Market Transformation for Highly Efficient Biomass Stoves for Institutions and Medium-Scale Enterprises in Kenya

TERMINAL EVALUATION

Prepared for UNDP
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EXECUTIVE SUMMARY

The Market Transformation for Highly Efficient Biomass Stoves for Institutions and Medium-Scaled Enterprises in Kenya is a 4 year GEF Medium-Sized Project (MSP) that was implemented from 2007 to 2010 with US$ 1 million from GEF and co-financing, both in cash and in kind, from UNDP, the Ministry of Energy (MoE), the Rural Technology Enterprises (RTE), the Renewable Energy Technology Assistance Programme (RETAP) and the Tree Biotechnology Programme Trust (TBPT). The project seeks to remove market barriers to the adoption of sustainable biomass energy technologies by institutions (schools and hospitals) and small businesses (restaurants and hotels) in rural and urban areas of Kenya by (i) promoting highly efficient improved stoves, and (ii) establishment of woodlots owned and managed by the institutions and private sector. The Project builds on and scales up a successfully implemented GEF Small Grants Programme (SGP) in which a revolving fund credit scheme was established to disseminate energy saving stoves to institutions in Kenya on a commercial basis.

Project outcomes and outputs include:

- Outcome 1: Supportive policies and legal framework for sustainable biomass energy businesses developed and strengthened: *Output 1.1: Policy dialogue facilitated for increased co-ordination between government sectors, Output 1.2: Coordination and strengthening of parliamentary support for biomass energy legislation*

- Outcome 2: Supply chains for both products and financing are strengthened and expanded: *Output 2.1: Delivery infrastructure for seedling supply established with appropriate revenue and financing structures (mini-nursery pilots for seedling sales), Output 2.2: Increased liquidity in the institutional, small business (SME) and formal household stove markets, Output 2.3: Reduced product and service costs, Output 2.4: Business models improved and replicated*

- Outcome 3:Policy makers, financial sector, suppliers and end-users are convinced of benefits and market opportunities for improved stoves: *Output 3.1: Exploitation of applications to drive market growth and create volume, Output 3.2: Information on costs and benefits of technologies well known, Output 3.3: Users trained in biomass energy saving techniques and forest management*

The key project indicator is the reduction of CO_2 equivalent emissions by an accumulated total of between 400 000 and 960 000 tonnes by 2020. Domestic benefits include reduced deforestation and forest degradation, reduced air pollution indoors (and outdoors), improved respiratory and general health of cooks, reduced cooking times, less time spent gathering fuel, cleaner kitchens, protection for community forests, reduced fuel costs, and income generation for stove producers and seedling producers / farmers establishing woodlots.

End-term targets:

- 100 000 tonnes of CO_2 avoided by 2010, representing a switch of about 3500 institutions and small businesses to efficient stoves (a penetration rate of 16% against a baseline of 5%).
- 15 million tree seedlings planted within the project in managed fuelwood plantations with an indicative minimum of 75% long-term tree survival rates

Mid-term targets:

- 50 000 tonnes of CO_2 avoided by 2008
- 7.5 million tree seedlings planted within the project in managed fuelwood plantations

This Terminal Evaluation assessed the various aspects of the project, from its conceptualization and design, implementation approach, achievement of results and whether or not the project is sustainable in terms of furthering its objectives and accruing benefits to the various stakeholders even after GEF funding comes to an end.

The Project and Its Development Context

In Kenya, biomass energy is the largest form of primary energy, with the ratios of energy consumed being 68% biomass; 22% petroleum; 9% electricity and 1% others. Some studies indicate that rather than decrease, the overall consumption of biomass energy, in proportion to other energy forms has actually increased in the past two decades.

Over 95% of about 20,000 institutions (schools, colleges, hospitals) in Kenya use fuelwood as the main source of energy for cooking and heating water. Despite these realities, the government's policies have tended to focus more on petroleum and electricity, with less focus on the development of the biomass energy sector.

The Rural Technology Enterprises (RTE) has been fabricating and installing energy efficient stoves, with a focus on institutional stoves since the 1980s. In 1996, the Renewable Energy Technology Assistance Programme (RETAP) was established to provide schools with credit to facilitate them purchase energy efficient stoves from RTE. With efficiencies of up to 70%, the schools could repay the loans within a two-year period from the savings they would make on firewood. The revolving fund was established with a grant of US$50,000 from the GEF SGP. This fund grew to about US$200,000 by 2007, when the GEF Medium-Sized project (MSP) was approved. The MSP build upon the successes of the SGP and sought to promote a Public-Private partnership between the MoE, UNDP, RTE/RETAP and the TBPT to remove the market barriers that were hindering institutions from acquiring energy efficient stoves.

The Purpose of the Evaluation

The purpose of this Terminal Evaluation is to;

i) To monitor and evaluate results and impacts;
ii) To provide a basis for decision making on necessary amendments and improvements;
iii) To promote accountability for resource use; and
iv) To document, provide feedback on, and disseminate lessons learned.

The Evaluation Findings and Conclusions

The Market Transformation for Efficient Biomass Stoves Project was formulated in a highly participatory manner and sought to enhance and strengthen the partnerships that were initiated during the SGP project. However, some of the targets that were set in the Project Document (ProDoc) were unrealistic or over-ambitious, including the target of planting 15 million trees within the 4-year project period. Although the target of installing 3,500 stoves during the project's life was not too ambitious, it was constrained by the slow repayment of credit provided to the institutions. Therefore, although there was high demand for the stoves among the schools, RETAP did not have enough resources to purchase raw materials, as the money was tied up with the schools. The government exempted RETAP from paying the

16% VAT on stoves so that it could use this money to purchase tree seedlings for supplying schools to establish woodlots for firewood. Due to the slow pace of stove installation, there was also less resources even for the tree planting. Project stakeholders were therefore of the opinion that the revolving fund allocation should have been higher than the US$200,000 that was budgeted for.

The MSP benefited from UNDP's experience with other GEF and non-GEF projects including the GEF-KAM project that sought to remove barriers to energy conservation and energy efficiency in small and medium scale enterprises. UNDP is also using the lessons and experiences gained from the Market Transformation for Efficient Biomass Stoves project to inform the newly initiated GEF project on standards and labeling in industry for promote quality and energy efficiency in industry.

The project's implementation approach was satisfactory, since the project also dealt with some significant external challenges, despite which it was able to install 1,552 stoves and facilitate the planting of more than 500,000 seedlings. The accumulated CO_2 emissions avoided and sequestered through the project is projected to reach 16,931 tonnes at the end of the project in 2020.

The revolving fund has grown from the initial US$50,000 in 1996 to US$200,000 at the start of the MSP in 2007 and is now at US$750,000 in 2010. This growth has occurred despite the challenge of post-elections violence after the 2007 elections that resulted in some schools being vandalized and other being unable to repay their loans because of a drastic reduction in the number of students, due to the violence. Another challenge was the introduction of free primary and secondary education, because this means that public schools cannot directly levy fees on their students and instead they have to wait for government disbursements, which are often delayed, meaning that schools cannot repay their loans. RETAP is thereby targeting private schools, which are not affected by this policy.

A third challenge was negative political statements against eucalyptus, which resulted in the schools uprooting their trees or being reluctant to establish woodlots using the supplied seedlings. Some seedlings were also neglected, while others were attacked by termites and some did not thrive due to a mis-match between the species and the sites. Despite these challenges, the project employed adaptive management strategies to enable it implement activities aimed at meeting its objectives.

The MoE produced a Draft Woodfuel Strategy and Action Plan as part of this project. In addition to the draft strategy, the government has allocated more resources to biomass energy and in support of the already established department on renewable energy. The MoE also has plans to install stoves in different parts of the country, as a way of demonstrating the importance of energy efficiency in biomass use. Co-financing by the various stakeholders was as follows;

Table III: Co-Financing

Partner	Cash or In-Kind	Amount (US$)
GEF	Cash	1,000,000
RTE	Cash and In-kind	1,100,000
TBPT	In-Kind	469,319
MoE	In-Kind	408,431
End Users	In-Kind	4,250,000
	Total	**$ 7,227,750**

In addition to this co-financing, RETAP has been able to leverage additional funding, including soft loans, grants and financing to provide and install stoves.

The table below summarizes the additional funds that RETAP has leveraged to contribute to the GEF Project objectives.

Table IV: Leveraged Funds

Financier	Terms	Duration	Funds For	Amount (US$)
Ashden Trust	Grant	4 years; 2010 – 2014	Training of woodlot managers and supplying seedlings	US$100,000
OIKO Credit	Soft Loan at 11% interest	4 years: 2010- 2014	To facilitate supply of WFP Stoves	US$ 250,000
Ron and Marlys Boehm	15% p.a. simple interest due in 1 year paid monthly	From 2010	Credit scheme	US$80,000
John Swift (Swift Foundation)	8% p.a. simple interest due in 5 years paid annually	From 2010	Credit scheme	US$10,000
Alex Hartlerja (Sarana Fund)	8% p.a. simple interest due in 5 years paid annually	From 2010	Credit scheme	US$ 10,000
WFP	Successful bid for $1 million and possibilities of supplying up to $5 million	From 2010	To supply stoves to WFP supported communities	US$ 1,000,000
UNDP TRAC Funds	Grant	2010	To cover the budget short-fall	US$ 76,000
			Total	**US$ 1,526,000**

Under the project, several institutions were formed or revamped, including the Improved Stoves Association of Kenya (ISAK), the Schools Woodlots and Energy Management Network (SWEMNET), the Tree Propagators Association and the Forest Tree Nurseries Association. Through these networks, the members can forge a common vision of how to promote their collective causes, including lobbying and advocating for more supportive policies. However, the SWEMNET network was found to be over dependent on RETAP for its survival, which in the long run could mean that it fails to forge ahead, and to provide the project with the data and information from schools that is was expected to. Conversely, members of ISAK are proactively pursuing strategies to strengthen their network, because they see the benefits of being associated with RETAP and having a collective voice.

RECOMMENDATIONS

RETAP should pursue other options for gathering the requisite data and information from the schools with regard to wood consumption and the status of the woodlots because the

SWEMNET network of teachers has not been effective for this. The project should therefore establish strategic linkages with programmes that have cost-effective data collection systems, such as the International Small Group Tree Planting Program (TIST), that is part of the carbon credit market involving a network of small scale farmers in various countries, including Kenya.

RETAP should consolidate the data and information it has generated over the years, with regard to the credit scheme, energy efficient stoves and woodlot establishment. This information should then be packaged for various audiences, including those at the local (schools, end-users), national (policy makers, civil society and private sector) and internationally (policy makers, investors). The various stakeholders should discuss modalities for identifying additional resources for this activity and also the types of data to be collected and suitable packaging for the various audiences.

While it is important to promote market principles in the efficient cookstove sector, it is also important to remember that some schools and communities cannot afford these stoves, even when provided with credit. RETAP and its partners should therefore devise strategies for enhancing the access of these poor communities to these vital technologies, bearing in mind the broader goals of environmental conservation and socio-economic development. Currently, the World Food Programme is supporting schools in marginalized communities in the informal settlements and in arid and semi-arid areas to access energy efficient stoves by subsidizing the cost of the stoves so that the schools are only required to pay only part of the cost of the stove, depending of the poverty levels. For the very poor schools, WFP takes care of the full cost of the stoves.

Growing trees in arid and semi-arid areas presents some significant challenges, particularly due to the scarcity of water. RETAP should forge partnerships with institutions with the requisite knowledge and experience in water management, in order to enhance the chances of successfully establishing woodlots in the ASALs.

LESSONS LEARNED

One of the greatest successes of the RTE/RETAP project has been its ability to gradually grow, from a small-scale operation into a prominent operation specializing in fabricating and installing energy efficient stoves. When an operation starts small, it is able to consolidate its gains and to learn from its mistakes and make adjustments along the way. Stoves, woodlots and micro-finance are three aspects of the project that cannot be separated. It is therefore important for RTE, RETAP, the proposed Green Capital Micro-Finance institution and the other implementing partners, to develop the requisite capacities to meet the growing demand for these key services.

It is important to provide effective oversight to balance various interests and professional areas of expertise. Failure to do that may result in these interests competing. The private sector, with its focus on cost-cutting measures to maximize profits, may sometimes miss opportunities that may enhance its operations. Conversely, research findings can be useful in the benefits of improved stoves and woodlots. However, sometimes researchers are so focused on their research, they forget the other aspects of an operation. It is important to have a manager who can ensure that the two sides work together effectively and enhance each others' strengths while minimizing their weaknesses.

Currently, there are no standards for improved stoves. The newly launched UNDP/GEF project on standards and labeling in industry, which shall be implemented in collaboration with the Kenya Bureau of Standards, seeks to develop quality standards for energy efficient equipment. Due to its experience with institutional stoves, RETAP should also be a key stakeholder in this project, to share its experiences and gain from the outputs.

List of Acronyms

AAP	African Adaptation Programme
AMFI	Association of Micro-Finance Institutions
CDM	Clean Development Mechanism
CEF	Certified Emission Reduction
CFA	Community Forest Association
CO	Country Office
EMCA	Environmental Management and Coordination Act
ERC	Energy Regulatory Commission
FSP	Full Sized Project
GEF	Global Environment Facility
GHG	Green House Gases
IGAD	Inter-governmental Agency on Development
ISAK	Improved Stoves Association of Kenya
KAM	Kenya Association of Manufacturers
KCJ	Kenya Ceramic Jiko
KEBS	Kenya Bureau of Standards
KEFRI	Kenya Forestry Research Institute
KFS	Kenya Forest Service
KNFJKA	Kenya Federation of Jua Kali Associations
M&E	Monitoring and Evaluation
MFI	Micro-Finance Institution
MoE	Ministry of Energy
MSP	Medium Sized Project
NGO	Non-Governmental Organization
PANERECC	Parliamentary Network on Renewable Energy and Climate Change
PIR	Project Implementation Review
PMU	Project Management Unit
PSC	Project Steering Committee
R&D	Research and Development
RETAP	Renewable Energy Technology Assistance Programme
RTE	Rural Technology Enterprise
SGP	Small Grants Programme
SME	Small and Medium-sized/scale Enterprises
SWEMNET	Schools, Woodlots and Energy Management Network
TBPT	Tree Biotechnology Programme Trust
TIST	International Small Group Tree Planting Program
TOR	Terms of Reference
TRAC	Target for Resources Allocation from Core.
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax
WFP	World Food Programme

2. INTRODUCTION

The Market Transformation for Highly Efficient Biomass Stoves for Institutions and Medium-Scale Enterprises in Kenya is a 4-year Medium Sized GEF Project that was implemented from 2007 -2010. This project seeks to remove market barriers to the adoption of sustainable biomass energy practices and technologies by institutions (schools and hospitals) and small businesses (restaurants, hotels) in rural and urban areas of Kenya by (i) promoting highly efficient improved stoves, and (ii) establishment of woodlots owned and managed by the institutions and private sector. The key project indicator is the reduction of CO_2 equivalent emissions by an accumulated total of between 400,000 and 960,000 tonnes by 2020.

A mid-term evaluation of the project was conducted in November 2008 with this Terminal Evaluation taking place between November and December 2010. See Annex III for the evaluation itinerary.

2.1 Purpose of the Evaluation

The purpose of this Terminal Evaluation is to;

v) To monitor and evaluate results and impacts;
vi) To provide a basis for decision making on necessary amendments and improvements;
vii) To promote accountability for resource use; and
viii) To document, provide feedback on, and disseminate lessons learned.

2.1 Key Issues Addressed

This terminal evaluation assessed the various aspects of the project, from its conceptualization and design, implementation approach including the extent to which key stakeholders were involved and informed about the project progress, operational relations between the partners, the technical capacities and monitoring and evaluation of project progress. Issues of financial planning, such as cost-effectiveness and co-financing, were also assessed. The results that were attained by the project were assessed against the set target and the extent to which sustainability strategies have been defined to ensure that the environmental and development benefits continue after the project is over. The evaluation provided recommendations, including corrective actions for the design, implementation and monitoring and evaluation of the project, action to reinforce the benefits of the project and proposals for future direction underlining the project's main objectives. Based on consultations with project stakeholders and an analysis of the available project literature, a set of lessons were articulated. These lessons include some of the best and worst practices in addressing issues relating to relevance, performance and success of the project.

2.2 Methodology of the Evaluation

The evaluation methodology included literature review of project documents, government policies and GEF manuals. A list of the documents reviewed is provided in Annex I. Interviews were conducted with various project stakeholders including those from government, NGOs and private sector, as well as the end-users of the improved stoves, during the field visits. A list of people interviewed is provided in Annex II. A questionnaire, based on the GEF/UNDP guidelines for evaluations, was administered during the interviews and via email. The summary of the results are presented in Annex IV. Most interviews were conducted face-to-face, while a few were via telephone.

2.3 Structure of the Evaluation Report

This evaluation report contains an executive summary, which provides a brief summary of the project, what it set out to achieve and the main findings of the evaluation, including the recommendations and lessons learned. The introduction to the report includes the purpose of the evaluation, the key issues it addresses and the methodology used to evaluate the project. The project is described in section 3, including its development context and the problem it set out to address. The objectives of the project are presented, the main stakeholders and the expected results. Section 4 contains the evaluation's findings and conclusions, with regard to project formulation, implementation and results. Recommendations are given in Section 5 and lessons learned in Section 6. The annexes include the evaluation terms of reference, the itinerary, list of people interviewed, summary of field visits, list of documents reviewed and the summary of the responses to the questionnaire.

3. THE PROJECT AND ITS DEVELOPMENT CONTEXT

The *"Market transformation for efficient biomass stoves for institutions and small and medium-scale enterprises in Kenya"* was a four-year Medium Sized GEF Project that was implemented from 2007 to 2010. The anticipated closing date of the project is December 2010. The key project indicator is the reduction of CO_2 equivalent emissions by an accumulated total of between 400,000 and 960,000 tonnes by 2020. Therefore, many of the benefits of the project, such as from the stove installations and tree planting components, will accumulate over a period of time during and after the project.

The GEF project brief and project documents were developed in 2003 after broad consultations between the consultant and the Ministry of Energy, RETAP as the Implementing Partner, UNDP country office and a broad range of stakeholders from government, civil society and private sector institutions.

The period under review in this evaluation was the full duration of the project from the project conceptualization and design stage, between 2003 and the project start date of 2007 to the final closure in December 2010.

The project built on and scaled up a successfully implemented GEF Small Grants Programme (SGP) project of 1996, in which a revolving credit fund was established to facilitate the dissemination of energy saving woodfuel stoves to institutions in Kenya on a commercial basis. It builds on various initiatives of local non-governmental organizations (NGOs) and private sector players and scales up successful existing business models by removing barriers which are currently limiting the growth of this market.

3.1 Problems that the project sought to address

In Kenya, biomass fuel, which includes firewood, charcoal and crop residue, is the largest form of primary energy used. Estimates indicate that the ratios of energy consumed in Kenya are Biomass 68%; Petroleum 22%; Electricity 9% and Others (including solar and wind) 1%[1]. Some studies have shown that rather than decrease, the overall energy consumption of biomass energy, in proportion to other energy forms, has actually increased in the past two decades, from 74% in 1980 to 80% in 2000.[2] Over 95% of about 20,000 institutions (schools, colleges, hospitals) in Kenya rely on fuelwood as the main source of energy for cooking and heating water. Despite these realities, the official government policies have tended to focus more on electricity and oil, with less emphasis placed on the development of renewable

[1] http://www.reeep.org/index.php?id=9353&text=policy&special=viewitem&cid=54 downloaded on November 18th 2010.
[2] Ministry of Energy, 2002, Study on Kenya's Energy demand, supply & policy strategy for households, small-scale industries, & service establishments, Final Report, Kamfor Ltd, Nairobi.

energies, especially biomass. For example, the earlier drafts of the energy bill devoted about 90% their contents to petroleum issues and it is only after lobbying from the relevant stakeholders that the issue of renewable energy was given some attention in the finalized Energy Act of 2006. Further, it is only later that there has been a renewed policy focus on biomass energy, within the broader category of renewable energies, which include solar, wind and geothermal energy.

According to RETAP, several schools have switched from the use of steam boilers that relied on industrial oil to fuelwood, which is cheaper. These include prominent schools that were established before independence, such as Kenya High School, Moi Nairobi Girls, Ngandu Girls High school, Alliance Boys and Girls Schools. Similarly, others have switched from Liquid Petroleum Gas (LPG) to fuelwood, to cut costs, such as Mangu High School and Moi Forces Academy. These trends indicate that Kenya, like most other sub-Saharan Africa, will remain largely reliant on solid biomass fuels for many years to come. Further, after the liberalization of the energy sector in 1994, the prices of petroleum products, including LPG have been rising sharply, since government price controls of petroleum products were removed.

