The presentation discussed the various baseline cases, the scenarios analysed for each project; GHG reductions and the incremental cost associated with each project studied.

The third and final presentation in this session was by Dr. Katie Begg [Refer to supporting document: Appendix F]. She presented results from the other countries involved in this project. She compared project results with another and addressed the implications of the results obtained from each country.

3.2 Second Session: Sustainability Benefits Delivered

Chair: Dr. Essel Ben Hagan Deputy Director of BRRI and a Biomass Expert.

There were four presentations in this session. The first of the session on "Introduction to sustainable livelihoods" was by Dr. Rona Wilkinson of ITC, UK [Refer to supporting document: Appendix G]. In her presentation, she drew attention to ways in which the CDM can be made to contribute to a host country's sustainable development and how that could be achieved; how small-scale energy projects can be made to contribute to poverty alleviation and sustainable development. She explained the sustainable livelihood framework, what it does, the main factors that influence livelihoods in the design of interventions, how to its usage and the benefits associated with its use.

The second presentation was on the "Introduction to the projects assessment model" by Dr. Katie Begg as part of this model, the Multi Criteria Analysis (MCA) was introduced. She explained that weights were assigned based on the benefit and satisfaction obtained from the respective options available. She went further to mention the process involved [Refer to supporting document: Appendix H].

The third session, which was a joint presentation, was by Mr. S. A. Atubga and Dr. Wilkinson. In their presentation, they highlighted the various benefits derived from the project by the beneficiary communities. These benefits were then put into the MCA to determine the balance in the various options [Refer to supporting document: Appendix I].

The final presentation in this session was by Dr. Katie Begg. In this presentation, the performance of the projects in the various countries were analyzed and compared. This was done by identifying the common criteria, key actions, advantages and disadvantages in improving the options. The presentation revealed that the inability of the projects to perform well was closely related to the implementation methods [Refer to supporting document: Appendix J].

3.3 Third Session: Capacity Building and Interfaces for CDM

Chair: Mr. Wisdom Ahiataku-Togobo, Head of the Renewable Energy Unit, Ministry of Energy.

There were two presentations in this session. The first of the session on "An overview of problems in CDM Capacity Building" was by Mr. Agyemang-Bonsu of the Environmental Protection Agency [Refer to supporting document: Appendix K].

The second presentation of the session on "Interfaces for CDM" was by Mrs. Patience Damptey of the Ghana Atomic Energy Commission. In her presentation, she touched on the review of institutional arrangements within the country and how that would facilitate the effective implementation of CDM projects [Refer to supporting document: Appendix L].

3.4 Group Discussions

Participants were divided into three (3) groups [Refer to Appendix C: Discussion Groups]. Two groups handled the "Interfaces for the CDM" and one group discussed "Capacity Building for CDM projects in Ghana".

Some members of the CAPA team namely of Mrs. Amissah-Arthur, Mrs. Patience Damptey, Dr. Katie Begg and Dr. Rona Wilkinson facilitated

discussions. Three (3) rapporteurs (Mr. Kofi Nketsia-Tabiri, Project Officer, KITE, Mr. Jaspal Marwah, CIDA Intern, KITE and Ms Sophia Ackom, Assistant Project Officer, KITE) supported them.

3.5 Outcome Of Group Discussions

- These are the outcomes from the discussions on "Interface for the CDM projects" by groups one and two. The question posed was
- ***How can the interfaces for small-scale projects be improved?***
    - ***Financing***
    - ***Capacity Building and participatory implementation***
    - ***Bundling administration***
- ***What are the Barriers?***
- ***What actions could overcome them?***

Group 1:

- Projects are usually implemented at the community level and therefore creating awareness at the community level will help foster understanding;
- Consulting the people from project initiation to implementation will encourage local participation as well as acceptance of the project;
- Ensuring that validation is done by local (African) organizations and not foreign organizations
- Build capacities for the establishment of operational entities in Africa
- Reduce costs through early project identification and also bundling of projects together
- Streamline the work of relevant institutions to avoid duplication of efforts

Group 2:

The needs of the investor were identified as

- Low risk
- Economic and political stability
- Competence in ministries
- Simple systems
- Low corruption risk through transparency

The needs of the host were identified as

- Ensure sustainable benefit delivery
- Align with host country goals
- Technology transfer
- Competence for negotiation