In the 1980s, there was a focus on biomass energy, especially as it became clear that the prevailing technologies for wood and charcoal were extremely wasteful and resulted in significant deforestation around the country. At the domestic level, the Kenya Ceramic Jiko (KCJ) has been hailed as Africa's most successful fuel-efficient stove programme, with nearly 1.5 million domestic fuel-efficient stoves sold commercially without subsidies in Kenya since the mid-1980s[3]. Further, by 2000, it was estimated that 10-15% of educational institutions had switched from the traditional, inefficient open-fire to fuel-efficient institutional biomass stoves within the last two decades[4].

Several institutions and private sector companies were responsible for promoting energy efficient cookstoves, both for domestic and institutional use. Key among these was the Kenya Energy Non-Governmental Organizations (KENGO), which focused mainly on the KCJ and other domestic stoves, and the Bellerive Foundation, that focused on institutional stoves. A wide range of development partners, such as GTZ, Ford Foundation, CIDA, SIDA and USAID, have provided significant support to the growth of energy efficient technologies, through their support for training and infrastructure development, such as construction of efficient kilns, research and development of technologies and quality improvement and control. While there is a wide range of domestic stove producers, ranging from large-scale producers to small-scale rural based producers, such as women groups, there are relatively fewer producers of industrial stoves, partly because of the significantly higher investments needed to produce institutional stoves. Currently, the three prominent private sector producers of industrial stoves are the Rural Technology Enterprise (RTE), Botto Solar and Bell Energy Saving.

Institutions consume significant amount of firewood, with higher estimates indicating up to 30 tonnes of fuelwood per month (or 270 tonnes/year). With the sustainable supply of wood estimated to be about 15 million tonnes per year, against a demand of 35 million tones, most of the wood consumed by institutions and businesses, that require a supply of large logs, is unsustainably harvested. The environmental damage is significant considering that the wood

[3] Karekezi, S., 2002, Renewables in Africa – meeting the energy needs of the poor, Energy policy, 30 (2002), 1059-1069, Elsevier Ltd.
[4] RETAP, 2000, Report on monitoring & evaluation of RETAP projects, Nairobi

is harvested in bulk (i.e, logging mature trees) including the indigenous and threatened species such as Camphor (*Ocotea usambarensis*), Cedar (*Juniperus procera*), Wild Olive (*Olea europaea*), Meru Oak (*Vitex Keniensis*), Podo (*Podocarpus latifoli*us), East African Rosewood (*Hagenia abyssinica*), Croton (*Croton macrostachyus*), Mugumo (*Ficus thonningii*). These are hardwood species preferred for their high calorific value. Poaching of trees is often accompanied by the poaching of wild game, including big mammals such as elephants, rhinos and gazelles, which in turn results in the loss of biodiversity.

Origins of the Project

The Rural Technology Enterprises (RTE) was established as a private business in the early 1980s, to produce and supply energy efficient stoves, with a focus on institutional stoves. Although there was adequate demand among institutions for improved stoves, they were constrained by financial resources, therefore, many of the institutions were failing to honor their commitments to pay for the stoves, once they were installed. Further, the schools often did not have lump sums of money to pay for the stoves since they relied on remittances from schools fees that came in bits, during certain times of the year. Efforts by RTE to secure financial resources to inject into its business of institutional stoves started in 1984, when it successfully applied for a Ksh. 5,000 from Kenya Industrial Estate, with repayments of Ksh. 400/month.

RTE had been supplying institutional and domestic stoves on a purely commercial basis when it won the Golden Award for Excellence in Indigenous Innovation in the Energy Sector in 1988, during celebrations to commemorate 25 years since Kenya attained its independence. It also attracted the attention of the GEF/UNDP SGP coordinator, and as a result of discussions, the Renewable Energy Technology Assistance Programme (RETAP) was registered as an NGO to manage a revolving fund credit scheme that was set up with seed funding of $50,000 from GEF/UNDP SGP. These funds were to facilitate repayment by schools, since they would then be able to make repayments over a 2-year period. These repayments could then be scheduled to coincide with their school calendars and the time parents would pay school fees. Further, with energy efficiencies of about 70%, the schools could be able to pay for the stoves with the savings they would make on firewood over a 2-year period. Initially, RTE/RETAP targeted schools in the Mt. Kenya region.

A second grant from SGP and one from the Ashden Trust was used to introduce a tree planting component. Woodlots of fast growing exotic species, particularly eucalyptus, were planted in idle land within the school compounds, which would then eventually supply firewood for the school kitchens. Over the ten year period between 1996-2006, RETAP also attracted other sources of funding, both as grants and soft loans as follows;

Table I: Support Provided to RETAP from 1996 - 2007

Year	Partner	Support ($)	Use
1996	GEF/UNDP SGP	50,000	Seed funding for Revolving Fund Credit Scheme
1996	CIDA	9,091	To install stoves in western province
1997	Kenya Gatsby Trust	30,000	Loan repayable at 13% p.a.
1998	Kenya Gatsby Trust	33,333	Loan repayable at 13% p.a.
1999	Staples Trust	21,666	For training and evaluation
2000/2001	Ashden Trust	6,410	For training
2001	Ashden Trust	25,000	Renewable Energy Award to RETAP
2002-2004	SGP/COMPACT	45,000	Eco-Schools project, with stoves and woodlots around Mt. Kenya
2002-2004	Ashden Trust	40,000	For the woodlots in the Eco-Schools around Mt. Kenya
2007-2010	GEF/UNDP MSP	1,000,000	Scaling up of the SGP project
		1,260,500	

In 2001, RETAP was the winner of the Ashden Trust Renewable Energy Award of 15,000 Sterling Pounds. With these resources, RETAP enhanced its programme of installing energy efficient stoves in schools, while providing them with seedlings and training on how to establish their own woodlots. From 2003 – 2007, RETAP had facilitated the planting of over 100,000 seedlings in 50 schools around Mt. Kenya, which also purchased one or more energy efficient institutional stoves and provided training for the woodlot managers.

The GEF MSP

From 2003, RETAP initiated the development of a GEF MSP, with the aim of scaling-up what it had done on a small scale up to then, by building on and strengthening business models which have contributed to the significant achievements that had been made. This was the first SGP project in Kenya to graduate to a MSP and it aimed at enhancing access to energy saving stoves to needy schools, which could not afford to make full payments up front while facilitating them establish woodlots, from which they could get their supply of firewood. The project thereby aimed at reducing the emissions of Green House Gases (GHGs) through the use of the efficient stoves and sequestering CO_2 through the woodlots.

In Kenya, Small and Medium Enterprises (SMEs), particularly the restaurants and hotels, mainly rely on firewood. Their unique cooking needs, such as multiple orders placed by clients often result in kitchens that have several cookstoves, each with a separate dish or order. RTE has designed a multiple burner stove that caters to the needs of SMEs and which can also be repaid for using the revolving credit fund.

According to R. Bailis et. al., household indoor air pollution will cause an estimated 9.8 million premature deaths in Africa by the year 2030.[5] This situation could be significantly improved through the adoption of energy efficient and less polluting technologies. Although complete combustion of biomass produces little more than CO_2 and water, traditional combustion in an open fire or simple stove results in substantial products of incomplete combustion (PICs)[6] – including methane, CO and non-methane organic compounds. Indoor

[5] Bailis, R., M. Ezzati, and Daniel M. Kammen, (2005) "Mortality and Greenhouse Gas Impacts of Biomass and Petroleum Energy Futures in Africa" USA.

[6] Smith, K., D. Pennise, P.Khummongkol, J. Zhang, W. Panyathanya, R.A. Rasmussen, and M.A.K. Khalil, (1998) Greenhouse gases from small-scale combustion devices in developing countries: Phase III: Charcoal Kilns in Thailand, Summary of Complete Report for USEPA (Nov 1, 1998)

pollution from traditional three-stone stoves and inefficient stoves, and the respiratory and other health problems are significantly reduced with the proper use of the efficient stoves. If effectively installed and utilized, efficient stoves eliminate smoke because they are fitted with a chimney, result in cleaner kitchens and better cooked meals that are reported to be tastier that those cooked on traditional cook stoves.

3.2 Project Goal and Expected Results

Project Goal: The overall project goal is a sustainable reduction of GHG emissions through a transformation of the institutional and small, medium and micro enterprise high-efficiency stove markets. The target is an accumulated total of between 400 000 and 960 000 tonnes CO_2eq by 2020.

Expected Project outcomes and outputs included:

Outcome 1: Supportive policies and legal framework for sustainable biomass energy businesses developed and strengthened:

- Output 1.1: Policy dialogue facilitated for increased co-ordination between government sectors,
- Output 1.2: Coordination and strengthening of parliamentary support for biomass energy legislation

Outcome 2: Supply chains for both products and financing are strengthened and expanded:

- Output 2.1: Delivery infrastructure for seedling supply established with appropriate revenue and financing structures (mini-nursery pilots for seedling sales),
- Output 2.2: Increased liquidity in the institutional, small business (SME) and formal household stove markets,
- Output 2.3: Reduced product and service costs,
- Output 2.4: Business models improved and replicated

Outcome 3: Policy makers, financial sector, suppliers and end-users are convinced of benefits and market opportunities for improved stoves:

- Output 3.1: Exploitation of applications to drive market growth and create volume,
- Output 3.2: Information on costs and benefits of technologies well known,
- Output 3.3: Users trained in biomass energy saving techniques and forest management

3.3 Main stakeholders

The main stakeholders were the Global Environment Facility (GEF) which made an investment of US$1,000,000 to the project so that it could contribute to global environmental benefits in the GEF's two focal areas of Climate Change Mitigation and Biodiversity Conservation.

The UNDP Kenya Country Office is the GEF Implementing Agency that provided institutional support for the implementation of the project. UNDP co-chaired the Project Steering Committee (PSC) with the Ministry of Energy. UNDP provided logistical support

and monitored project progress against the defined targets and ensured that the project was well managed.

Within the Government of Kenya structure, the project is implemented by the Ministry of Energy (MoE) which co-chaired the PSC with the UNDP Country Office. The MoE led output 1.1 of the project, which aimed at enhanced policy dialogue and coordination between government sectors in support of conducive policies and legal framework for sustainable biomass energy business development. Other government ministries and agencies included those in charge of public finance, forestry, environment, health, education, industry and agriculture.

The project targeted the Parliamentary Network on Renewable Energy and Climate Change (PANERECC) to lobby for the enactment of relevant policies and laws in support of biomass energy and other renewable energies.

The Tree Biotechnology Programme Trust (TBPT) is a public-private partnership which has the goal of promoting biotechnologies in forestry in Kenya. TBPT's trustees include the Kenya Forest Service (KFS), the Kenya Forestry Research Institute (KEFRI), the Gatsby Trust, Mondi Business Paper of South Africa, the International Services of Agri-biotechnology Applications based in the USA, Kenyatta University, Business Council of Kenya and private forest growers. TBPT provided high quality tree seedlings, particularly of eucalyptus, for the establishment of woodlots and training for woodlot managers.

The Renewable Energy Technology Assistance Programme (RETAP) was the executing agency, and hosted a Project Management Unit, that included the Project Manager, National Technical Officer and financial and administrative staff. The Project Management, in collaboration with other institutions was instrumental in the establishment of institutional structures that would contribute to project sustainability. These included the Schools, Woodlots and Energy Management Network (SWEMNET) which is a network of representatives of schools that have installed energy efficient stoves and that have established woodlots. SWEMNET vision is to enhance the up take and effective use of improved energy saving technologies in schools and to promote the establishment and maintenance of woodlots in schools, to supply fuel wood and other needs at the schools. The Improved Stoves Association of Kenya (ISAK) is a registered association of producers, marketers and installers of energy efficient stoves. The formation of ISAK was facilitated by the Kenya National Federation of Jua Kali Association, which brings together the various players in the informal sector. TBPT has promoted the formation of the Tree Propagators Association and the Kenya Forest Growers Association, the latter being specifically for private nursery and woodlot operators whose focus is forest trees as opposed to flowers and/or ornamental trees.

The Rural Technology Enterprise (RTE) is a private sector company that fabricates and installs energy efficient institutional, SME and domestic stoves. RTE coordinated the production and quality control of stoves installed under this project. It brought on board various small-scale producers, especially under the umbrella body, ISAK.

The Association of Micro-Finance Institutions of Kenya (AMFI) brings together various institutions that provide both savings and credit facilities. During the life of this project, RETAP got registered to be a member of AMFI. Through AMFI, RETAP established linkages with OIKO CREDIT, an ecumenical wholesaler of micro-credit based in the Netherlands which loaned RETAP Ksh. 20 million ($ 250,000) to leverage the operations of the revolving credit fund.

The United Nations World Food Programme (WFP) has since the 1900s financed the installation of RTE stoves in schools under its feeding programme. In 2010, RETAP won an open bid to supply stoves for WFP supported schools to the tune of US$200,000. These funds are part of WFP's portion of funds provided by the Japanese government through the African Adaptation Programme (AAP), that is being implemented in Kenya by UNDP, UNIDO and WFP. RETAP also successfully put in a bid for the remaining US$800,000 that is earmarked for supplying stoves to marginalized communities in urban informal settlements and the arid and semi-arid areas (ASALs). WFP, UNDP and RETAP have signed a Memorandum of Understanding (MoU) to guide this process. More recently, in November 2010, WFP has also indicated that RETAP be contracted to supply up to US$5 million worth of stoves under its school feeding programme.

RETAP/RTE is collaborating with Paradigm Project and Impact Carbon, through their local partners World Vision, Food for the Hungry and Compassion International to disseminate the *Envirofit* domestic stove and also produce a local replica called *Jikopoa*.

Safaricom, the largest mobile phone provider in Kenya has provided RETAP with a "Pay Bill" account, through which stove customers can make their payments, using its MPESA money transfer service.

At the regional level, RETAP collaborates with the Inter-Governmental Agency on Development (IGAD), that is an seven-member agency for countries in the Horn of Africa; Djibouti, Ethiopia, Eritrea, Kenya, Somalia, Sudan and Uganda. As part of IGAD's programmes, RETAP/RTE have hosted communities in IGAD member states to visit their workshop and schools with installed stoves. The training conducted by RETAP/RTE has resulted in the fabrication of stoves to suit the varied menus of the different countries, including for making meals such as matoke (steamed bananas) and *Injera (*traditional Ethiopian bread). These stoves have then been tested in the universities of the respective countries and production units established.

Consultants were sub-contracted under the project to carry out analyses and reviews for many of the project outputs, including the methodologies for calculating carbon emissions and avoidance from the use of improved stoves and the establishment of woodlots, develop a draft woodfuel strategy and action plan for consideration and eventual adoption by the MoE and on strategies for reducing the costs of stoves. The training aspects of the project, including for woodlot managers, cooks, cateresses and marketers was also done by consultants, as were the mid-term and terminal evaluations.

Three students, from Kenyatta University, Nairobi University and University of Auckland, New Zealand, studied various aspects of the project as part of their Master studies.

4. EVALUATION FINDINGS

4.1 Project Formulation

The project formulation was highly participatory, since it built upon the partnerships that had been established during the implementation of the SGP projects, that provided a seed fund of $50,000 for a revolving credit fund in 1996 and the Eco-Schools project implemented by RETAP with funding from SGP/COMPACT and the Ashden Trust between 2002-2004 to the tune of $85,000. Most of the key stakeholders on the MSP were part of the SGP project, including GEF, UNDP, RTE, RETAP, TBPT and the MoE. The SGP also provided relevant data and baseline scenarios, such as fuel consumption rates of typical schools and the energy efficiencies of the various technologies used, that were used in the design of the MSP.

4.1.1. Conceptualization/Design (R-Satisfactory)

Interviewed stakeholders considered the approach that was used in designing the project to be appropriate, as it used the experiences and partnerships that were developed during the SGP and up scaled them. Therefore, the problem was well conceptualized. Further, the International Consultant who was contracted by UNDP to facilitate the process was highly professional and used participatory approaches effectively.

Several respondents pointed out that some of the targets that were set during project formulation were unrealistic or over-ambitious. For example, the end-term target of 15 million tree seedlings to be planted within the project's life was unrealistic. First, the logistics involved in sourcing for this number of seedlings would be both expensive and complicated, given that the TBPT also has a finite capacity to produce the high quality eucalyptus clones that are being promoted for woodlots established for firewood.

The budget for seedlings was US$100,000, which was to be augmented by the 16% VAT exemption, as these resources were to be channeled to tree planting. On the face of it, these resources could have been enough to cover tree planting (16% of 3,500 stoves x Ksh. 100,000 per stove = Ksh. 56 million). In reality, the pace at which RETAP/RTE could supply the stoves was constrained by the slow repayment of schools, thereby, they ended up supplying only about 300 stoves per year in the first three years of the project. The savings that were then being made through the 16% VAT exemptions were being eroded, as RETAP's money was tied up with the schools that were yet to pay for installed stoves. The finances for the tree planting component therefore ended up not being adequate, which forced RETAP to fund-raise for additional resources to support this component. Eventually, the Project has planted about 500,000 seedlings with an estimated survival rate of 60%.

The project's design to provide free seedlings with the stoves has some shortcoming in that some schools neglected the seedlings and/or diverted them to their homes. In retrospect, RETAP should have charged the schools for the seedlings, as this would have enhanced the chances of only those schools that were committed to planting and maintaining them would have bought them. The charge for the seedlings could have been tied up with the loan payments, with the schools planting the seedlings getting a discount.

With regard to the target for stove installation, the target was to install 3,500 stoves during the project period, with half of these being the mid-term target. By November 2010, the project had installed 1,552 stoves, less than the mid-term target. This target was unrealistic and the activity experienced major constraints, such as slow repayment of loans by schools. The pace of installation picked up after the initial systems were put in place and the raw

materials purchased. Therefore the targets should have been progressively increasing with more stoves installed in the latter part of the project, when systems would be up and running.

The total budget for stoves was US$200,000 or Ksh. 16 million. At an average of about Ksh. 100,000 (US$ 1,250) per stove, this translates to about 160 stoves only. Even with the existing revolving fund, that was about US$200,000 at the start of the project in 2007, there were inadequate resources to meet the 3,500 stoves target. Conversely, when the financial resources are available, as is the case with the WFP contract, RTE is able to produce up to 400 stoves per month. Therefore, to date, the limiting factor with regard to stove production has been the revolving credit fund. In light of this, the budget for the revolving fund should have been higher.

The project faced some very challenging external circumstances, which could not have been anticipated or planned for during project formulation and yet had a significant, and negative, impact on the project. Key among these was the post-election violence that affected the country in 2008 and that resulted in the death of about 1,300 people and the displacement of more than 600,000 people. In addition to slowing down project implementation, the violence resulted in the vandalism of installed stoves and the displacement of communities, which in turn resulted in some schools losing their student population, thereby making it even more difficult for them to repay their loans.

Another challenge was the drought of 2008/2009, that made tree planting stall. The statements that were made by prominent politicians against the eucalyptus trees also significantly affected the rate at which the woodlots could be established and cared for. In some instances, schools uprooted established woodlots.

4.1.2 Country-Ownership/Driveness

The Market Transformation for Efficient Biomass Stoves project addresses several pressing needs in Kenya. Key among them is the limited availability of affordable, energy efficient technologies and the need to conserve the remaining forest resources. Kenya being a forest-poor country, with only about 1.7% of the country under forests, there is need to reduce pressure on the existing natural forest. By reducing the amount of wood used in cooking by institutions, SMEs and at the domestic level, the project is contributing to climate change mitigation, through avoidance and also by sequestration of CO_2 by the woodlots being established. Through the use of fast-growing commercial species of trees in the woodlots, the project is able to reduce the felling of indigenous tree species and thereby conserve the biodiversity of the natural forests. By having readily available wood for fuel on the school compounds, emissions from the transportation of fuelwood to the schools are reduced or eliminated. The project started with schools around Mt. Kenya, which is a UNESCO designated World Heritage Site and has been expanded to other parts of the country, some of which have significant natural forests, such as Kakamega Forest and the Mau Complex. Kenya's natural forests are water catchment areas for hydro-electric dams, which supply the bulk of electricity to the country.

Commitments that demonstrate the relevance of this project to the country include, Kenya's ratification of the UNFCCC in 1994 and the hosting of the first UN Conference on New and Renewable Sources of Energy held in Nairobi in 1981. Kenya is also committed to implementing the Millennium Development Goals (MDGs), and has recognized that reliable, efficient and affordable biomass energy supply and consumption help lessen the burden and time-consuming labour thereby releasing time for people to engage in productive activities which help generate income and reduce poverty. Reducing the workload placed on women

also fosters gender equality and helps empower women. The health benefits of energy efficient technologies accrue to both men and women, in institutions, SMEs and at the domestic level.

At the macro-policy level, Kenya's Vision 2030 aims to promote equitable access to quality energy services at the least cost while protecting the environment. The Energy Act of 2006 recognizes the role played by biomass energy and recommends a biomass energy strategy that will include a mix of tax incentives, resources for R&D and dissemination of appropriate technologies. Part V on Renewable Energy, Energy Efficiency and Conservation stresses the need for adoption and promotion of renewable energy technologies and the development of appropriate mechanisms and response strategies to manage GHG emissions. It seeks to promote sustainable development without compromising on decreasing GHG emissions.

At the implementation level, the Ministry of Energy has a Department of Renewable Energy, part of whose mandate is to promote improved biomass energy technologies. Activities are regularly budgeted for in the annual budget estimates. This Department operates twelve field stations through which biomass and other renewable energy technologies are disseminated. In 2010, the Ministry included biomass issues as a component of the draft Biofuels Policy. As part of this project, the MoE developed an Integrated Woodfuel Development Strategy for Kenya. The Ministry started an improved institutional stoves programme during the 2010/2011 financial year based on the experiences of this project. Initially, 24 schools will be supported and thereafter upscaling will be done based on the experiences with this schools. Further, biomass energy is gaining prominence in policy dialogue. For example, the government, through the Ministry of Forestry and Wildlife has gazetted guidelines for the production and marketing of charcoal.

Political pronouncements about the impacts of eucalyptus on the environment, including assertions that it takes up a lot of water as it grows has had a negative impact on the Market Transformation for Efficient Biomass Technologies project. In some schools the trees were uprooted from the established woodlots, while in other schools there was reluctance to plant the seedlings. Due to the many, and sometimes conflicting messages, coming from politicians, scientists and policy makers, the Kenya Forest Service has produced guidelines and is in the process of developing a policy on eucalyptus.

The government is in the process of implementing the National Climate Change Response Strategy and Action Plan that was developed in 2009, which recognizes the critical role played by biomass energy in both climate change adaptation and mitigation.

4.1.3 Stakeholder Participation (R – Satisfactory)

There was a high level of involvement of the relevant stakeholders, including UNDP, MoE, RTE, RETAP and TBPT during the design stage. However, due to the design of the project, there was a limit to which it could involve all relevant stakeholders during the formulation stage. For example, the project needed to sub-contract several national and international consultants to undertake specialized studies and this could only be done after the project was formulated. Staff turnover in the various institutions also resulted in a certain loss of institutional memory, in that some of the stakeholders who were involved in the formulation stages were not available during the terminal evaluation. Further, some key stakeholders were not as effectively involved in the formulation stage, simply because they had not yet formed relevant institutions, through which they could be involved. For example, the teachers are key stakeholders in this project. However, their network, SWEMNET was only formed after project implementation was well under way. Similarly, the Improved Stoves Association of

Kenya (ISAK), that is made up of stove manufacturers, installers and marketers, as one of the outputs of the project.

4.1.4 Replication Approach

The Market Transformation for Efficient Biomass Stoves Project set out to upscale an existing business model, in which a private company, RTE, was collaborating with an NGO, RETAP to disseminate energy saving stoves to institutions on a commercial basis in Kenya, while providing the schools with seedlings to establish woodlots to provide them with fuelwood. The seedlings were supplied by TBPT, a Public-Private Trust. Under the MSP, this model was strengthened by having a strong Public-Private Partnership approach, whereby the MoE took a lead role in using the experiences and lessons from the Project to strengthen the legal and policy framework. The government also waived the 16% VAT charged on cookstoves, with the money being used to purchase tree seedlings. Further, small and medium enterprises (SMEs) were also targeted as was the domestic market. Under this project, this model has been refined, through the lessons learnt and is being further upscaled, through the creation of an autonomous Micro-Finance Institution – the RETAP Green Capital, that will have aspects of both savings and credit. Private sector investors have also added to the credit facility kitty. The success of this model has made the other large stove producers, who face the same constraints as RTE, to start lobbying for the government and other institutions to avail funds at low interest that they can use to promote energy efficient stoves. They also recognize that the market is largely unmet, and the current demand in the country and in the region cannot be met by one producer – especially at the current rates of production and automation.

The lessons from the Project have been used to informed other projects, including the UNDP/GEF Standards and Labeling Project and the African Adaptation Project. The WFP component of the AAP is being implemented through a collaboration with RETAP, whereby energy efficient stoves are being implemented the school feeding programmes in marginalized communities in the ASALS and in informal urban settelements.

4.1.5 Other Aspects

In its role as the implementing agencies for the GEF/SGP, UNDP had the opportunity of learning from SGP funded project that was the precursor of the MSP. Other relevant projects include the GEF FSP project on cross-border biodiversity conservation that was managed by UNDP. Therefore, UNDP's Kenya Country Office has the relevant experience and knowledge to manage the Market Transformation for Efficient Biomass Stoves Project.

During project formulation, UNDP brought on board personnel who had been involved in other GEF and UNDP projects that were relevant to the Market Transformation for Efficient Biomass Stoves, such as the GEF-KAM (Kenya Association of Manufacturers) project that was a GEF Full Sized Project on "Removal of Barriers to Energy Conservation and Energy Efficiency in Small and Medium Scale Enterprises (SME)". The former Project Manager of the GEF-KAM was invited by UNDP to serve on the Market Transformation for Efficient Biomass Stoves project's PSC, thereby enhancing learning between the two projects. Similarly, UNDP has plans of using the lessons learnt from this Project in its newly launched GEF project on standards and labeling in industry, which shall be implemented in collaboration with the Kenya Bureau of Standards and which seeks to develop quality standards for energy efficient equipment.

UNDP has the Sustainability Unit which implements a number of projects on energy and climate change and therefore the staff are well versed with the public and private sector

partners in the energy and environment sectors. This facilitated proper selection of key stakeholders and definition of roles of each stakeholder within the management structure.

There are some issues that affected the Project but were beyond its control, such as the negative political statements about eucalyptus. UNDP has formal and informal avenues for lobbying politicians and other policy-makers and greater access to them than the RETAP Project staff. Similarly, UNDP is using a diverse range of forums to highlight the role of biomass energy in the country and to advocate for greater attention from the policy makers for efficient biomass technologies.

4.2. Project Implementation

The Market Transformation for Efficient Biomass Stoves Project was implemented through a Project Management Unit (PMU) that was housed within the NGO RETAP, which was responsible for overall project coordination. Expert and policy guidance was provided by a Project Steering Committee made up of members of government, UNDP, civil society, research institutions, private sector, and other relevant stakeholders. This group is co-chaired by UNDP and the MoE. Ultimate responsibility for day-to-day decisions lay with the PMU, which was equally responsible for delivery of project outputs. The PMU also ensures collaboration with key partners, such as the TBPT, stove producers, local and international consultants and the ultimate users.

4.2.1 Implementation Approach (R – Satisfactory)

The implementation approach was considered satisfactory, given the many internal and external challenges that the project faced and the manner in which it dealt with them to achieve its objectives as stated in the project document. Further, because of the focus on achieving tangible results, this project has the potential to generate benefits into the future and also to provide many opportunities for documenting lessons and collecting relevant data that can illustrate its achievements, even after the project comes to an end.

4.2.1 a. Use of the Logical Framework as Management Tool

The logical framework defined three main outcomes, with several outputs under each of the outcomes. Respondents indicated the logical framework was used by the PMU mainly for reporting to UNDP. However, reporting to UNDP was only up to outcomes level. Therefore, although there were some clearly defined targets under each output, these were not consistently reported on, apart from the figures for stove installation and seedlings planted. For example, Output 2.2: Increased liquidity in the institutional, SME and formal household stove markets, had a mid-term target of “commercial loans to companies providing stove production, hire-purchase and marketing services increased by a factor of 2 over start of project baseline” which was not reported on.

Further, although mid-term and end-term targets and indicators were defined in the logframe, there were no activities specified under each of the outputs. In addition, it was difficult to translate some outputs/targets into actionable activities; e.g. the target to increase commercial loans by a factor of 10% over the start of the project. During project implementation, it became apparent that certain targets could not be met, such as a reduction by 20% in the cost of stoves delivered through the project. The increasing cost of raw materials, such as stainless steel, has made it impossible to actualize this target.

There was less use, and familiarity of the logical framework among the various partners, including some members of the PSC, consultants, and representatives of stove producers and teachers. The project was having challenges meeting the key quantifiable targets, on stoves,

tree seedlings planted, tree nurseries established, newsletter updates and number of parliamentarian meetings convened. The other targets needed surveys in order to determine whether or not the targets had been reached, including enhanced awareness, commercial loans to stove producers increased, reduction in the cost of stoves and analytical studies on the costs and benefits of institutional stoves. However, because of budgetary constraints and challenges of finding competent consultants to conduct these studies, the PMU had difficulties reporting on these indicators. For example, the consultancy on strategies for reducing stove costs by 20% was never completed by the consultant, after it was discovered that it was highly unlikely for the project to meet this target, or indeed to lower the costs of stoves at all. Overall, there was a general feeling that the logical framework had rather ambitious targets, some of which could not be measured during the life of a four-year project.

4.2.1 b. Employment of Adaptive Management Strategies

Despite the many challenges the Project faced, there were efforts at adaptive management with the PSC holding yearly meetings on schedule and reviewing the project's progress and making recommendations to the PMU. After the mid-term evaluation, the PMU reported back to the PSC on the strategies they were using to respond to the evaluation and to implement its recommendations.

4.2.1 b. i) Post Election Violence

This project faced some significant external challenges that called for a high level of adaptive management. Key among these was the post elections violence after the 2007 general elections, whereby people were killed, communities displaced and property destroyed. The PMU had to make some quick decisions based on the changing situation on the ground, such as re-allocating staff to different areas based on the existing ethnic dimensions and changing the schools they were to deliver seedlings to. Several stoves were vandalized, although they had yet to be fully paid for while other schools lost their student population and had to shut down or downscale. RETAP has made decisions on a case-by-case basis about how to deal with the loan repayment schedules of the schools that were affected, ranging from giving the schools more time to repay the loans to considering possibilities of eventually repossessing the stoves, especially when they are no longer in use due to low student numbers.

4.2.1 b. ii) Free Primary Education

Another challenge has been the free primary and secondary school education programme which means that the schools cannot charge fees directly and have to wait for government disbursements of finances to cover the up keep of the students. There have been delays in these disbursements, which has meant that the schools are then unable to meet their financial obligations including for servicing their stove loans. In response to this challenge, RETAP is targeting private schools, which do not have similar challenges because they are able to collect fees directly from parents/guardians, including for paying for equipment upgrades.

4.2.1 b. iii) Negative Political Statements on Eucalyptus

The negative political statements against the eucalyptus trees that the programme was promoting for woodlots to supply the schools with firewood has also dealt a significant blow to the programme and slowed down the pace at which seedlings are being replanted or looked after. In a bid to counter this negative publicity, KFS has produced some guidelines on the planting of eucalyptus. Another challenge that affected tree planting was the drought of 2009, coupled with erratic rainfall during the projects life-span. In these cases, the PMU in collaboration with the PSC have made decisions to delay tree planting until more conducive periods based on the rainfall. The tree seedlings were also negatively affected by termite attacks, the mis-match of species and sites and sometimes due to sheer negligence on the part

of the schools. In some cases, the schools were only interested in the stoves, but not in the tree seedlings.

4.2.1 b. iv) High Staff Turn Over

Other factors that have affected stove installation and tree planting include a teachers strike in 2009 which made it difficult for RTE to market and install stoves due to the tense situation in schools. Another factor is the high staff turnover, especially within RTE and RETAP, including of marketing staff, some of whom have gone to join other stove producers or to set up their own stove production facilities. There were also changes within the PMU, with the initial two technical advisors leaving for other assignments and for further studies, respectively. The third NTO also left before the end of the project, leaving a gap that was difficult to fill, especially because of budgetary constraints and the short remaining time till the project's end.

4.2.1 b. v) Disbanding of the Parliamentary Network on Renewable Energy

Efforts to lobby for the support of Members of Parliament (MPs) were negatively affected by the disbanding and later reconstitution of the Parliamentary Network on Renewable Energy and Climate Change (PANARECC). Since there was no suitable avenue to engage the MPs, coupled with their focus on other political priorities, such as the possible prosecution of perpetrators of post election violence by the International Criminal Court (ICC), the constitutional referendum and the 2012 general elections, Output 1.2 on coordination and strengthening of parliamentary support for biomass energy legislation lagged behind.

4.2.1 b. vi) Operational Relationships Between Institutions

The general operational relationship between the institutions involved has been satisfactory. Key among this is the relationship between RTE and RETAP. While on the one hand some have questioned the close relationship between these two institutions as a shortcoming, for the project it has worked positively to contribute to effective implementation of the project and the achievement of project objectives. By having a project manager who is directly involved not only in the production of the stoves but also in the credit scheme has ensured that these two critical aspects of the project were not neglected. Further, the Project Manager has been constantly on the look out for funding opportunities in support of the credit scheme, which has then ensured that stove production and installation could continue throughout the project and not stop due to challenges faced by schools in their loan repayments.

With regard to stakeholder roles, unfortunately there was some lack of clarity about the role that TBPT was to play in the project, with expectations being that they would handle all aspects of training on woodlot management issues, while some members of the PMU seeing this as a role that should be better handled by teachers through their network, while other stakeholders proposed that consultants provide this training. In addition, the mid-term evaluation noted that RTE used the marketing staff to promote tree planting and yet they were not well versed with the technical aspects of tree planting, such as site/species matching and pest control.

The relationship between the Project and other stove producers is mixed. Many members of the newly registered Improved Stoves Association of Kenya have benefited directly from the project, because they have been called upon to augment RTE's production capacity to meet the increased orders for stoves. Therefore, they are positive about the project and appreciate that RETAP has provided them with a secretariat at its offices. On the other hand, some of the larger producers of stoves feel that the project has given RTE, their competitor, an unfair advantage over them. They cited issues such as the waiving of the 16% VAT on stoves as

some of the unfair advantages that RTE has over them. They would also like to access resources from the revolving credit scheme, as the lack of credit facilities to extend to their customers is one of the major constraint they face. Instead, they are sometimes forced to borrow from commercial banks, which have stringent repayment terms and high interest rates. One large stove producer reported that they can only provide a maximum of one month credit facilities to their customers because beyond that then they would not be making any profit. Therefore, they would appreciate being able to provide credit of up to 2 years as RETAP currently does.

The various comments from these stove producers indicate that the project, and the business model that it uses, has attracted their interest and captured the imagination of the other stove producers in the country. In that way, therefore, it has achieved its objective of demonstrating how the barriers to getting energy efficient stoves into the market could be reduced.

4.2.1 b. vii) Key Challenges of the Stove Industry

These producers are also able to articulate the other challenges they face and how they could be addressed, including requesting the government to waive the 16% VAT on cook stoves and for reasonably priced venues where they can display their products because currently payments for exhibition stands are prohibitive. The high cost of stainless steel is another factor that limits the extent to which stove producers can attain the requisite quality to ensure durability and energy efficiency. One producer indicated that between 30 – 40% of the cost of a stove is for the stainless steel pot. Because other materials are not suitable for cooking, if the government could waive taxes on steel, this would make it easier for producers to provide affordable stoves to their clients. However, because steel is used for many other products, it would be difficult for the government to implement a waiver on taxes on steel for stoves. Value added tax exemption would be easier to implement, in that finished energy saving products would be exempted. The rising cost of petroleum products and electricity have demonstrated to the stove producers that the production of stoves is going to continue being a lucrative business to engage in, with potential for growth within the Eastern Africa region and beyond.

a) Market Immorality

Another problem faced by stove producers is market immorality, whereby cheap sub-standard imitations of energy efficient stoves are sold at much lower prices. Some producers use a silver spray to give the impression that the material used is stainless steel, only for the stoves to rust later. Efforts by one major producer to brand the stoves have not spared the producer from imitations. The producers realize that the government can assist by establishing some standards and regulating the quality of the stoves produced, such as through the Kenya Bureau of Standards. For the producers to be able to lobby the government and other stakeholders, they need a united voice and hence the importance of having an association like ISAK.

b) Corruption

Another challenge for stove producers is corrupt school procurement officers who insist on getting a percentage of the prices of goods supplied to the school. Often, such officers are ready to compromise on quality as long as they can get their “cut”. An example of this type of corruption was recorded in one school where the procurement officer colluded with the kitchen staff to systematically destroy the energy efficient stove because it was consuming less firewood and thereby limiting the kick-back he used to get from the suppliers of firewood to the school.

c) Improper Use of Stoves

The proper use of improved stoves is critical to their efficiency. Therefore, it is important for the users to know how to dry the wood, the importance of splitting it and closing the door once the fire is lit. Several factors contribute to the improper use of the stoves, including lack of knowledge and negligence. High staff turnover in schools sometimes means new staff who have not been trained may not know how to use the stoves. When RETAP staff find that a stove is not being used properly and establish that it is because the user has not been trained they will send in a trainer. RETAP has also produced posters for cooks, illustrating the proper use of the stove. However, none of these posters were seen in the kitchens that were visited during the evaluation mission. Having more posters and instruction manuals could reduce the costs of training new staff. The school administration should also be sensitized on the importance of inducting new kitchen staff to the stoves, especially because the posters may be available but unless staff are assigned the duty of undertaking this specific induction, they may be overlooked.

4.2.1 b. viii) Technical Capacities

The respondents felt that generally there was adequate technical capacity associated with the project. However, there was some tension between members of the PMU who had a focus on the stoves and credit scheme and ensuring that this aspect of the project progressed despite the many challenges and those with a focus on research to ensure that key results were captured and reported on. Further, due to overall budgetary constraints, a significant amount of the requisite data that would have been used to refine the calculations of CO_2 emissions avoided and sequestered, such as data from schools on the amount of firewood used and the status of the woodlots was not acquired. Similarly, the proposed study on the level of awareness of the benefits of biomass stoves was not conducted. In some cases, the ideas that were being proposed to enhance data collection, such as the use of the teachers' network, were not as cost effective as if other more innovative ways were explored. One of the cost-cutting measures that worked effectively was the use of Masters level students to conduct research towards the fulfillment of their academic requirements and with supervision from the National Technical Officer.

The RETAP project had a shortfall of about US$100,000 because there had been an under-budgeting on several items, including the tree planting component and M&E expenses. RETAP staff assumed that the cost for M&E would be met by UNDP. However, UNDP staff assumed that RETAP would fund-raise for this component. This budget short-fall adversely affected project implementation by causing a delay in the release of US$100,000 from Ashden Trust. The Trust was reluctant to release the funding until the short-fall was addressed. Eventually, UNDP allocated US$76,000 to cover this short fall. RETAP needs to implement a system that can track budgetary expenditure against allocation on an on-going basis and to raise red-flags when the resources per item go down.

4.2.2 Monitoring and Evaluation (R –Marginally Satisfactory)

Monitoring and evaluation reports were prepared and presented to UNDP in a timely manner. The reports included progress against the expected outcomes and targets, but not at the output level. There was a mid-term evaluation in 2008, during which some specific recommendations were made. The PMU responded to these recommendations and implemented specific activities in response. For example, the mid-term review identified that the Project had not paid enough attention to disseminating stoves for the domestic market. In

response to this observation, the Project has started disseminating the *Envirofit* and *Jikopoa* stoves, in collaboration with Paradigm Project and Impact Carbon, through their local partners World Vision, Food for the Hungry and Compassion International.

One aspect of monitoring that was weak was getting data from the schools on a regular basis, with regard to the amount of firewood they were using, depending of the various menus they served and the status of their woodlots. This data was necessary to enhance the accuracy of the calculations of the amount of carbon sequestered by the woodlots and also the avoided emissions through the use of less firewood after the installation of the energy efficient stoves. This aspect of the project continued to be challenging, especially because SWEMNET that was supposed to be performing this role was not effectively doing so.

4.2.3 Stakeholder Participation (R – Satisfactory)

RETAP took part in provincial, national and international exhibitions held in the country to demonstrate its products and create awareness. RETAP has produced a brochure, calendar and posters which are used to disseminate information about the project. During teachers' conferences, RTE/RETAP have live demonstrations of the institutional stoves and provide the teachers with free meals. RETAP has seen a direct correlation between the number of orders they get for institutional stoves and the teachers' conferences they have attended. Therefore, although exhibiting at these conferences is expensive, RETAP sees it as a worthwhile investment.

RETAP is in the process of installing a comprehensive Management Information System that will capture data on stoves produced and installed, tree planting and stove payments data.
In order to market itself and its products, RETAP is currently upgrading its promotional materials, including re-doing its brochure. It has produced a DVD that summarizes the project, its challenges and achievements that is featured on You Tube.