The problems of the small scale projects in terms of

- the need to bundle to spread transaction costs

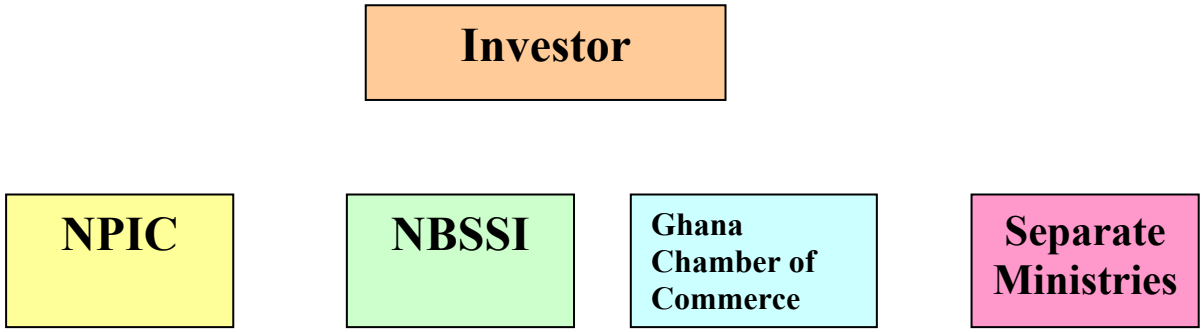
- the non standard financial criteria for investment
- the need for careful participatory implementation and capacity building to deliver the sustainability benefits

were highlighted and along with the needs of the host and the investor some ideas on what sort of institutions and procedures might be required for these projects was discussed.

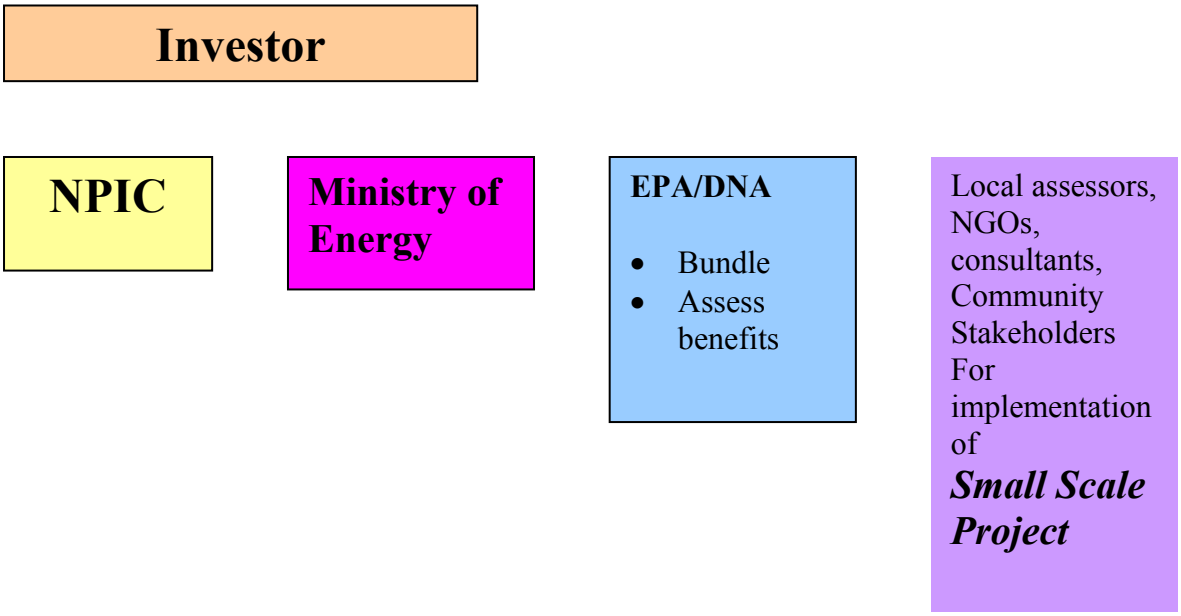
Some interfaces for bringing partners together were suggested and are illustrated below in Figure 1

Figure 1 Initial suggestions for Interfaces for the small scale projects

Interfaces for partners



Administration of projects



Group 3

Group 3 suggested the following steps during the discussion on “Capacity Building for CDM projects”:

- What the host country can do:
    - Identify small-scale CDM projects that can give sustainable benefits
    - Identify what direct and relevant benefits Ghana is seeking to achieve from the projects.
    - Develop database of available resources (e.g. an energy/climate change database). In the absence of baseline data assumptions would have to be relied on.
- Barriers:
    - Lack of knowledge and understanding of CDM as a result of
        - Inadequate competency/expertise in the calculation of GHG emission reduction
        - Low awareness