During project implementation, stakeholder participation started with the RTE/RETAP marketing team, which received orders from the schools and SMEs. When they received an order, they communicated this information to RETAP, so that they could be given the go-ahead, based on the available credit facilities. Once RETAP indicated that the order could be processed, then production of the stoves could start. There already existed a close working relationship between RTE and RETAP and this has continued during the MSP. RETAP then requested for the necessary tree seedlings from TBPT, which selected the species that were suitable for the ecological zone of the school. In some cases, and at the request of RETAP, TBPT also provided transport for hire. Initially, TBPT only had one station, at Karura Forest, and this made it sometimes expensive to transport seedlings to distant locations, especially after RETAP extended its reach to more parts of the country.

According to the respondents, there was a close working relationship between UNDP's Kenya Country Office and RETAP. The GEF focal point at UNDP as well as the head of the Sustainability Unit and the PMU frequently provided each other with updates relevant to the project's progress. Similarly, the MoE displayed a keen interest and sense of ownership of the project, with several committed staff providing policy guidance and ensuring that the lessons from the project were being incorporated into the government's policy and legal frameworks. The development of the draft Woodfuel Strategy and Action Plan by the MoE was as a result of this close collaboration. Additionally, the Ministry officials have been lobbying for an allocation of resources for the government to install institutional stoves in several schools, as a way of endorsing the importance of energy efficiency in biomass use. There is a high

likelihood that the government will allocate funds for stove installations around the country, for up to two stoves per school in selected districts.

One of the constraints within the MoE is the frequent movement of staff (particularly the headship) in the Renewable Energy Department and the limited number of qualified staff dealing with biomass energy issues. Therefore, the process of approving the draft Woodfuel Strategy and Action Plan has been slowed down. Further, these changes in staff has meant that there are frequent changes in the MoE staff attending Project events and meetings of the PSC.

Despite these challenges faced by the MoE, since 2008, there have been significant budgetary allocations for renewable energy and greater recognition of the role of biomass energy within the top ministry officials. The MoE is an active participant on various inter-ministerial and inter-governmental on climate change. Additionally, the Ministry officials have been lobbying for allocation of resources for installing institutional stove in schools as a way of endorsing the importance of energy efficiency in biomass use. There is a possibility that the Government will allocate funds for installation of up to two stoves per school in selected districts.

The Improved Stoves Association of Kenya (ISAK) is a network of producers, marketers and installers of stoves that was formed through the Project's initiative. ISAK was registered in 2009 and has 200 members in various parts of the country. Their secretariat is based at RETAP, which means that the PMU continues to collaborate closely with ISAK's officials. ISAK members clearly know the dangers of being overly dependent on one organization, and are busy pursuing various options of fund-raising, including through membership fees and from marketing and installing stoves produced by their members. Many of ISAK's members were involved in a previous network that was established as part of GTZ's exit strategy for its Private Sector Development in Agriculture (GTZ-PSDA) programme. The members are therefore now more realistic about the kind of support they can expect from a finite project/programme and are trying to diversify their sources and avenues of support.

The Schools, Woodlots and Energy Management Network (SWEMNET), is an association of representatives of schools that have installed stoves under the RETAP project. The formation of this network was facilitated by a consultant, who also assisted the group to develop its constitution. SWEMNET officials would like to strengthen their network. However, currently, they are over-reliant on RETAP for support and guidance, including in pursuing the registration of their network. There are also differing expectations from the members, with some proposing for the greater autonomy of SWEMNET while others prefering to continue with their close collaboration with RETAP. There needs to be better communication between RETAP and SWEMNET to reconcile expectations and spell out the level and types of support available for the network from the project. RETAP was disappointed because despite sending the SWEMNET officials financial resources, they have failed to provide the PMU with data from schools on the weight of the wood used for various menus prepared over a specified span of time and the status of the woodlots. This is data that RETAP needs to calculate the amount of CO_2 that has been sequestered by the woodlots or avoided due to the use of energy efficient stoves.

The Kenya Forestry Growers' Association and the Tree Nurseries Association collaborate with the TBPT and have enhanced the availability of tree seedlings in the country as well as enhancing the technical knowledge on how to propagate and grow various varieties of exotic and indigenous trees.

Establishment of Partnerships

Ashden Trust has been RETAP's partner since the SGP project, when they supported the introduction of the tree planting component of the programme. RETAP won the 2008 Ashden Award for Energy Efficiency. In March 2010, the Ashden Trust released the first batch of Ksh. 1.2 million from a total of 70,000 Pounds Sterling that the Trust is providing to RETAP for training woodlot managers. The disbursement of these funds had been delayed due to the budgetary shortfall that occurred in the Project, which was eventually cleared after UNDP allocated the Project US$76,000 from its TRACT Funds.

The project is collaborating with Paradigm Project and Impact Carbon, through World Vision, Food for the Hungry and Compassion International to distribute the *Envirofit* stove that is made in China, and to produce a local replica named *Jikopoa* for the domestic market. RTE/RETAP is aggregating demand in specific locations and facilitating the formation of community groups or identifying existing groups, which can purchase the stoves and guarantee each other for the credit to buy the stoves. Solar Box International of Canada has supplied RETAP with solar boxes that it is promoting for lighting, in order to meet its emission targets under the Project.

Due to its membership in the Association of Microfinance Institutions in Kenya, RETAP was able to secure a Ksh. 20 million (US$250,000) soft loan from OIKO Credit of the Netherlands. AMFI organized the Middle East Micro-Finance Summit in Nairobi in June 2010, in which RETAP participated and displayed their products. During this Summit, the convener invited RETAP to a poverty and energy conference in Mexico in November 2010. At this conference RETAP secured a US$ 100,000 credit line from three (Ron and Marlys Boehm, John Swift foundation and Alex Hartlerja of the Sarana Fund) of the participating investors with flexible repayment terms. The RETAP Project Manager also met with representatives from various philanthropic institutions and investors, including the Clinton Global Alliance of Cookstoves and the Bill Gates Foundation. Therefore, networking under the umbrella of AMFI has proven to be a useful avenue for fundraising and awareness creation of the opportunities in biomass stove businesses. RETAP has also been invited to attend a meeting of funding agencies and energy experts to be held in South Africa in 2011 and is also a member of the Global Village Energy Partnership.

RETAP has signed a Memorandum of Understanding with WFP, UNDP and OIKO Credit, through which they shall supply stoves, for an initial amount of US$ 1 million, with potential for them to win bids to supply stoves worth upto US$ 5 million. The US$1 million from WFP is part of the funding from the Japanese government for the 21 Country African Climate Change Adaptation Programme (AAP). Further, with this project, WFP is developing a proposal for a CDM project, due to the reduction in emission from the stoves and sequestration of carbon from the woodlots that are being established.

Through its collaboration with WFP, RETAP has delivered stoves to Kigali, in Rwanda. A UN staff member from Nigeria has also requested for a sample of the multiple burner stove to be sent there, with the possibility of a request for RETAP to assist in establishing a production unit there. Similarly, some people from Ghana have expressed an interest in working together with RETAP. Care International has placed orders for stoves in Kenya and other Eastern Africa countries they operate in. RETAP has conducted training and demonstration of their stoves in Somalia at the invitation of the Adventist Development and Relief Agency (ADRA) and for Land 'O' Lakes in Southern Sudan. RETAP staff have also demonstrated their stoves to staff of Self Help Africa.

RETAP has been allocated a “pay bill” service by MPESA, which is Safaricom’s money transfer system. Safaricom is the leading mobile phone providers and pioneer in the telephone money transfer service, in Kenya and the World. RETAP customers will be able to make loan repayments directly through the mobile phones, thereby reducing the costs incurred travelling to deposit cheques or remit cash.

4.2.4 Financial Planning

In evaluating the financial planning of the Project an assessment was made of the actual project costs by objectives, outputs and activities. One constraint that was faced by the PMU was the limited detail provided in the budget provided in the Project Document (ProDoc), which only provided budget amounts up to the outputs level, without defining activities under each output and allocating budgetary amounts. The ProDoc therefore provided little details on the types of activities that were to be supported under each output. For example, a figure of US$ 300,000 is given for Output 2.2: Increased liquidity in the institutional, SME and formal household stove markets, with mid-term targets of commercial loans to companies providing stove production, hire-purchase and marketing services increased by a factor of 10 over start of project baseline. The indicator for this is provided as mid-term sector survey compared to data from start of project. However, the ProDoc does not define the types of activities that will be implemented to achieve the targets under this output. Due to a certain ambiguity of some of the outputs, RETAP reallocated some of the budget items. Further, RETAP prepared yearly budgets which were approved by the PSC, and in which activities were more clearly defined and budgetary allocations and reallocations made.

RETAP provided quarterly progress reports, which included narrative and financial reports. However, RETAP did not maintain consolidated financial reports, which indicated the cumulative amounts spent under each budget item. The Project accountant prepared these consolidated budgets after a request from the evaluators. This is a weakness in financial planning and management that may have contributed to the budgetary shortfall that occurred; if there was a system for tracking costs per budget item, then shortfalls would have been noticed before they accumulated.

Below is the expenditure as per the outputs of the project as provided by RETAP.

TABLE II: SUMMARY EXPENDITURE AS PER OUTCOMES

Project Outcome/Atlas Activity	Total Budget (USD)	KSH	KSH TOTAL EXPENDITURE	VARIANCE	VARIANCE IN USD
Outcome 1 Supportive policies & legal framework for sust. biomass energy businesses dev. & strengthened					
Outcome 1	**31100**	**2,177,000.00**	**1,112,858.00**	**1,064,142.00**	**15,202.03**
Outcome 2 Supply chain for both products *and financing are strengthened and expanded*					
Outcome 2	**508400**	**35,588,000.00**	**32,892,672.00**	**2,695,328.00**	**38,504.69**
Outcome 3 Sensitised policy makers, financial sector, suppliers and end users					
Outcome 3	**76500**	**5,355,000.00**	**2,697,508.00**	**2,657,492.00**	**37,964.17**
Outcome 4 Strengthen administrative and infrastructural Support to the Project Management Unit					
Outcome 4	**334000**	**23,380,000.00**	**24,080,035.30**	**(700,035.30)**	**(10,000.50)**
Outcome 5 Learning, Evaluation and Adaptive Management					
Outcomes 5	**25,000**	**1,750,000.00**	**2,759,447.00**	**(1,009,447.00)**	**(14,420.67)**
TOTAL PROJECT BUDGET	**975,000**	**68,250,000.00**	**63,542,520.30**	**4,707,479.70**	**67,249.71**

Notes:
- Analysis up to 3rd quarter 2010.
- UNDP 5% commission and some expenses incurred at UNDP not reflected here.

The PMU made several efforts to enhance the cost-effectiveness of the project and its achievements. Due to the high costs of hiring skilled consultants to conduct specialized studies required to establish various parameters of the project's progress, the project engaged Masters level students to conduct studies, which then formed part of their thesis. The NTO supervised such students, thereby ensuring the relevance of their research to the project and also controlling quality.

The project conducted targeted training for the end-users of the stoves and the woodlot managers in central locations within the various provinces, in order to reduce costs.
Previous investments made by RTE and RETAP, in terms of land, equipment and vehicles contributed to a reduction in the costs of production that in turn benefited the project.

Another cost cutting measure that the project is pursuing is to establish its own tree nursery to augment the number of tree seedlings it gets from TBPT. The nursery will also be used to demonstrate to potential tree nursery owners the income potential of selling seedlings.

Co-financing

The GEF provided US$ 975,000 for the MSP and US$25,000 for the preparation of the PDF A, which was approved in 2004. In addition, co-financing commitments were given and successfully realized as follows; RTE: US$ 1,100,000; TBPT: US$469,319; MoE: 408,431; while the end users, including the schools, stove producers, SME and domestic users provided US$4,250,000 in-kind contribution to the project.

Table III: Co-Financing

Partner	Cash or In-Kind	Amount (US$)
GEF	Cash	1,000,000
RTE	Cash and In-kind	1,100,000
TBPT	In-Kind	469,319
MoE	In-Kind	408,431
End Users	In-Kind	4,250,000
	Total	**$ 7,227,750**

The government also waived the 16% VAT on stoves, to be used for supporting the tree planting component of the project. These savings are significant, considering that the project has to date installed 1,552 stoves. MoE has also installed stoves and plated trees through its energy centres. In addition, the MoE is in the process of allocating funds for installing stoves in schools in selected districts which shall be used to demonstrate the benefits of energy saving stoves to schools in different parts of the country.

Leveraged Funds:

In addition to the resources that were availed by the project partners and GEF, RETAP has been able to leverage additional funding to further the objectives of the project and to enhance the project's ability to meet the CO_2 emission targets that were set for 2020. The Ashden Trust has given RETAP the equivalent of US$100,000 over a four-year period as a grant to support the woodlot establishment component of the project, including training woodlot managers and supplying seedlings. OIKO Credit of the Netherlands has extended credit worth US$250,000 to be repaid with an 11% interest over 4 year. This loan was extended to RETAP to facilitate it purchase the necessary materials to supply the US1 million worth of stoves for WFP supported communities in the informal settlements and the arid and semi-arid areas. Since the initial bid of US$200,000, RETAP has been successfully allocated the US$800,000 bid, with WFP indicating that RETAP shall be allowed to supply up to US$5 million worth of stoves for WFP. The existing MoU between RETAP, WFP, UNDP and OIKO Credit for US1 million shall be reviewed to reflect this new commitment.

The table below summarizes the additional funds that RETAP has leveraged to contribute to the GEF Project objectives.

Table IV: Leveraged Funds

Financier	Terms	Duration	Funds For	Amount (US$)
Ashden Trust	Grant	4 years; 2010 – 2014	Training of woodlot managers and supplying seedlings	US$100,000
OIKO Credit	Soft Loan at 11% interest	4 years: 2010- 2014	To facilitate supply of WFP Stoves	US$ 250,000
Ron and Marlys Boehm	15% p.a. simple interest due in 1 year paid monthly	From 2010	Credit scheme	US$80,000
John Swift (Swift Foundation)	8% p.a. simple interest due in 5 years paid annually	From 2010	Credit scheme	US$10,000
Alex Hartlerja (Sarana Fund)	8% p.a. simple interest due in 5 years paid annually	From 2010	Credit scheme	US$ 10,000
WFP	Successful bid for $1 million with possibilities of up to $5 million	From 2010	To supply stoves to WFP supported communities	US$ 1,000,000
UNDP TRAC Funds	Grant	2010	To cover the budget short-fall	US$ 76,000
			Total	**US$ 1,520,000**

The Market Transformation for Efficient Biomass Stoves project has demonstrated that even after the GEF project comes to an end, it shall continue to implement activities geared towards the provision of energy efficient stoves to institutions and communities in Kenya. Another aspect of financial sustainability that RETAP is pursuing is the establishment of the RETAP Green Capital Micro-Finance Institution. This institution will provide savings and credit facilities to a range of investors, including large scale investors and small scale investors, who often have limited access to savings and credit facilities. With savings of about Ksh. 30 per day, these small scale investors will be able to save up to Ksh. 1,000 per month. Using the savings base as collateral, the members shall be able to borrow up to 3 times their savings. The Savings and Credit (SACCO) model has recorded significant successes in Kenya but is often not available to those in the informal sector or those who are self-employed. Therefore, RETAP Green Capital's strategy of targeting the informal sector with a savings and credit facility is strategic.

Execution and implementation modalities, including the role of UNDP and the PSC in project oversight and recruitment of staff and contracting of experts has been effective. The PSC met yearly on schedule and reviewed workplans and budgets and also approved any changes to the project. They also provided guidance on how the project could be more effective, such as in influencing government policy and in enhancing its reach across the country.

Sustainability

The Market Transformation for Efficient Biomass Stoves Project has demonstrated that there is a high demand for energy efficient biomass stoves from institutions, SMEs and at the domestic level. There is also a willingness to pay for these stoves. Therefore, using its model of providing credit facilities for stove purchase, the project is assured of continuing to accrue benefits to the various stove users, even after GEF assistance comes to an end. The kind of co-financing that the project has already been able to attract, also enhances its sustainability, in that several investors have shown that they are ready to commit resources into RETAP because they are convinced that they will be able to recoup on their investments.

With regard to institutional sustainability, the partnership that has been forged between the MoE, UNDP, TBPT (and the Tree Nursery Association and the Forest Tree Growers Association), RTE and RETAP on one hand and RETAP and RETAP Green Capital, ISAK and SWEMNET will continue even after the externally funded project ends. As these various institutions get strengthened and are better able to perform their mandates, the institutional sustainability will be further enhanced.

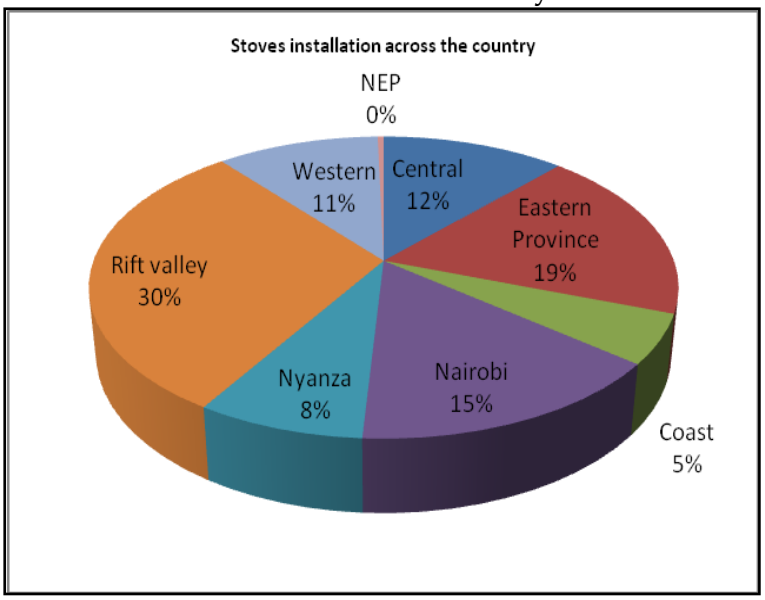
The policy advocacy aspects of the project have resulted in greater visibility for biomass energy and an enhanced appreciation of the role it plays in meeting the energy needs of the majority of the population among policy makers, especially within the MoE. The Draft Woodfuel Strategy that was produced as a result of this project is in the process of being officially adopted by the government, which will result in the further mainstreaming of biomass energy into the government's policies.

The lessons from the Project are already being used to inform other projects, such as the GEF/UNDP Standards and Labeling project and the African Climate Change Adaptation Project. Through these projects the gains from the project will be sustained.

4.3 Results

Before the MSP, in 2006, RETAP/RTE had only installed 77 stoves in 20 schools, with a combined enrollment of 10,773. By September 2010, there 1,552 stoves installed in 723 schools, with a combined enrollment rate of about 323,000 pupils (approx. 50% female) in all the 8 Provinces of Kenya, with Rift Valley having the highest number of stoves installed at 30% and North eastern Province the lowest at 6 stoves. The chart below shows the % distribution of the installed stoves per province.

Chart I: Stove Installation across the Country



Source: RETAP (2010) Carbon Emissions Avoidance through installation of stoves. Draft Report

In addition, RETAP has installed 6 stoves in SMEs and sold about 500 domestic stoves.

Under the project, about 550,000 tree seedlings have been planted with a survival rate of between 58 – 62%. The total number of hectares that have been planted so far by the project is 342.21ha.

The carbon sink created from the year 2006 to 2010 by trees planted in schools for poles or timber is 10,091 tonnes of carbon dioxide (2757*3.66[7], column 7 row 7), whereas carbon sink created if trees were used for firewood is 9,384 tonnes of carbon dioxide (2564*3.66)[8].

If the schools do not harvest the trees until 2020, they will have sequestered 114,584 tonnes of carbon dioxide. Likewise, if the schools decide to cut trees for firewood every 5 years, then the project will sequester 16,931 tonnes of carbon dioxide as at end of the project. This is because the carbon sunk goes down every time trees are cut for firewood, then goes up in the 5th year. All these conditions hold if all factors are held constant, that is, if no plantings are done after year 2010, and the existing trees remain in place.

The project has contributed to the stabilization of the global climate by reducing greenhouse gas emissions by 12,000 tonnes CO_2 eq., through the use of energy efficient stoves.

The RETAP revolving credit fund has grown from the initial US$50,000 provided by the GEF/UNDP SGP in 1996 to US$200,000 (Ksh. 14 million) at the start of the project in 2007 to US$750,000 (Ksh. 60 million) in 2010. On average, the fund has grown by about US$35,000 (Ksh. 3 million) per year for the last 15 years of its existence.

In addition to the US$ 7,227,750 financing for Project, of which US$1million was from GEF, RETAP has been able to leverage an additional US$ 1,520,000 to finance the project activities from a range of national and international sources. Key among these is the WFP US$1 million order under its school feeding programme, the Ashden Trust, Oiko Credit and UNDP's TRAC funds that were used to cover the project budget shortfall.

4.3.1 Attainment of Outcomes (R – Satisfactory)

Despite some significant external challenges, such as the post elections violence, drought, constraints with the free primary and secondary education policy, negative political statements on eucalyptus, the project was able to achieve its environmental and developmental objectives to a satisfactory extent. The environmental objectives included enhancing the global climate through a reduction in the emission of GHGs that was attained through the installation of 1,552 energy saving stoves that had a 70% energy efficiency compared to the traditional three-stone open fire that is used by many institutions. The project was also able to facilitate the planting of over 500,000 trees, which are sequestering carbon and also providing fuelwood and thereby reducing the pressure on natural forest and enhancing the conservation of biodiversity through a reduction in deforestation. Although the stoves installed and the trees planted were below the defined targets at the start of the project, they were satisfactory, especially given the reality that the targets were over-ambition and/or unrealistic and also due to the many challenges that the project faced. Further, the pace of stove installation and tree planting is set to increase, now that the various systems have been put in place and additional financial resources secured. Therefore, the project is set to meet and even exceed the targets for a reduction in CO_2 emissions of between 400,000 and 960,000 tonnes of CO_2 equivalent by 2020.

The development objectives that were achieved include reduced air pollution indoors (and outdoors), improved respiratory and general health of cooks, reduced cooking times, less time

[7] To covert form Carbon to Carbon dioxide, the carbon figure is multiplied by 44/12 or 3.66
[8] RETAP (2010) *The Carbon Sink Created by Tree Planting Activities*, Nairobi.

spent gathering fuel, cleaner kitchens, reduced fuel costs, and income generation for stove producers and seedling producers / farmers establishing woodlots. Various indirect benefits are likely to also be achieved including enhanced gender equality because when families incur high costs in educating their children, it is often the girls who are not taken to school. With the improved stoves, schools are spending less and therefore there are increased chances for girls to be enrolled and retained in school. Since the task of cooking for the family is almost always the responsibility of women and girls, more efficient stoves will reduce the time spent on cooking and fetching firewood and thereby free up more time for them to engage in activities that can advance them socially and economically.

4.3.2 Sustainability (R – Satisfactory)

The Market Transformation for Efficient Biomass Stoves sustainability strategy includes the development of policy and regulatory frameworks to further the objective of the project through the MoE. Invariably, the increasing costs of petroleum products in the country will make more people switch to biomass energy in the form of charcoal and firewood. Therefore, the need for fuel efficient biomass stoves will continue to grow. Additionally, the government has recognized the important role played by biomass and has increased financial resources in support of the sector.

The RETAP Green Capital Micro-Finance institution, once its registered and up and running will redress one of the greatest constraints to the greater dissemination of energy saving stoves, which is lack of resources by the end users to pay for the units up front. The additional resources that RETAP has been able to secure in support of the project objectives further illustrate that the model that GEF supported through the SGP and MSP phases is viable and it makes good business sense, meaning that investors are ready to commit their resources because they will be assured of good returns on their investments. Without the GEF funding, it is likely that RTE/RETAP would not have grown to its current strength and/or attracted the type and level of investments its been able to.

Several of the institutions that were established within the life of the project are set to continue growing because the members understand the benefits of collective action and a united front in order to lobby for support for their sector. Key among these is ISAK, which has already established itself as an association of members who are able to leverage more support and resources by being united and also able to ensure that they can enhance the quality of products manufactured by their members.

The Tree Propagators Association and the Forest Tree Nursery Association are two registered associations with members who are involved in the production and marketing of a variety of tree seedlings on a commercial basis. Therefore the members of these associations have an incentive to continue working together.

Currently, the SWEMNET network is still heavily dependent on RETAP, with the members not having a clear, united vision of what they would like the network to become. Due to the high costs involved in gathering data from schools through SWEMNET, RETAP is likely to explore other options of getting this data.

The skills of all the staff, within government, UNDP, NGOs, private sector and academia have been enhanced through the project. Staff from the MoE now have practical experience on developing public private partnerships in the implementation of biomass energy project and how biomass energy can be elevated from an energy source for the poor and marginalized, as its often perceived, into an economically viable and socially acceptable

source of clean energy for a significant proportion of the population. UNDP staff who were involved in the project have experience in implementing a GEF project with environmental and development benefits in two GEF focal areas, biodiversity and climate change mitigation, and one that has provided tangible benefits to communities across the socio-economic strata. The private sector players now have another viable investment opportunity that results in economic and social benefits for themselves and the end users. The types of research activities that can be conducted around the Project are numerous, including on carbon emissions, social behavior and appropriate adult learning methods and techniques.

5. CONCLUSIONS

Below is the summary of the key conclusions of the evaluation.

a. Although the project design stage was highly participatory, the eventual logical framework contained inherent weaknesses such as unrealistic or difficult to measure targets, improper specification of the activities that would contribute towards the attainment of outputs. These weaknesses resulted in the non implementation of some activities and failure to provide adequate budgetary allocations to others.
b. There was a mis-match between the available resources and the targets that were defined in the project logframe. For example, the available resources, from project funds and VAT exemptions, versus the targets for tree planning; and the stove installation targets versus the revolving fund. This mismatch affected the tree planting and stove components, which were key indicators of project performance.
c. There was no linkage between the number of trees planted per school and the firewood consumption. For the project to be able to estimate the impact on deforestation, it would have been appropriate to calculate the number of trees to be planted under a rotation system to meet annual fuelwood needs based on the baselines obtained. Technical information on growth rates and yields of eucalyptus under different cycles is also available and therefore the use of professionals to do these calculations was not applied.
d. Project formulation did not take into account the vagaries of weather such as drought, which is a frequent occurrence in Kenya and which could adversely affect tree survival. Consequently, measures to mitigate this were not incorporated in the project structure. If this had been done probably higher survival rates could have been realised.
e. The project design of supplying free seedlings to schools partly contributed to the low achievement of tree planting targets
f. The KFS has produced guidelines on eucalyptus, including the areas that the trees can be grown without adverse effects on the water table. Although the KFS is a partner of the TBPT, these guidelines were not effectively used to counter the negative publicity on eucalyptus.
g. The PMU responded fairly effectively by putting in place adaptive management measures to address the numerous challenges experienced throughout the project period.
h. Among the challenges experienced in the improved stoves industry, market immorality and improper use of stoves pose significant threats to the success of the stove activities and the subsequent realisation of the goal of reducing CO2 equivalent emissions.
i. The improper use of stoves can be attributed to several factors, such as the high staff turnover, laxity of trained staff and ineffective supervision. Appointment of kitchen energy managers from the existing staff establishment would ensure that induction of

new kitchen staff is effectively done and proper stove use is maintained and therefore has to be implemented as a matter of necessity.

j. The data collection component of the project suffered from low technical capacity and inadequate planning and budgetary allocation.
k. Lack of clarity in the project document with regard to the roles of RETAP and UNDP in relation to monitoring and evaluation was a contributing factor to the shortfall in finances experienced by the project.
l. With regard to stakeholder participation, information dissemination was mainly through exhibitions at provincial, national and international levels. However a lot more could be achieved through the media.
m. The institutions established during the project period (ISAK and SWEMNET) are yet to make their mark in the improved stoves sector. SWEMNET has not lived up to the expectations of the PMU and there is every indication that the two institutions still need support in order to deliver their mandate.
n. The PMU scored highly in the establishment of partnerships. These will be very instrumental in filling up resource gaps and will contribute to the furthering of project objectives, long after the GEF financing comes to an end. One of the partnerships established is a CDM project which requires adherence to rigorous data collection and analysis. It is therefore necessary for RETAP to beef up their data collection systems in preparation for this.
o. Weaknesses in financial planning and budgeting may have contributed to the budgetary shortfall.

6. RECOMMENDATIONS

The recommendations are meant to suggest corrective actions for the design, implementation, monitoring and evaluation of the project and provide actions for follow up or to reinforce the initial benefits from the project. They also include future directions underlining the main objectives of the project.

a) The Draft Woodfuel Strategy and Action Plan should be finalized and officially launched by the Ministry of Energy as it is a key policy that will promote sustainable biomass energy programmes.

b) RETAP should invest more effort into exploring possibilities for getting into the carbon credits/trading mechanisms, both in the voluntary and commercial markets. Possibilities for carbon trading have been enhanced for RETAP through its collaboration with WFP. WFP is planning to conduct stove efficiency surveys for the stoves that RTE has installed under the school feeding programme, with the aim of entering into the carbon credit market. RETAP/RTE should replicate this data collection to the other stoves it has installed over the years.

c) Due to the current constraints of using the SWEMNET teachers' network to collect relevant data on woodfuel use and woodlot status, RETAP should explore other options for collecting this data, which is critical to show the accumulated CO_2 emissions avoided and sequestered. Discussions with staff from the International Small Group Tree Planting Program (TIST) indicate that they have managed to put in place a cost-effective mechanism for collecting data from small-scale farmers around the country, who are members of their carbon credit scheme. RETAP should explore possibilities of either linking up with such systems and/or putting in place a similar system.

d) The SWEMNET network should also be encouraged to take a more proactive role in defining its objectives and long term vision, including establishing linkages with carbon trading schemes. This will ensure that the collaboration between SWEMNET and RETAP can be enhanced, without the over dependence of the network on RETAP.

e) The MSP has targets for carbon emission avoided and sequestered up to 2020. It is therefore important that the necessary resources and personnel are clearly identified to ensure that the requisite data will be collected to demonstrate the amount of carbon avoided and sequestered.

f) Over the year, RETAP has generated valuable information and data especially on institutional stoves, and the various socio-economic issues that surround their use and adoption. However, this information is not consolidated. With the installation of a Management Information System at RETAP, greater efforts should be made to consolidate this data and to make it easily accessible to a range of stakeholders, including researchers, potential investors and policy makers.

g) Further, this data and information should be packaged in formats that are suitable for various audiences, ranging from the local (end-users and communities), to national (policy makers, researchers and civil society) to international stakeholders including potential investors and policy makers. In order to cut down on the costs of training new and existing users, RETAP should invest more into producing and/or reproducing

the posters on how to use the energy efficient stoves effectively. Each stove installed should be accompanied by these materials that should be displayed prominently, such as in the kitchens to act as a constant reminder to the users.

h) Growing trees in the arid and semi-arid areas is challenging, especially because of the scarcity of water. RETAP should forge linkages with institutions with knowledge and experience in water management, including rainwater harvesting and efficient water use technologies, so that their efforts to plant trees in the ASALS can be enhanced. RTE/RETAP should also assess their institutional capacity to deal with the three main components of this project, i.e. stove production and installation, provision and management of a micro-finance institution and support for the establishment of woodlots. There is a danger of RTE/RETAP spreading itself too thin, thereby reducing its own effectiveness.

i) The production and installation of fuel efficient stoves and the establishment of woodlots to supply fuel to institutions and communities are initiatives that can effectively linked to national and international initiatives and programmes that can in turn enhance fund raising and other mutually beneficial collaborative partnership. For example, the Global Alliance of Clean Cook stoves under the Clinton Global Initiative seeks to promote affordable, appropriate energy efficient stoves that reduce indoor pollution and the burden for gathering fuel wood in developing countries. Additionally, there are various initiatives for carbon trading that RETAP could collaborate with and get carbon credits from its stoves and woodlots.

j) There is need for continued resource mobilization to expand the number of communities, institutions and households with access to energy efficient stoves. Therefore, the various stakeholders should consider up scaling this project to a Full-Sized GEF project (FSP) to be implemented at a regional level. The MSP can provide valuable lessons for other countries wishing to implement similar initiatives and can demonstrate best practices in fuel efficient biomass energy stove programmes in developing countries. Additional resources are needed to continue enhancing the operation efficiency of the RTE stove production workshop and for establishing new production centres, in order to reduce transport costs and enhance access to fuel efficient stoves. Additional resources will also be useful for increasing the number of vehicles to transport stoves and tree seedlings, as currently this is one of the constraints faced by RTE.

7. LESSONS LEARNED

The lessons learned highlight the best and worst practices in addressing issues relating to relevance, performance and success.

a) One of the greatest successes of the RTE/RETAP project has been its ability to gradually grow, from a small-scale operation, to an enhanced operation that is able to attract investors and partners from the public and private sector. The lesson learned is the importance of starting small and growing gradually. Through such a process, lessons and mistakes along the way can be used to improve operations and the attainment of results. Unfortunately, many large projects are unable to deliver tangible results because there is inadequate experience among the implementing staff of the key components of the project.

b) The SGP has accumulated valuable experiences and piloted several innovative approaches to addressing pressing environmental issues that also contribute to poverty alleviation, including the RETAP project. UNDP should enhance the contribution of SGP towards up scaling selected initiatives in the GEF focal areas.

c) It is important to provide an oversight role in balancing the interests and professional leanings of various stakeholders in a project. The Market Transformation for Biomass Stoves project had a strong private sector component, a data collection and research component, a policy advocacy component and an awareness raising component. While these various aspects of the project were meant to be mutually reinforcing, they ended up being in competition. Some stakeholders felt that some members of the PMU were more focused on the installation of stoves and did not adequately appreciate the need for data collection. Others were of the opinion that data collection should have been done more cost-effectively.

d) The policy advocacy aspect of the project resulted in the MoE recognizing the important role of biomass and allocating resources for stove installation. However, the assertion that these resources could not be channeled through the private sector negated the very premise of public-private partnership that the project was based on.

e) Energy efficient cook stoves are important for climate change mitigation and adaptation. They reduce the emission of GHGs while enhancing the ability of communities to cope with the adverse effects of climate change, which include a scarcity of fuel wood. Stoves also provide a valuable source of income, thereby reducing the number of people who are unsustainably using natural resources to eke out a living.

f) While it is important to promote market driven principles in disseminating energy saving stoves, it is also important to recognize that some schools and communities may be unable to afford these stoves, even with the available credit facilities. Therefore, RETAP, in collaboration with the various partners in the public, civil society and private sector, should also explore options of looking for resources to support resource poor communities, either through donations or through other schemes, such as food for work. Currently, WFP is requiring that the communities and schools it supports pay upto 50% of the stove's cost and in some cases it is waiving the whole cost. Similarly, RETAP and its partners should explore possibilities of securing resources to support communities in a range of socio-economic circumstances. Further, the government should be lobbied to allocate resources to support poor schools and marginalized communities access energy efficient stoves, as these are necessities and not luxuries. The broader objectives of environmental conservation and the socio-economic benefits of the stoves should act as the incentives for a range of stakeholders to support this initiative.

g) The GEF MSP on market transformation for efficient biomass stoves has demonstrated how a public-private partnership can deliver results for a climate change mitigation and adaptation project. This type of partnership can be replicated and expanded to include other key stakeholders. There is potential for replicating this project within the Eastern Africa region, and also in other developing countries, especially those which depend on biomass energy for the bulk of their communities' cooking and heating needs. This project has the potential to contribute significantly to

poverty reduction, climate change mitigation and adaptation and the attainment of MDGs, especially in the areas of environmental sustainability and gender equality.

h) Due to the length of time it took to set the necessary systems for the implementation of the Project, with the diverse components of stove fabrication and installation, tree planting and providing credit, the project's duration was too short, especially since the project was also supposed to measure the emissions reduction to meet the specified targets. Therefore, the project will benefit from an extension in order to complete the activities and put in place the necessary mechanisms to ensure its sustainability.

i) The Project has demonstrated the important role of biomass energy in meeting the needs of the majority of the people at the domestic level, institutions and SMEs. This success has been demonstrated by the recommendation by the Project Steering Committee, under the Chairmanship of the Permanent Sectary in the MoE, for a team to draft a Legal Notice making it mandatory for schools and other institutions that use firewood for cooking to use improved stoves. The Legal Notice, scheduled to be issued by May/June 2011, will give a grace period that will allow the affected institutions to acquire the stoves.

j) The Project has been able to attract co-financing from private investors indicating that biomass programmes are a viable investment option. This Project will therefore inform other efforts to scale up renewable energy programmes in low income countries under the SREP initiative.

k) It is important to strengthen the Improved Stoves Association (ISAK) because it can play an important role in advocating for policies, laws and programmes to promote energy saving stoves in the country and beyond.

8. ANNEXES

ANNEX I: List of Documents Reviewed

- GEF MSP (2004) Market Transformation for Efficient Biomass Stoves for Institutions and SMEs in Kenya Project Document
- Project Quarterly Workplans
- Project Annual Reports to UNDP
- MoU between WFP, RETAP and UNDP
- Project Technical Reports
- Project Workplans and Budgets
- Carbon Avoidance Emission Update Report
- Draft Carbon Report
- UN in Kenya August 2010 Newsletter
- Minutes of PSC meetings
- Mid-Term Evaluation Report on Market Transformation for Biomass Stoves, 2008
- RETAP (2008) Policy Proposals for Sustainable Consumption and Production of Energy in Kenya: A Memorandum to the National Environment Policy Committee. ***Policy Brief Series No.2***
- Kituyi E and Odongo F (2008) Towards a National Woodfuel Development Strategy for Kenya. ***Policy Brief Series No.1***
- Kituyi E (2008) Climate Change Mitigation by Schools in Kenya: Policy Options for Scaling up Sustainable Fuelwood Consumption and Production. ***RETAP Policy Research Series,* No.1**
- Mbuthi, P. (2010) *Integrated Woodfuel Strategy and Action Plan for Kenya.* MoE.
- RETAP (2007) An Evaluation of the Eco-Schools Project for the Conservation of Mt. Kenya World Heritage Site: Evaluation Report (*Alex Waithera*)
- RETAP (2007) Baseline survey of stove use in institutions and commercial catering enterprises (*J. Sang and E. Ekakoro*).
- RETAP (2008) Biomass energy policy audit: Audit Report (*B. Ochieng*)
- RETAP (2008) Models for Estimating Biomass and Carbon Stocks of Eucalyptus Woodlots in Kenya (*RO Mugabe and DO Ogweno*).
- RETAP (2007) Models for Estimating Biomass and Carbon Stocks of Eucalyptus Woodlots in Central and Eastern Provinces (RO Mugabe and DO Ogweno).
- RETAP (2007) The Impact of Improved Cookstoves in Kenyan Schools on PM_{10}, CO, CH_4 and N_2O Levels (*E. Ngeywo*).
- Induction Seminar for Marketing/Loans Officers, August 24-26, 2008, Kenya School of Law, Karen. ***Proceedings***.
- Planning Retreat for Interim Officials of the new Kenya Improved Stoves Association (KEISA), Kenya School of Law, 3-7 August 2008. ***Report***.
- Planning Roundtable for Sustainable Energy Clubs and Network, 25 July 2008, Nairobi Safari Club. ***Proceedings***
- National Wood Energy Entrepreneurs Workshop, 30 June -1 July 2008, Co-operative College, Karen. ***Proceedings***.
- Roundtable on Integration of Energy Management Provisions in Kenya's Education Policy. 8 May 2008, Nairobi Safari Club. ***Proceedings***.
- Public Sector Stakeholders' Workshop: Towards an Integrated Biomass Energy Strategy for Kenya with a Focus on Sustainable Woodfuel Development. 26 March 2008, Jacaranda Hotel, Westlands. ***Proceedings***.
- M&E Data Collection Training for Marketing/Loans Officer February 23, 2008, RETAP Office. ***Proceedings***.
- Training of Trainers Refresher Seminar: Best-Practice Improved Institutional Stove Management. 6-7th February 2008, RTE Guesthouse, Rongai. ***Proceedings.***
- Project M&E Tour and Partners' Retreat, 25-28th Feb 2008, Merica Hotel, Nakuru. ***Proceedings***.
- Workshop of Parliamentary Network on Renewable Energy and Climate Change, 7-8 June 2007, Whitesands Hotel, Mombasa (***Proceedings***)
- Training of PMU and Field/Loans Officers in Micro-Finance Operations, 26-28 October 2007, RTE Guesthouse, Rongai. ***Proceedings).***
- Project M&E Tour and Partners' Retreat, 25-28th July 2007, Green Hills Hotel, Nyeri. ***Proceedings***.
- Project Inception Tour & Meeting, 31 October 2006. ***Proceedings***.
- MoE (2006) *Energy Act*