      Lack of capacity for project development
    - Lack of database on baselines
    - Low awareness of the benefits to the community
    - Attitude of government officials
    - Non availability of funding especially for data collection/compilation of database

- How to overcome barriers:
    - Participatory projects: to involve all the relevant stakeholders especially at the community level. The establishment of a CDM Commission was suggested
    - Education: policies on energy, environment, trade and investment can be studied and used to promote CDM projects;
    - Relevant institutions should facilitate the understanding and implementation of CDM;
    - Funding: internally generated funds (e.g. energy fund generated from fees on petroleum products and electricity); grants (e.g. from CDM support and Global Environment Facility); loans and community levies for the CDM (i.e. paying for the benefits they will receive).
    - Vigorous Advocacy: since the CDM is linked to all the sectors including health, energy and the Poverty Reduction Strategy, efforts must be made to explain these issues to the people at all levels of the decision – making process.

- Plans on how to move forward

  Short Term
    - Awareness creation
    - Development of database

- Funding
- Establishment of CDM Commission

Long Term
- Policy intervention/incorporation into policies
- Capacity building
- Advocacy
- Funding

4.0 Wrap-Up for the Workshop

4.1 Way Forward

In this session, the Senior Project Manager of KITE, Mrs. Amissah-Arthur, solicited the views of the participant on the way forward for CDM projects. The under-listed were the views of the participants on the way forward:

- Creation of a Central National Authority should help crystallize all ideas into a cohesive whole.
- Training of trainers in CDM is very necessary.
- Capacity building should not be limited to the short term but should be extended to educational institutions in the long term
- Advocacy needs to be strengthened
- Setup a CDM specific foundation
- Get professionals on board to serve as motivational factor for the group
- We should know where we are coming from and where we want to go with CDM
- Annex 1 countries should do more than they are doing now
- Increase awareness among policy makers
- Increase general awareness and encourage more advocates of CDM
- Explore funding possibilities
- Continuous/vigorous sensitization and education of policy makers
- More NGOs need to play advocacy/sensitizing roles to add to what KITE is doing. (E.g. Energy Commission's role in getting taxes on CFLs removed)
- Strengthen institutional capacity building
- Need to build expertise to write CDM proposals
- Use existing projects to learn more about the CDM
- Technical advancement, national institutes for CDM
- Move out of theorizing and develop real models and projects
- Develop Public/Private Partnerships
- Capacity building at all levels – policy makers, students, communities, and include the issues in the school curriculum
- The Public Utilities Regulatory Commission and the Energy Commission to develop proposals among others to provide green and efficient energy (e.g. as in the case of the cogeneration project that KITE is looking at)

- Motivate the public sector to work with CDM
- Create awareness about the CDM within the private sector
- Development and publicisation of technical specifications to generate interest of private investors
- Database on CDM issues
- Educate financial institutions to know what is going on in CDM. There is currently no awareness within the Ministry of Finance
- Establishment of CDM Office
- Issues of projects development, and capacity building
- Make CDM an attractive project to sell

4.2 Actions Plan

The short and long term plans were stated as follows:

- To clearly show the returns on CDM projects to investors
- Information from CAPA will be packaged and disseminated at both the local and International Levels.
- KITE will continue to foster partnership to move CDM forward.

5.0 Closing

At the end of the workshop, Dr. Katie Begg acknowledged that all the participants have been wonderful. She was very appreciative of everybody's presence. Appreciation was rendered to KITE, Chairpersons and all those who helped with the filling of the data sheets.

The Senior Project Manager added her voice by expressing her appreciation for the presence of all the participants, who have had to take time off their busy schedules to attend the workshop.

6.0 Appendixes

Appendix A Workshop Program

Appendix B List of Participants

Appendix C Discussion groups

Appendix D Presentation on Introduction to the CAPA project

Appendix E Presentation on GHG results from the Ghana Projects

Appendix F Presentation on results from other country offices

Appendix G Presentation on Sustainable Livelihoods

Appendix H Presentation on Assessment Model

Appendix I Presentation on Sustainability results from the Ghana Projects

Appendix J Presentation on Sustainability Results from all three countries

Appendix K Presentation on Capacity Building

Appendix L Presentation on Actors, Processes, Country Interfaces and costs

These appendices are not attached here as they replicate the other workshop talks and are also presented and discussed in Attachment 3 in the results for Ghana.