ANNEX II: List of People Interviewed

Interviewee	Title	Institution
Mr. Charles Gitundu	Project Manager	RETAP
Mr. Enos Ambale	Project Accountant	RETAP
Mr. Paul Kirai	PSC Member	former Manager of GEF KAM Project
Ms. Faith Hamala Odongo	Assistant Director of Renewable Energy	Ministry of Energy
Dr. Evans Kituyi	former National Technical Officer	RETAP
Mr. Ndiangui Ndungu	Chairperson	SWEMNET
Mr. Emmanuel Cyoy Ngeywo	MSc. Student	University of Nairobi
Mr. David Githaiga	CDM Programme	UNDP
Mr. Benson Kanyi	Project, Manager	TBPT
Mr. Chris Kirubi	former Programme Coordinator	RETAP
Mr. David Kamau	Director	RTE
Mr. Michael Gachanja	Coordinator	KFWG
Mr. Ephraim Botto	Technical Director	Botto Solar
Mr. Bernard Osawa	Director, Renewable Energy	Energy Regulatory Commission (ERC)
Mr. Ephantus Wamae	Secretary	ISAK
Mr. Timothy Gathirimu	Consultant/trainer	Gospel Art College Production
Mr. Charles Kiama	Marketing/Loans Officer	RTE
Mr. Kristoffer Welsien	Programme Officer	WFP
Mr. Muhungi F. Kanyoro	Partner	Mbaya and Associates
Mr. Charles Nyandiga	former Kenya GEF Focal Point	UNDP New York
Mr. Chris Gakahu	Head, Sustainability Unit	UNDP
Ms. Foulata Kwena	PO	UNDP
Mr. Ndirangu	Project Officer	The International Small Group Tree Planting Program (TIST)
Mr. Joshua Irungu	formerly Project Officer	TIST
Mr. Maina Karaba	NRM Officer	Inter -Governmental Agency on Development (IGAD)
Ms. Alice Wataka	Deputy Headteacher	Kileleshwa Primary School
Mrs. Mwambi	Headteacher	Kangemi Primary School
Mr. Henry Raichena	Principal	Mangu High School
Mr. D.N. Njoroge		Murinduko Secondary School, Embu
	Headteacher	Kirege Secondary School, Meru
Mr. Hezekiah Miriti	Proprietor	Hellis Private School
Ms. Mary Wangombe	Headteacher	Mahiga Girls Secondary School

Ms. Lucy Wachira	Headteacher	Hill View Academy, Mukurueni
Mr. Kanai	Proprietor	Blessed Kids Primary School
Mr. Oyuma	Headmaster	Blessed Kids Primary School
Ms. Beatrice Muchemi	Teacher	Royal Girls Secondary School
Ms. Florence	Matron	Royal Girls Secondary School
Ms. Njeri wa Selector	Proprietor	Selector Bar and Restaurant
Mr. Justin Wachira	Principal	Njoro Boys
Mrs. Mwaniki	Cateress	Njoro Boys
Mr. Wachira	Deputy Headteache	Njoro Day School
Mr. Otieno	Proprietor,	Billionaire Rural Technology, Bungoma
Mr. Patrick Kihodo	Deputy Headteacher,	Sisokhe Secondary School, Kakamega
Mr. Peter Kagwai	Headteacher,	Grassland Academy, Kericho
Mr. Biagon	Proprietor,	Grassland Academy, Kericho
Prof(Mrs.) and Mr. Kinyua	Proprietors	Kagaki School, Nakuru

ANNEX III: Evaluation Itinerary

DATE	8.30-10.30am	11-12.30am	2.30-4pm	4pm-5pm
25TH –Oct Monday			*Arrival of International Consultant*	
26th –Oct Tuesday	PMU Document Review	Kangemi Primary *Principal* Kileleshwa Primary *Principal*, RTE Workshop, *David Kamau* Ole Polos Woodlot	MoE *Faith Odongo*	UNDP *David Githaiga*
27th –Oct Wednesday	PMU Document review	UNWFP Project officer *Kristoffer Wielsen*	IDRC *Dr. Kituyi*	PMU
28th –Oct Thursday	*Departure of international Consultant*			
29th-Oct Friday	-10:00 am- Ndiangui Ndungu, SWEMNET Chair; 0722-242-557		Emmanuel Ngeywo; MSc Student 0721282334	
1st –Nov Monday	David Githaiga – UNDP;	- Foulata Kwena, UNDP	-Benson Kanyi; afternoon; TBPT; Karura Forest 0727-432430	7:30 pm: Charles Kirubi; City Cabanas; 0710-100059
2nd-Nov Tuesday	Field *Juja prpeparatory,Murinduko ,Kirege,Hellys Academy,*			
3rd-Nov Wednesday	*Mutuma Secondary, Hill view Academy-Mukurweini (woodlot), Mahiga- Othaya*,Nyeri-Nyahururu-Nakuru *Bridge Waters, Blessed Kids, SME and Kagaki in the evening*			
4th-Nov Thursday	*Poa Place Eld, Sisokhe Kakamega to Kisumu*			
5th-Nov Friday	*From Kisumu to Nairobi - To Mlolongo – Amrita Children's Home*			
8th Nov Monday				
9th Nov Tuesday	-Ashington Ngige – PSC, Member; Bandari Plaza, Westlands		-Ephantus Wame, ISAK (Stoves Association) United Club	
10th Nov Wednesday	-Timothy Gathirimu – Tree planting consultant, Kiserian		-Paul Kirai; PSC Member; Building next to Milimani Hotel	
11th Nov. Thursday				
12th Nov Friday				
15th Nov Monday	Mr. Maina Karaba - IGAD		-Ndirangu, TIST	
16th Nov Tuesday	Mr. Michael Gachanja - KFWG			
17th Nov Wednesdya			-Joshua Irungu – TIST	
18th Nov Thursday	Mr. Bernard Osawa - ERC			

ANNEX IV: Summary of Questionnaire Responses

QUESTIONNAIRE RESPONSES: GEF MSP MARKET TRANSFORMATION FOR BIOMASS STOVES

	Respondents	**CMG**	**FO**	**EK**	**FK**	**NN**	**BK**	**CG**	**CN**	**EW**	**CK**	**TG**	**PK**	
No.	Element rated													
1	**Conceptualisation (R - 5.42)**	6	4	6	5	5	6	5	5	6	6	5	6	**5.42**
	Stakeholder Participation (R - 5.4)													
2.1	Dissemination of information	6	4	5	5	5	6	6	5	6	6	5	6	
2.2	Consultation	6	4	6	5	5	6	5	6	5	6	6	6	
2.3	Stakeholder participation in design stages	6	4	5	5	5	6	5	5	6	6	5	6	
														5.4
	Implementation Approach (R - 4.8)													
3.1	Use of logical framework	3	3	4	4	5	5	5	6	4	5	5	5	
3.2	Adaptive management	5	5	3	5	5	5	6	5	6	5	5	5	
3.3.1	Electronic information use in implementation	4	4	4	5	5	5	4	5	5	6	5	4	
3.3.2	Electronic information use in stakeholder participation	4	4	4	5	5	5	5	6	6	6	4	6	
3.3.3	Electronic information use in monitoring activities	4	3	3	3	5	5	5	5	5	4	5	6	
3.4	Institutional operational relationships	4	5	4	5	5	5	6	6	6	5	4	4	
3.5	Technical capacities	4	4	4	4	6	6	5	6	5	6	4	6	**4.8**
	Monitoring and Evaluation (R - 4.6)													
4	Monitoring and evaluation	4	3	3	4	4	4	5	5	6	5	6	6	**4.6**
	Stakeholder Participation(R - 5.1)													

5.1	Production and dissemination of information by the project	4	4	6	5	5	5	5	5	6	5	6	5	
5.2	Local resource users and NGO participation	5	5	4	4	4	4	4	6	5	6	6	4	
5.3	Partnerships and collaborative relationships required by the project	5	5	6	5	4	4	5	6	6	6	5	6	
5.4	Government institutional involvement	5	5	4	5	5	5	6	6	5	6	5	6	**5.1**
	Achievement of Outcomes/Objectives & Sustainability (R - 4.9)													
6	Achievement of objectives	3	3	5	4	4	5	5	5	5	6	6	6	
7	Sustainability	4	5	4	6	5	5	5	5	5	6	5	6	**4.9**
Initials	**Respondent**													
CMG	Charles Mwangi Gitundu - Project Manager													
FO	Faith Odongo - MoE													
EK	Evans Kituyi - Former NTO													
FK	Foulata Kwena - UNDP PO													
NN	Ndiangui Ndirangu - SWEMNET													
BK	Benson Kanyi - TBPT													
CG	Christopher Gakahu - UNDP													
CN	Charles Nyandiga - UNDP, former GEF Focal Point													
EW	Ephantus Wamae - ISAK													
CK	Charlest Kiama - RTE													
TG	Timothy Gathirimu - Trainer													
PK	Paul Kirai - PSC													

ANNEX V: Site Visit Report

During the Final Evaluation, site visits were made to institutions around Nairobi, Mt. Kenya, the Rift Valley, Western and Nyanza Provinces. A total of 17 schools were visited, 3 stove manufacturers (including RTE) and one SME, the Selector Bar and Restaurant in Nakuru. The Nairobi schools were visited on 26th October, with the other visits being made between Tuesday, 2nd November – Friday 5th November 2010.

The issues that were witnessed included old stoves of more than 25 years (installed in 1985) that were still functioning effectively, well maintained stoves and poorly maintained stoves, good and bad practices with regard to wood treatment, including drying and splitting, effects of post-election violence on school enrollments, well managed woodlots, poor site-species matching resulting in stunted growth of eucalyptus trees, trees planted next to a wetland and uprooting of eucalyptus trees. Visits were also made to the show-rooms of several stove makers including RTE in Rongai, Botto Solar in Nakuru and Billionaire Rural Technology Enterprises in Bungoma.

Table V: Summary of Site Visits

Date	School/SME visited	Summary	Key Issues
26th Oct	Kileleshwa Primary School (Ms. Alice Wataka, Deputy Headteacher)	With 300 liter stove that cost Ksh. 130,000 plus VAT	Found stove door not closed because the wood had not been split
	Kangemi Primary School (Mrs. Mwambi)	600 liter and 200 liter, part of WFP school feeding programme; feeds 2,055 children	Well maintained stove; firewood costs have reduced from Ksh. 40,000/month to Ksh. 25,000/six months (2 school terms)
2nd Nov	Mangu High School, Thika (Mr. Henry Raichena, Headteacher)	6 stoves installed in 2006 serving 800 students. Two-burner from RTE replaced with one from a competitor; not as efficient.	No wood shed so wood left out in the open and is rained on; tar on kitchen rafters have ignited and almost burnt down the kitchen. Kitchen staff in collusion with procurement officer had destroyed the stoves to make them inefficient because of reduction in kick-back from firewood.
	Murinduko Secondary School, Embu (Mr. Njoroge, Headteacher)	2x300 liters stove and 2-burner stove installed in 2000. Serves 300 students	Well maintained, clean stoves. Trees with stunted growth. They've harvested some for poles but small size a constraint. Suspect poor site-species match and would like to plant other species, such as *Grevelia robusta*. Also, termite attacks have killed some trees and some trees stolen.
	Kirega Secondary School	2 x 300 liter stoves serve 160 students (80 of them day scholars)	Dirty, poorly maintained stoves. Wood not dried, therefore evidence of tar around doors and kitchen roof. Also, open fire next to stoves.
	Hellys Private School (Mr. Hezekiah Miriti, Proprietor)	1x300 liter stove and 2-burner stove serves 212 primary level pupils (with 97 boarders), installed in 2005	Thriving woodlot on proprietor's land. Well maintained, clean stoves. Abandoned materials from another stove maker, who was rejected by proprietor.
	Muthambi Secondary School, Chogoria	Woodlot along the fence, with evidence of harvesting	Did not enter kitchen because headteacher not in.
3rd Nov.	Mahiga Girls Secondary School, Othaya (Ms. Mary Wangombe, Principal)	3x300 liters stoves and 2-burner installed in 1997. There capacity was increased by adding a steel panel to the pot. Serve 764 boarding students, from 560 students before.	Recommended they remove old stoves and install bigger capacity stoves. Woodlot planted next to wetland; trees cut down following instruction from school Board but already coppicing. Poor wood and stove management, wet wood, not split and not closing door.
	Hill View Academy, Mukurueni (Ms. Lucy Wachira, Headmistress)	2-burner stove installed in 2007, serving 62 pupils (nursery to std. 8).	Well maintained stove, but small rapture of top ring, due to defects in the raw material. RTE to replace free of charge. Woodlot doing well but with some evidence of termite attacks needing to be sprayed. Good wood management, with covered shed for split wood.
	Blessed Kids Primary School, Nakuru (Mr. Kanai, Proprietor & Mr. Oyuma - Headmaster)	1x200 liter stove and 2-burner stove, serving a reduced number of pupils due to post-election violence. (200 liter stove not being used)	Woodlot on Proprietor's land. Pruned the eucalyptus, although they are self pruning.
	Royal Girls Secondary School (Ms. Beatrice Muchemi, Headteacher and Florence, Matron)	1x300 liters and 2-burner stove. Student population went from 190 to 100 because of the PEV.	One stove not being used; school struggling to repay loans. Woodlot doing well, although first batch of seedlings dried up.
	Elite Lanet Academy, Nakuru	1x200 liter stove and 2-burner from a competitor. Student population went down	Stove not so well maintained.

		because of PEV as well as school changing hands.	
	Botto Solar, Nakuru (Mr. Ephraim Botto, Proprietor and MD)	Produces various sizes and designs of stoves and solar equipment.	Cost of materials and constraints when clients don't pay for stoves are challenges that reduce the industry's growth.
	Selector Bar and Restaurant, Showground, Nakuru (Ms. Njeri wa Selector, Proprietor)	1x6-burner and 1x2burner. Restaurant serving a range of meat and vegetable dishes.	Stoves well maintained and have reduced cost of firewood and need to have many stoves in the kitchen – which is now cooler and cleaner.
4th Nov.	Njoro Boys Secondary School, Njoro (Mr. Justin Wachira, Principal & Mrs. Mwaniki)	More than 6x300liter stoves and 1x2-burner stoves installed in 1985 Serves 1,000 boarding boys. Still in good working condition.	Good wood management practices, with wood split and stored in a covered shed months before its used. Needing to expand the kitchen. Well maintained woodlot.
	Njoro Day School (Mr. Wachira, Deputy Headteacher)	3x300 liters stoves and 1x2-burner, serves 560 students.	Very well maintained and clean stoves. Only slight problem with the chimney, RTE to follow up and fix. Woodlot doing well.
	Billionaire Rural Technology Enterprises, Bungoma, Stove Maker (Mr. Otieno, Proprietor)	Produces a variety of stoves, started making stoves in 2005 after attending training offered by GTZ. Sells 100 liter, galvanized iron stove for Ksh. 100,000. Requires schools to pay 70% up front and the rest slowly.	Silver spray used to make stoves look shiny.
	Sisokhe Secondary School, Kakamega (Ms. Patricia Kihodo, Deputy Headteacher, Ms. Evelyne, Cateress, Richard – Cook)	2x300 liter stoves and 1x2-burner installed in 2008, serve 240 day students	Very clean and well maintained stoves and kitchen. Thriving woodlot planted in 2007.
5th Nov.	Grassland Academy, Kipsoit, Kericho (Mr. Biagon, Proprietor, and Mr. Peter Kagwai, Headmaster)	2x300 liter stoves and 1x2-burner and an oven installed in 2003, serves 350 students (180 boarders)	Stoves still functioning well. Have woodlot and have established a commercial woodlot, that's bringing in good income. Demand for seedlings high also because of proximity to Mau forest which is being rehabilitated.
	Kagaki School, Nakuru (Prof. (Mrs) and Mr. Kinyua, Proprietors)	1x300 liter and 1x2-burner stoves installed in 2005. Oven installed in 2009. Started with 39 pupils and has grown to 485 day pupils (with Class 8 boarding)	GTZ providing technical assistance to install biogas (GTZ gives ksh. 55,000 to cover skilled labour and school provides materials. A 32-cubic meters digester goes for Ksh. 320,000.

ANNEX VI: Terms of Reference (ToR)

Market Transformation for Highly Efficient Biomass Stoves for Institutions and Medium-Scale Enterprises in Kenya (PIMS 3166 MSP: Removal of Barriers to Energy Efficiency Project)

Terms of Reference (ToR)

For

Final Project Evaluation

1. INTRODUCTION.

a) UNDP/GEF Monitoring Evaluation (M&E) Policy

The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF has four objectives:

i) To monitor and evaluate results and impacts;
ii) To provide a basis for decision making on necessary amendments and improvements;
iii) To promote accountability for resource use; and
iv) To document, provide feedback on, and disseminate lessons learned. A mix of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project – e.g. periodic monitoring of indicators -, or as specific time-bound exercises such as mid-term reviews, audit reports and final evaluations.

In accordance with UNDP/GEF M&E policies and procedures, all regular and medium-sized projects supported by the GEF should undergo a final evaluation upon completion of implementation. A final evaluation of a GEF-funded project (or previous phase) is required before a concept proposal for additional funding (or subsequent phases of the same project) can be considered for inclusion in a GEF work program. However, a final evaluation is not an appraisal of the follow-up phase.

Final evaluations are intended to assess the relevance, performance and success of the project. It looks at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. It will also identify/document lessons learned and make recommendations that might improve design and implementation of other UNDP/GEF projects.

b) The project objectives and its context within the program country

The Government of Kenya (GoK) has implemented a project aimed at Market Transformation for Highly Efficient Biomass Stoves for Institutions and Medium-Scale Enterprises in Kenya (SMEs). The budget support was provided by the Global Environment Facility (GEF), UNDP Kenya Country Office and GoK in-kind contribution. UNDP is the Implementing Agency for the GEF funded project, which is executed nationally by the Ministry of Energy (MoE) through RETAP. Various stakeholders are also involved throughout the project. The project is implemented using an NGO execution modality from UNDP Country Office and is implemented according to standard UNDP programmatic procedures.

RETAP works with specialized implementation partners including RTE, who is contracted to coordinate the overall production, supply, installation and servicing of stoves. It also trains

stove users and coordinates tree planting activities and extension services on behalf of RETAP including coordinating the establishment of commercial nurseries.

The expected project outcome is the removal of barriers to the adoption of sustainable biomass energy practices and technologies by institutions and SMEs in rural and urban areas of Kenya. The project builds on and scales up a successfully implemented GEF small grants programme (SGP) in which a revolving fund credit scheme to disseminate energy saving stoves to institutions in Kenya on a commercial basis was established.

The overall project objective is a sustainable reduction of GHG emissions through a transformation of the institutional and small, medium and micro enterprise high-efficiency stove markets. The target is an accumulated total of between 400,000 and 960,000 tonnes of CO_2 equivalent by 2020. Specific project outcomes include:

I. Development and strengthening of supportive policies and legal framework for sustainable biomass energy businesses;
II. Strengthening and expanding supply chains for both products and financing and;
III. Improved awareness by policy makers, financial sector, suppliers and end-users on benefits and market opportunities fro improved stoves.

2. EVALUATION OBJECTIVE

It is the policy of UNDP/GEF that all regular and medium-sized projects supported by GEF should undergo a final evaluation upon completion of implementation. This policy has four objectives:

a. To monitor and evaluate results and impacts of project activities highlighting strengths and weaknesses in the design and implementation.
b. To provide a basis for decision making on amendments and improvements on policies, strategies, programme management, procedures and projects;
c. To promote accountability on resource use against objectives and;
d. To document, provide feedback and disseminate results and lessons learnt.
e. Identify factors that hindered attainment of project objectives if any.

2.2 Objectives of the Evaluation

The overall objective of this final evaluation is to:

- Review the performance and the implementation of the Market Transformation for Sustainable Biomass Energy Project.
- Assess the extent to which the global environment objectives, the improvements and targets as described in the project document have been achieved.
- To analyze the efficiency and both technical and cost effectiveness of how the project has moved towards its objectives, outcomes and the targeted beneficiaries.
- Establish the issue of sustainability – how the benefits will be sustained in the long term
- Assess the project outcomes and impact pathways
- Assess the quality of participation and consultation with multiple stakeholders

Furthermore, the final evaluation is expected to present and analyse main findings and key lessons learnt including examples of good practices i.e. technical, political, management et cetera for future projects in the country, region and GEF to examine the projects compliance with the application of the incremental cost (IC) concept which is the fundamental operational principle of the GEF.

The final evaluation report will be targeted at meeting the evaluation needs of all stakeholders i.e. the Government of Kenya- Ministry of Energy, UNDP, RETAP and GEF.

The Specific Evaluation Objectives include:

a. Assess and document the experience with regard to the implementation, performance, impact and success of the Market Transformation for Sustainable Biomass Energy Project.
b. Evaluate signs of potential impact and sustainability of results including: the contribution to increased liquidity in the institutional, SME and formal household stove markets and; the extent of adoption of practical knowledge and techniques and; the achievement of global environmental goals
c. Identify and document key lessons learnt and suggest actions to be taken at the local level to facilitate continuation and sustainability of the project outcomes/ benefits in line with the overall project goal.
d. Present and analyse examples of good practices.
e. Evaluate the roles and responsibilities of the various agencies and institutions and the level of co-ordination of the various players including the project management structure.
f. Describe key factors that will require attention to improve prospects for sustainability and the potential for replication.
g. Make recommendations that might improve design and implementation of other UNDP/GEF projects.

3. PRODUCTS EXPECTED FROM THE EVALUATION

Deliverables

Three copies of the draft final evaluation report (which normally should not exceed 50 pages in total) shall be submitted for review to UNDP country office, The Ministry of Energy, UNDP-GEF Regional Coordinator and PMU in a week's time after the end of the field mission. The findings of the mission will be presented and discussed in a general review meeting attended by the project partners. Four copies of the final report and one electronic copy will be required.

The report shall follow the format as follows:

1. Executive Summary
2. Introduction
    a. Purpose of the Evaluation
    b. Background
    c. Evaluation Methodology
3. The Project and its development context
4. Evaluation findings and Conclusions
    4.1 Project Formulation
    4.2 Implementation
    4.3 Results
5. Recommendations
6. Lessons Learnt
    a. Operational
    b. Developmental Lessons
7. Annexes
    a. Terms of Reference

b. *Project Performance Matrices*
c. *Itinerary of the Evaluation Team*
d. *Lists of Persons Consulted*
e. *Literature and Recommendations*

By the end of the exercise, the consultants shall submit 5 hard copies and an electronic copy in Microsoft Word platform on a CD-R to the Project Management Unit.

4. METHODOLOGY/ EVALUATION APPROACH

The evaluation will be based on findings and factual statements identified from review of relevant documents including:

1) Document Review (Desk Study) ***see annex for document list.***
2) Interviews.
3) Field Visits: The mission will also undertake field visits and interview the stakeholders including the target beneficiaries, government officials (both at National and Regional levels), the private sector players and NGO's. Participation of stakeholders in the evaluation should be maintained at all time, reflecting opinions, expectations and vision about the contribution of the project towards the achievement of its objectives.
4) Questionnaires.
5) Any other participatory techniques and other approaches deemed appropriate by the mission for the gathering and analysis of data.

5. REQUIREMENTS OF THE EVALUATION TEAM

Two consultants are proposed to conduct the evaluation i.e. a national and an international consultant.

5.1. International Consultant

The international consultant will serve as the Team Leader and;

- Shall be a Land Resources/ Climate Change (Energy) specialist having Post-Graduate qualifications and 15 years of relevant experience preferably in renewable energy technologies (RETs) development and Natural Resources Management.
- Should have a substantive knowledge and experience in the technical, socio-economic and environmental issues and their applications preferably in the developing countries.
- Extensive experience in project formulation, execution and evaluation is required.
- Previous involvement and understanding of UNDP/GEF procedures is very important.
- The consultant should be fluent in English and have strong writing skills coupled with relevant experience in results based monitoring and evaluation techniques.

5.2 National Consultant

- The National Consultant shall be a Natural Resources Management Expert, Ecologist or Energy specialist having an advanced University degree preferably in relevant technical and field experiences of around 10 years.
- He or She should be well acquainted with Kenya's contemporary environment management issues and challenges.

- Previous involvement or knowledge of the institutional and organizational set up of the energy sector will be an added advantage and some experience in project formulation, execution and evaluation is an asset.
- The consultant should be fluent in English and possess strong technical writing skills.

6. IMPLEMENTATION ARRANGEMENTS

The two consultants will work together as a team towards producing the evaluation report. The National consultant will be responsible for providing any necessary background information, attending meetings when necessary and preparation of the relevant parts of the report. The consultant will be contracted by UNDP Kenya country office in consultation with GEF/RCU (Pretoria). The Project Management Unit shall arrange for the consultant all necessary site visits and meetings. UNDP country office in coordination with the PMU shall arrange logistics for the mission including hotel reservations and transportation during the mission, stakeholder interviews and arrangements for field visits. The mission will maintain close liaison with UNDP Resident Representative, The Ministry of Energy as well as the PMU.

6.1 Time Frame

The duration of the field mission for the international consultant is 7 working days and the total task is 12 days. For the national consultant, the field mission will be 10 days. The consultant(s) will be allowed 2 weeks from receiving feedback to respond to the comments by the project partners and submit a final report. The entire exercise shall be carried out over a period of 4 weeks.

	Itinerary	PERIOD			
		Week 1	Week 2	Week 3	Week 4
1	Briefings for Evaluators				
2	Desk Review				
3	Field Visits				
	The Project Management Unit shall arrange for the consultant all necessary site visits and meetings. UNDP country office in coordination with the PMU shall arrange logistics for the mission including hotel reservations and transportation during the mission and stakeholder interviews.				
4	Debriefings				
5	Validation of Preliminary Findings				
	Validation of preliminary findings with stakeholders through circulation of initial reports For comments, meetings and other types of feed back.				
6	Preparation of final evaluation report				
	Three copies of the draft final evaluation report (which normally should not exceed 50 pages in total) shall be submitted for review to UNDP country office, The Ministry of Energy, UNDP-GEF Regional Coordinator and PMU in a week's time after the end of the field mission. The findings of the mission will be presented and discussed in a general review meeting attended by the project partners. Four copies of the final report and one electronic copy will be required				

7. SCOPE OF THE EVALUATION- SPECIFIC ISSUES TO BE ADDRESSED.

The following shall form the categories that the evaluation will look into in line with the evaluation report outlined in section 3 and includes specific issues to be addressed under each broad category. These categories are the minimum required by UNDP and GEF.

1. Executive summary

- Brief description of project
- Context and purpose of the evaluation
- Main conclusions, recommendations and lessons learned

2. Introduction

- Purpose of the evaluation
- Key issues addressed
- Methodology of the evaluation
- Structure of the evaluation

3. The project(s) and its development context

- Project start and its duration
- Problems that the project seek to address
- Immediate and development objectives of the project
- Main stakeholders
- Results expected

4. Findings and Conclusions

In addition to a descriptive assessment, all **criteria marked with (R) should be rated** using the following divisions of the six-point rating scale: Highly Satisfactory (HS), Satisfactory (S), Marginally Satisfactory (MS), Unsatisfactory (U), Highly Unsatisfactory (HS).

4.1. Project Formulation

Conceptualization/Design (R). This should assess the approach used in design and an appreciation of the appropriateness of problem conceptualization and whether the selected intervention strategy addressed the root causes and principal threats in the project area. It should also include an assessment of the logical framework and whether the different project components and activities proposed to achieve the objective were appropriate, viable and responded to contextual institutional, legal and regulatory settings of the project. It should also assess the indicators defined for guiding implementation and measurement of achievement and whether lessons from other relevant projects (e.g., same focal area) were incorporated into project design.

Country-ownership/Driveness. Assess the extent to which the project idea/conceptualization had its origin within national, sectoral and development plans and focuses on national environment and development interests.

Stakeholder participation (R) Assess information dissemination, consultation, and "stakeholder" participation in design stages.

Replication approach. Determine the ways in which lessons and experiences coming out of the project were/are to be replicated or scaled up in the design and implementation of other projects (this also related to actual practices undertaken during implementation).

Other aspects to assess in the review of Project formulation approaches would be UNDP comparative advantage as IA for this project; the consideration of linkages between projects and other interventions within the sector and the definition of clear and appropriate management arrangements at the design stage.

4.2. Project Implementation

Implementation Approach (R). This should include assessments of the following aspects:

(i) The use of the logical framework as a management tool during implementation and any changes made to this as a response to changing conditions and/or feedback from M and E activities if required.

(ii) Other elements that indicate adaptive management such as comprehensive and realistic work plans routinely developed that reflect adaptive management and/or; changes in management arrangements to enhance implementation.

(iii) The project's use/establishment of electronic information technologies to support implementation, participation and monitoring, as well as other project activities.

(iv) The general operational relationships between the institutions involved and others and how these relationships have contributed to effective implementation and achievement of project objectives.

(v) Technical capacities associated with the project and their role in project development, management and achievements.

Monitoring and evaluation (R). Including an assessment as to whether there has been adequate periodic oversight of activities during implementation to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan; whether formal evaluations have been held and whether action has been taken on the results of this monitoring oversight and evaluation reports.

Stakeholder participation (R). This should include assessments of the mechanisms for information dissemination in project implementation and the extent of stakeholder participation in management, emphasizing the following:

(i) The production and dissemination of information generated by the project.

(ii)Local resource users and NGOs participation in project implementation and decision making and an analysis of the strengths and weaknesses of the approach adopted by the project in this arena.

(iii) The establishment of partnerships and collaborative relationships developed by the project with local, national and international entities and the effects they have had on project implementation.

(iv) Involvement of governmental institutions in project implementation, the extent of governmental support of the project.

Financial Planning: Including an assessment of:

(i) The actual project cost by objectives, outputs, activities

(ii) The cost-effectiveness of achievements

(iii) Financial management (including disbursement issues)

(iv) Co-financing [9] Please track and comment on successful realization of the co-financing commitments.

- Sustainability. Extent to which the benefits of the project will continue, within or outside the project domain, after it has come to an end. Relevant factors include for example: development of a sustainability strategy, establishment of financial and economic instruments and mechanisms, mainstreaming project objectives into the economy or community production activities.

Execution and implementation modalities. This should consider the effectiveness of the UNDP counterpart and Project Co-ordination Unit participation in selection, recruitment, assignment of experts, consultants and national counterpart staff members and in the definition of tasks and responsibilities; quantity, quality and timeliness of inputs for the project with respect to execution responsibilities, enactment of necessary legislation and budgetary provisions and extent to which these may have affected implementation and sustainability of the Project; quality and timeliness of inputs by UNDP and GoC and other parties responsible for providing inputs to the project, and the extent to which this may have affected the smooth implementation of the project.

An overall rating of Project Implementation should be provided using the six point rating scale Highly Satisfactory (HS), Satisfactory (S), Marginally Satisfactory (MS), and Unsatisfactory (U) and Highly Unsatisfactory (HS) ratings.

4.3. Results

Attainment of Outcomes/ Achievement of objectives (R*):* Including a description ***and rating*** of the extent to which the project's objectives (environmental and developmental) were achieved using the six point rating scale Highly Satisfactory (HS), Satisfactory (S), Marginally Satisfactory (MS), and Unsatisfactory (U) and Highly Unsatisfactory (HS) ratings. If the project did not establish a baseline (initial conditions), the evaluators should seek to determine it through the use of special methodologies so that achievements, results and impacts can be properly established.

This section should also include reviews of the following:

Sustainability*:* Including an appreciation of the extent to which benefits continue, within or outside the project domain after GEF assistance/external assistance in this phase has come to an end.

- Contribution to upgrading skills of the national staff

5. Recommendations

[9] Please see guidelines at the end of Annex 1 of these TORs for reporting of co-financing

- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives

6. Lessons learned

This should highlight the best and worst practices in addressing issues relating to relevance, performance and success.

7. Evaluation report Annexes

Evaluation TORs
Itinerary
List of persons interviewed
Summary of field visits
List of documents reviewed
Questionnaire used and summary of results
Comments by stakeholders (only in case of discrepancies with evaluation findings and conclusions)

Guidelines for Ratings

1. Progress toward achieving project objectives

Rating of Project Progress towards Meeting Objective: Taking into account the cumulative level of progress compared to the target level across all of the objective indicators, please rate the progress of the project towards meeting its objective, according to the following scale.

Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”.
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.
Marginally Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.
Marginally Unsatisfactory (MU)	Project is expected to achieve of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental objectives.
Unsatisfactory (U)	Project is expected not to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (U)	The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.

2. Progress in project implementation

Highly Satisfactory (HS)	Implementation of all components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as "good practice".
Satisfactory (S)	Implementation of most components is in substantial compliance with the original/formally revised plan except for only a few that are subject to remedial action.
Marginally Satisfactory (MS)	Implementation of some components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.
Marginally Unsatisfactory (MU)	Implementation of some components is not in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of most components is not in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of none of the components is in substantial compliance with the original/formally revised plan.

8. TERMS OF REFERENCE ANNEXES

Annex 1: Terminology in the GEF Guidelines to Terminal Evaluations
Annex 2: List of Documents to be reviewed by the evaluator

Annex 1. Explanation on Terminology Provided in the GEF Guidelines to Terminal Evaluations

Implementation Approach includes an analysis of the project's logical framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management.

Some elements of an effective implementation approach may include:
- The logical framework used during implementation as a management and M&E tool
- Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
- Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
- Feedback from M&E activities used for adaptive management.

Country Ownership/ Driveness is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements where applicable. Project Concept has its origin within the national sectoral and development plans

Some elements of effective country ownership/driveness may include:
- Project Concept has its origin within the national sectoral and development plans
- Outcomes (or potential outcomes) from the project have been incorporated into the national sectoral and development plans

- Relevant country representatives (e.g., governmental official, civil society, etc.) are actively involved in project identification, planning and/or implementation
- The recipient government has maintained financial commitment to the project
- The government has approved policies and/or modified regulatory frameworks in line with the project's objectives

For projects whose main focus and actors are in the private-sector rather than public-sector (e.g., IFC projects), elements of effective country ownership/driveness that demonstrate the interest and commitment of the local private sector to the project may include:

- The number of companies that participated in the project by: receiving technical assistance, applying for financing, attending dissemination events, adopting environmental standards promoted by the project, etc.
- Amount contributed by participating companies to achieve the environmental benefits promoted by the project, including: equity invested, guarantees provided, co-funding of project activities, in-kind contributions, etc.
- Project's collaboration with industry associations

Stakeholder Participation/Public Involvement consist of three related, and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF-financed project. The term also applies to those potentially adversely affected by a project.

Examples of effective public involvement include:

Information dissemination

- Implementation of appropriate outreach/public awareness campaigns

Consultation and stakeholder participation

- Consulting and making use of the skills, experiences and knowledge of NGOs, community and local groups, the private and public sectors, and academic institutions in the design, implementation, and evaluation of project activities

Stakeholder participation

- Project institutional networks well placed within the overall national or community organizational structures, for example, by building on the local decision making structures, incorporating local knowledge, and devolving project management responsibilities to the local organizations or communities as the project approaches closure
- Building partnerships among different project stakeholders
- Fulfillment of commitments to local stakeholders and stakeholders considered to be adequately involved.

Sustainability measures the extent to which benefits continue, within or outside the project domain, from a particular project or program after GEF assistance/external assistance has come to an end. Relevant factors to improve the sustainability of project outcomes include:

- Development and implementation of a sustainability strategy**.**
- Establishment of the financial and economic instruments and mechanisms to ensure the ongoing flow of benefits once the GEF assistance ends (from the public and private sectors, income generating activities, and market transformations to promote the project's objectives).
- Development of suitable organizational arrangements by public and/or private sector**.**
- Development of policy and regulatory frameworks that further the project objectives**.**
- Incorporation of environmental and ecological factors affecting future flow of benefits.

- Development of appropriate institutional capacity (systems, structures, staff, expertise, etc.) **.**
- Identification and involvement of champions (i.e. individuals in government and civil society who can promote sustainability of project outcomes)**.**
- Achieving social sustainability, for example, by mainstreaming project activities into the economy or community production activities**.**
- Achieving stakeholders consensus regarding courses of action on project activities.

Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Examples of replication approaches include:

- Knowledge transfer (i.e., dissemination of lessons through project result documents, training workshops, information exchange, a national and regional forum, etc).
- Expansion of demonstration projects.
- Capacity building and training of individuals, and institutions to expand the project's achievements in the country or other regions.
- Use of project-trained individuals, institutions or companies to replicate the project's outcomes in other regions.

Financial Planning includes actual project cost by activity, financial management (including disbursement issues), and co-financing. If a financial audit has been conducted the major findings should be presented in the TE.

Effective financial plans include:
- Identification of potential sources of co-financing as well as leveraged and associated financing[10].
- Strong financial controls, including reporting, and planning that allow the project management to make informed decisions regarding the budget at any time, allows for a proper and timely flow of funds, and for the payment of satisfactory project deliverables
- Due diligence due diligence in the management of funds and financial audits.

Co financing includes: Grants, Loans/Concessional (compared to market rate), Credits, Equity investments, In-kind support, Other contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries. Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6.

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Cost-effectiveness assesses the achievement of the environmental and developmental objectives as well as the project's outputs in relation to the inputs, costs, and implementing time. It also examines the project's compliance with the application of the incremental cost concept. Cost-effective factors include:

[10] Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6. The following page presents a table to be used for reporting co-financing.

- Compliance with the incremental cost criteria (e.g. GEF funds are used to finance a component of a project that would not have taken place without GEF funding.) and securing co-funding and associated funding.
- The project completed the planned activities and met or exceeded the expected outcomes in terms of achievement of Global Environmental and Development Objectives according to schedule, and as cost-effective as initially planned.
- The project used either a benchmark approach or a comparison approach (did not exceed the costs levels of similar projects in similar contexts)

Monitoring & Evaluation. Monitoring is the periodic oversight of a process, or the implementation of an activity, which seeks to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan, so that timely action can be taken to correct the deficiencies detected. Evaluation is a process by which program inputs, activities and results are analyzed and judged explicitly against benchmarks or baseline conditions using performance indicators. This will allow project managers and planners to make decisions based on the evidence of information on the project implementation stage, performance indicators, level of funding still available, etc, building on the project's logical framework.

Monitoring and Evaluation includes activities to measure the project's achievements such as identification of performance indicators, measurement procedures, and determination of baseline conditions. Projects are required to implement plans for monitoring and evaluation with adequate funding and appropriate staff and include activities such as description of data sources and methods for data collection, collection of baseline data, and stakeholder participation. Given the long-term nature of many GEF projects, projects are also encouraged to include long-term monitoring plans that are sustainable after project completion.

Financial Planning Cofinancing

Co financing (Type/Source)	IA own Financing (mill US$)		Government (mill US$)		Other* (mill US$)		Total (mill US$)		Total Disbursement (mill US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
– Grants										
– Loans/Concessional (compared to market rate)										
– Credits										
– Equity investments										
– In-kind support										
– Other (*)										
Totals										

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Annex 2: List of Documents to be reviewed by the evaluators

The following shall form part of the documents to be reviewed by the evaluators inter alia:

1) Project Document
2) Quarterly Operational Reports (QORs).
3) Annual Project Reports (APRs).
4) Minutes of both the Technical and Steering Committees' meetings.
5) Project Implementation Reports (PIR); in addition to the technical reports produced by the project and the different promotional materials.
6) Mid-Term Review Report
7) Survey reports and findings

A list of the above reports will be shared by the consultants before the commencement of the evaluation.

ANNEX VII: Minutes of PSC Meeting

Ministry of Energy

GEF

GEF Biomass Energy Project

Market Transformation for Sustainable Biomass Energy

Minutes of the Project Steering Committee meeting held on Tuesday, 8th March, 2011 in the Ministry of Energy Conference Room, Nyayo House, Nairobi

Present

1	Patrick M Nyoike	PS, Ministry of Energy	Chairman
2	Christopher Gakahu	UNDP Kenya- Deputy Country Director-Programmes	Co-chairman
3	Mercy Mwangi	Forest Action Network	
4	Kristoffer Welsien	UN World Food Programme	
5	Enos A. Avela	RETAP	
6	Charles Gitundu	RETAP	
7	Ogweno Tindi	RETAP	
8	Robert Mugabe	RETAP	
9	Violet Matiru	National Consultant UNDP Kenya	
10	Foulata Kwena	UNDP Kenya	
11	Emmanuel Ngeywo	IT Power	
12	Edwin Nateminya	UNDP Kenya	
13	Erick Akotsi	Ministry of Energy	
14	Eng Raphael Khazenzi	Ministry of Energy	
15	Faith Odongo	Ministry of Energy	Secretary
16	Charles G. Karanja	TBPT	

Apologies

1		UNDP-GEF Climate Change Regional Coordinator
2	Stephen Karekezi	AFREPREN
3	Jason Schaffler	International Consultant – UNDP Kenya
4	David Kamau	RTE

Agenda

1. Adoption of the Agenda
2. Introductory Remarks
    a. PS Ministry of Energy

   b. RETAP National Project Manager (NPM)
   c. UNDP-GEF Climate Change Regional Co-ordinator
   d. UNDP Deputy Country Director, Programmes
3. Confirmation of the minutes of the previous PSC meeting
4. Matters arising from the minutes of the previous PSC meeting
5. Brief project overview, progress and status report
6. Presentation of the Terminal Evaluation report
7. Discussion of the Terminal Evaluation Report
8. Management Response to the recommendations of the Terminal Evaluation Report
9. Way forward
10. Any Other Business

The meeting was called to order at 9.40 am

Proceedings

Agenda Item	Action
Minute 01/PSC/05 – Adoption of the Agenda The agenda was adopted as presented above.	
Minute 02/PSC/05 –Opening Remarks **Permanent Secretary, MOE** The Permanent Secretary indicated that there were many ongoing activities in the energy sector that were being undertaken on a micro scale and hence have no impact on energy demand-supply balance, for example, energy kiosks. He reiterated that this gave the impression that, either wrong things were being done or the right things were being done in the wrong manner, and it was therefore necessary to change course with a view to effecting the desirable impact at reasonable cost. He gave the example of a shift in the manner of doing things in the geothermal sector, which had resulted in the achievement of significant milestones. He expressed the need to undertake activities that had a macro impact which could be felt at national level and which encourage growth in the number of entrepreneurs who can propel activities to a higher level. He emphasized the need to develop standards and ensure that systems disseminated were durable. Furthermore, he indicated the need to promote sustainable projects, noting that sustainability could be reflected through the difference in cost between "business as usual" and "business unusual". He also indicated that partnerships for continued promotion of stoves could be supported through formal channels such as agency agreements that ensure accountability for public funds, for example, the French Government providing funding towards renewable energy through banks. **National Project Manager** The National Project Manager made remarks on the project period 2006-2010 and indicated that the project had experienced significant successes in the number of improved institutional stoves installed annually, which had risen from 77 in 2005, to 402 in 2010. Tree planting on the other hand was very successful between 2006 and 2008 after which it experience serious setbacks which saw the number of trees planted annually fall from 303,730 in 2008 to 40,300 in 2010. The revolving fund was reported to have grown from KShs. 3 million to KShs. 60 million within a period of 9 years. He said all this effort was realized because of the serious determination and support from stakeholders, particularly UNDP, Ministry of Energy, Tree Biotechnology Programme Trust and World Food Programme. He also stated that even though project targets were yet to be met, with increased interest towards improved institutional stoves that had been demonstrated both locally and internationally, it was possible to meet the 2020 targets that were set in the project	

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document as the PMU had not lost focus. He noted that the end of GEF financing for improved institutional stove activities did not necessarily mean an end to dissemination of the stoves. This was because the project had managed to secure additional funding from World Food Programme and other partners. The scope of disseminating the stoves is wide, for example, recently the PMU had been challenged to meet the stove needs of the population in African countries that were experiencing uprising and instability, and to date, the project had managed to do this effectively. In addition, he stated that with the support being accorded by organizations such as UNWFP to the tune of US$1million in form of orders for stoves, and on the other hand, RETAP's membership to the Association of Micro-Finance Institutions (AMFI), the project could be sustained. He requested for a no-cost extension of the project and maintenance of the existing players during the extension period as the institutional support was still necessary. The extension would facilitate utilization of remaining project funds that were not utilized within the project period. **UNDP Deputy Country Director, Programmes** The UNDP Deputy Country indicated that the challenge was for the project to show whether it had a transformational impact. This was in view of the fact that the project had a key objective of mitigating against the effects of climate change, and as a country Kenya was expected to report on its response to the National Climate Change Strategy. He indicated the need to demonstrate the impact of the project on education, for example, how the savings arising from the use of improved institutional stoves are utilized by schools. This is because as much as the project had social and environmental benefits, it had to make business sense. He noted that even though the project still had its fair share of challenges towards realizing its objectives, the Kenyan experience with the stoves had already spilled over into parts of the East African region, and thus the catchment was very big. He further noted that the stove activities could be linked with the programmes of the East African Community Energy Scaling-up Strategy. He also noted that the end of GEF funding for the project was not an end in itself but was a signal for other stakeholders to inject additional resources to support the good technologies.	
Minute 03/PSC/05 – Confirmation of the minutes of the previous PSC The minutes of the PSC meeting of 1st December, 2009 were confirmed as a true record of the deliberations subject to the following amendments: 1. Deleted was item 4 under apologies and was renumbered as appropriate 2. Reflect the institution for Eng. Kiva as Ministry of Energy **Agreed**: A clean original copy of the minutes to be availed for signing by the relevant signatories. It was noted that the usual practice was for the Project Secretariat to provide a table of matters arising and action taken by the PMU. The meeting proceeded without the table, since the actions taken were already reflected in the minutes.	Project Management Unit (PMU) PMU

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Minute 04/PSC/05 - Matters arising from the minutes of the previous PSC meeting **a. Tree survival rates : Ex-minute 04/PSC/04 of Matters arising from the previous minutes on Woodlot management (a)** The PSC members sought to know the actions taken by the project to improve tree survival rates. It was reported that tree survival rates were low due to drought and termite attacks coupled with poor management of woodlots, and that TBPT had trained the schools to use water absorbent material and how to identify problems with the seedlings on time. Training in management of the trees was reported to be on-going. **b. Integration of commercial nursery developers: Ex-minute 04/PSC/04 of Matters arising from the previous minutes on Woodlot management (b)** The PMU had been requested in previous meetings to include gender related information in future reports. It was clarified that the gender information sought also applied to the schools in which improved institutional stoves were installed and this information had already been captured in the project status report. It was reported that TBPT had conducted a total of 11 trainings for tree propagators. The total number of participants trained was reported to be 111. 94 of these were male and 17 female. The NPM highlighted issues on the revolving fund and forged partnerships which are beneficial to the fund. He also indicated that support towards the tree planting component was lacking, and acknowledged that the financing of tree planting activities proposed under the Clean Energy Access Programme would go along way to addressing pit falls under this component. **c. Introducing the Project to the PS, Ministry of Education: Ex-minute 04/PSC/04 on Matters arising from the previous minutes- Outreach(a)** The PMU was to make a presentation to the PS Ministry of Education during the annual school heads meeting, on successes and failure of the project with a view to influencing policy decisions. It was reported that there was a change of leadership in the Ministry of Education. An Acting PS was in place but was not present during the annual school heads meeting. The presentation was therefore not made. However, with the installation of stoves in schools in conjunction with UNWFP, it was noted that the Ministry of Education had been engaged and normal engagement would continue. **Agreed:** There is need to lobby the organizers of this year's school heads conference in June, to get a slot for making the presentation to the PS. **d. Dissemination of Project experiences: Ex-minute 04/PSC/04 on Matters arising from the previous minutes- Outreach(b)** It was noted that the efforts so far made to publicize the experiences of the project were minimal and that there was need to do more as this would be useful in promoting public	PMU

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relations issues as well as the transformational impact of the project. **Agreed:** The Renewable Energy Department would liaise with the Public Communications Officer in the Ministry of Energy (MOE), and work with the Communications Unit at UNDP and the PMU to develop saleable clips for public consumption through the popular media as an action point to project promotion. The Ministry of Energy would also arrange for interviews with the relevant officers and this would form part of the clips to be disseminated. The documentation would include a story on the various partnerships established with institutions like Ashden Trust, UNWFP etc. **e. Standardization of improved institutional stoves: Ex minute 04/PSC/04 on Matters arising from the previous minutes- Strengthening Partnerships (4)** The need for standardizing improved institutional stoves was re-emphasized. It was reported that the Standards and Labels Project which is collaboration between Ministry of Industrialization and UNDP was due to be launched on 9th March, 2011. It was also reported that standardization of improved institutional stoves had also been captured in the collaborative 5-year programme between UNDP and Ministry of Energy on Clean Energy Access, and that the latter could still initiate the process with KEBS through the existing channels. **Agreed:** RETAP would link with Warui on this matter. The Ministry of Energy would initiate the process with KEBS and involve other stakeholders as appropriate. **f. Strengthening and expanding the finance system: Ex-minute 05/PSC/04 on Brief Project overview and status report** Mr. Gitundu (NPM) elaborated on how the network for fundraising had been expanded through a conference he attended in Mexico. This, he noted, resulted in over US$ 100,000 in additional funding for the project. **g. Completion of the National Woodfuel Strategy and Action: Ex-minute 05/PSC/04 on Comments by the PSC members** PSC members sought to know the status of the Draft National Woodfuel Strategy and Action Plan. It was reported that completion of the National Woodfuel Strategy and Action Plan had not been accomplished as the newly posted staff were settling down and needed induction. **Agreed:** The Ministry of Energy would complete the document and hold a stakeholders' workshop by May 2011. **h. Development and expansion of markets: Ex-minute 05/PSC/04 on Comments by the PSC members** The PMU had been requested to get in touch with the Secretariat on the Mau so that the Project could play a role in afforestation. It was reported that RETAP opted not to pursue this activity after their concept was adopted by other partners in the afforestation of Mau. **i. Inadequate funds: Ex minute 06/PSC/04 on Challenges and the Way forward**	MOE PMU UNDP MOE RETAP MOE

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Members sought to know whether the KShs. 50 Million had been factored in the Ministry of Energy budget for 2010/2011 financial year. It was reported that KShs. 24 million had been factored in the budget for financial year 2010/2011 for stoves. However, allocation of additional funds in subsequent years would depend on how well the activities planned in the current financial year were implemented. Furthermore, with a positive impact, the Ministry would be willing to enhance the funding.	
Minute 05/PSC/05 – Brief project overview, progress and status report The project overview, progress and status report was presented by Mr. Mugabe. The highlights of the presentation are as follows: a. 2000 institutional stoves were installed in over 1000 schools, 500 stoves were supplied to households and 20 small and medium enterprises acquired stoves. b. 550,000 trees were planted on an area of 342.1 hectares. Survival rate was 60%. c. Woodlot managers & nursery operators were trained. d. The Kenya Tree growers Association was strengthened and the Schools, Woodlot and Energy Network was formed. e. 12,000 tons of CO_2e emissions were avoided and about 10,000 tons of CO_2e were sequestrated. f. Project activities contributed to reduced deforestation and degradation, conservation of forest biodiversity, reduction of in-door air pollution, and improved respiratory and general health. Additional contributions were in the areas of gender equality and education, favourable policy and legislation; removal of financial barriers to the adoption clean biomass energy technologies and the achievement of 5 out of the 8 Millennium Development Goals. g. The Project experienced numerous challenges arising from post election violence, drought, negative political statements on eucalyptus. h. The PMU recommended consolidation of lessons learnt; expansion of the stove activities; extension of the woodlot component as a way forward. **<u>The following comments arose from the presentation:</u>** 1. **Replication:** The Permanent Secretary observed that Mangu high school was a best practice for demonstrating benefits of the stoves, and therefore wished to know whether schools around Mangu High School had copied this good practice. It was explained that the project was demand driven and therefore only those who expressed interest and enlisted would be supplied with stoves. A good number of schools were reported to have bought the stoves as a result of seeing the benefits in	

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other schools. 2. **Marketing:** The Permanent Secretary noted that the stove should be self marketing but this was not the case. To achieve this, it is necessary to properly package information on economic efficiency and benefits including Net Present Value, Payback Period etc. into a brochure. It was reported that WFP was collaborating with University of Berkeley to carry out kitchen performance tests on installed stoves and collect information on how schools are utilizing the savings realized as a result of using improved stoves. WFP is willing to share the results of these tests with the Ministry of Energy. It was however noted that some schools may not readily reveal information pertaining to the savings they realize and how the funds are utilized. **Agreed:** a. An information package should be developed for rolling out in the media to propagate the stoves message prior to gazetting appropriate legislation. This package would also be used to partner with banks to finance acquisition of stoves. b. Subsidiary legislation (Legal Notice) that makes it mandatory to use improved institutional stoves in schools and other institutions that use firewood for cooking should be developed. The legal notice would give a grace period that allows the affected institutions to acquire the stoves. The target was to have the Legal Notice by May/June, 2011. The team for drafting the legal notice was constituted as follows: Ministry of Energy – Mr. Erick Akotsi and Faith Odongo UNDP - Timothy Ranja and Foulata Kwena RETAP - Robert Mugabe Energy Regulatory Commission - Bernard Osawa Kenya Bureau of Standards - To be confirmed Min. of Industrialization - S& L Engineer (Dr.Gakahu to provide name) c. UNDP would produce a book on the Project experiences to disseminate the best practice d. Testing the efficiency of the stoves should be done by several independent teams after which they would compare results so as to give a range of efficiencies. It was suggested that University of Nairobi, Jomo Kenyatta University of Agriculture and Technology and other credible institutions be incorporated in addition to the team from Berkeley.	MOE, RETAP, UNDP, WFP MOE, UNDP UNDP MOE
Minute 06/PSC/05 – Presentation of the Terminal Evaluation report The Terminal Evaluation Report was presented by Violet Matiru and the highlights are as follows: **Key findings:** **Project formulation** was found to have been highly participatory, and built upon existing partnerships. It was designed to address a real need for efficient biomass technologies. The Project was well conceptualized but set over-ambitious targets, under-budgeted for some items, and some indicators were difficult to measure. The PMU effectively used adaptive management strategies to address various challenges such as drought and late disbursements of free primary/secondary education funds among others. **Monitoring and evaluation:** Progress reports were prepared on time, the Mid-Term evaluation was done in 2008 and PMU followed up the recommendations arising from it.	

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Some weaknesses were experienced in data collection from schools through SWEMNET. High standards of packaging data and disseminating information are necessary for resource mobilization. Furthermore, the impact needs to be quantified, properly documented for this purpose. It is also important to establish continuous data collection and monitoring systems which makes it cheaper to collect data instead of organizing one-off surveys. Public information on how to identify a good stove is currently lacking. Lack of regulation in the stoves industry requires strong Government support if quality is to be sustained. After sales service to check if the schools are using the stoves in the right manner is weak and needs to be improved on. **Key results**: Included installation of 1,522 stoves in 723 schools with combined enrollment of almost 11,000 students; Planting of 550,000 seedlings with survival rate of about 60% (342 hectares). It is expected that by 2020, 114,584 tonnes of CO_2e will be sequestered if schools don't harvest trees; the Revolving Fund increased from US$200,000 (Ksh. 14million) to Ksh. 60 million. Additional resources amounting to US$ 1.526 million in grants, won bid, and soft credit were leveraged. Partnerships were established between UNWFP (US$ 1 million successful bid to supply stoves in Informal settlements and ASALS) and OIKO Credit, Boehm, Swift Foundation, Saran Fund. **Recommendations:** Key recommendations include enhanced/improved data collection particularly towards the achievement of 2020 targets; packaging data and information for different audiences; enhanced policy advocacy, e.g. on price of steel, support to poor schools, standards, and resource mobilization. **Lessons learnt:** Include the ability of public-private partnerships to enhance access to energy efficient biomass technologies; value of starting small and growing; balance between data collection and implementation; the contribution of energy-efficient stoves to climate change mitigation and adaption. The reality that many schools are switching from gas and electricity to fuelwood which is found to be cheaper as a result of adopting improved institutional stoves has not been brought to the fore.	
Minute 07/PSC/05 – Discussion of the Terminal Evaluation report The following comments were raised: 1. **Tax exemption on raw materials:** One of the recommendations in the Terminal Evaluation Report was that tax on stainless steel should be exempted to bring down the cost of the stove thus making it more affordable. The Permanent Secretary indicated that it would be very difficult to manage this issue through tax exemption because stainless steel had other uses in addition to making stoves. The workable way would be to grant tax exemption on stove sales. 2. **Delayed Repayment of stove loans:** Schools had been using the excuse of delayed release of "Free Primary Education (FPE) Funds" as the reason for delaying repayment of stove loans. This should not be the case, as the money for FPE is not meant for buying the stoves, rather, it caters for tuition. The problem was attributed to poor governance in terms of setting priorities in the sense that, where funds are short, repaying the stove loan is not a priority. This arose from the fact that proper packaging of information was not done. It is important that packaging of information relates stove loan repayments, savings, contribution by parents and Government support for FPE. 3. **Identification of weak areas:** Continued implementation of project activities should be accompanied by identification of weak areas with a view to improving performance. Specific areas that need to be improved include: defining the baseline; continuous and systematic collection of data; data analysis; proper engagement of partners (SWEMNET) with clearly defined roles and obligations;	PMU PMU

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standards and labels; and strengthening of public private partnerships. Enhanced data collection could benefit from linkages with the National Climate Change Response Strategy.	
4. **Continuation of Project activities:** The project is ready to take off on a bigger scale at regional level.	
Agreed: A concept for up-scaling would be prepared for consideration by GEF. The concept would link up with other initiatives such as the REDD and the Climate Change Adaptation Fund. Dr. Gakahu would provide the necessary template.	Robert Mugabe
5. Presentation of outcomes and lessons learnt:	
a. The recommendations and lessons learnt must be linked to specific outcomes as presented in the ProDoc.	Consultant
b. The recommendations and lessons learnt should be changed from paragraphs to a numbered style that is easily identifiable under specific outcomes to which they relate.	Consultant
c. There were more lessons learnt than what is reflected in the terminal Evaluation report. Additional issues to elaborate on include: duration; sustainability; co-financing; Scaling-up of Renewable Energy for low-income Countries Programme (SREP); legal notice; and strengthening of ISAK.	Consultant
6. Support to poor schools: It was noted that support to poor schools was not embedded in the Project design. It would therefore be more prudent to present this recommendation under lessons learnt for utilization in future activities, instead of under the general recommendations.	Consultant
7. **Monopolization of the stoves market:** It was suggested that the RETAP/RTE partnership was a case of monopoly in the stoves market and the Project in particular. However, the issues surrounding this partnership were clarified as follows:	
a. The implementation model was by design and was well represented in the Prodoc	
b. Under no circumstance did RTE canvass to be awarded tenders but bided just like any other organization and therefore there was competition. Any tender awarded to RTE was as a result of its capacity to produce a large number of stoves, the quality of materials used in fabrication, stove durability and efficiency.	
c. RTE enlists the services of other stoves producers as much as it has the capacity to produce stoves single handedly.	
d. Improved Stoves Association of Kenya (ISAK) was not a creation of RETAP or RTE. The initiative was an offshoot of the GTZ-PSDA programme implemented in collaboration with Ministry of Agriculture. Both RETAP and RTE were invited to join like any other member. RETAP, however, courtesy of the Market Transformation Project houses a joint secretariat for SWEMNET and ISAK for the sole purpose of data collection. Furthermore, the PMU accords technical assistance to these organisations in line with the demands of the Project.	
8. The last sentence in paragraph 2 on page 37 which states that "tree planting was clearly a challenge" needs to be reworded. The wording was considered to be very strong and therefore does not reflect the true picture. The information on tree	Consultant

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planting should also be more clearly framed than it is at the moment.	
9. **Submission of comments**: PSC Members were requested to read the report carefully and submit comments to the UNDP for onward transmission to the Consultant for incorporation into the report. The comments should be comprehensive so as to minimize back and forth interactions. All comments should be forwarded to UNDP by 15th March, 2011. The corrections would be made to the report which was presented to the PSC meeting. The international consultant will be required to fill in a few gaps on carbon issues.	-PSC members; -National Consultant; -International Consultant
10. **Training and awareness creation:**	
a. A training package with different modules targeted at different categories of people including school administration, procurement staff, kitchen managers, cooks etc should be developed and disseminated.	PMU
b. Exchange visits should be encouraged.	PMU
c. Use of video clips on websites for RETAP, UNDP and Ministry of Energy should be implemented as a way of increasing publicity.	RETAP; UNDP; MOE
Minute 08/PSC/05 – Management Response to the recommendations of the Terminal Evaluation Report	
PMU should consolidate the recommendations made during this meeting with the recommendations of the Terminal Evaluation and prepare a plan of action to address the issues raised.	PMU
Minute 09/PSC/05 – Way forward	
1. **Strengthening Partnerships:** An agency agreement should be developed between Ministry of Energy and UNDP to facilitate furthering of project activities. The MOUs for the Centre for Energy Efficiency and Conservation, and South-South Development Cooperation could be used to generate the initial draft. The draft should be ready by 8th April 2011.	MOE, UNDP
2. **Strategy for stove dissemination:** The implementation strategy for future stove activities should follow a defined pattern that seeks to create visibility. This would require identifying model institutions at regional, county and district levels. It would also involve targeting high performers as a category. A comprehensive strategy should be developed by mid-May 2011, along these lines for consideration under SREP.	Dr. Gakahu & Eng. Khazenzi
3. **WFP winding up strategy:** WFP is considering handing over the stoves project that they are currently implementing in schools to the Ministry of Energy. The Ministry was requested to think about this proposal for possible discussion at the time of winding up the WFP stove programme.	WFP; MOE
4. **Planning for expansion of stove activities:** It is imminent that stove activities will happen on a larger scale, and therefore it is important to plan for the bigger picture in the long term. In this regard therefore, it is desirable that a good number of stove suppliers that supply quality stoves be available to serve the expanded market, and to promote competition in the improved institutional stoves industry. A bigger number of suppliers brings in the need to provide quality assurance to the consumers.	
Agreed: The issue of standards needs to be addressed as a matter of urgency. The existing stove producers should therefore be brought together through the Improved	MOE, ERC, UNDP, KEBS,

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Stoves Association of Kenya (ISAK) to develop a strategy of self regulation which ensures that that only quality stoves are supplied. The above proposal, however, does not dispel the fact that RETAP has lived to the expectation of all their clients in terms of efficiency and effectiveness, and that the PMU has played a significant role in shaping up ISAK.	ISAK
Minute 10/PSC/05 – Any Other Business The Chairman expressed his appreciation to all the PSC members for their contributions. There being no other business the meeting adjourned at 1.50 pm.	
Signature: ……. Patrick M. Nyoike, Permanent Secretary, MOE (Chairman) ……. Faith Odongo (Secretary) Date:	