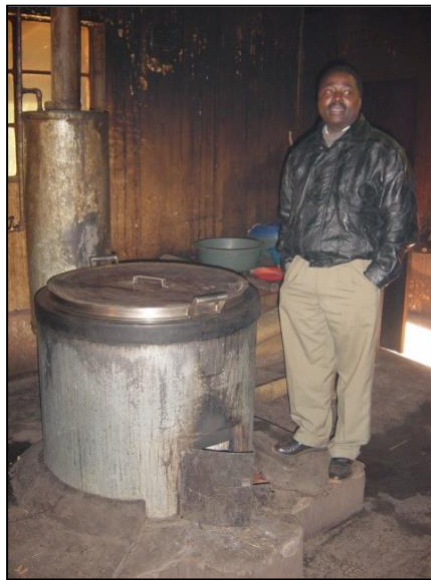

**INSTITUTIONAL CATERING
IMPROVEMENT IN MALAWI**
Project Proposal



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Executive Summary

This proposal concerns the improvement of institutional catering in Malawi. There are approximately 600 institutions in Malawi where bulk cooking is carried out on a regular basis. The total population catered for is at least 290,000, with a wood demand estimated at 120,000 t. per annum and costing MK 120 million (\$1.3 million).

Current institutional catering systems are mostly inefficient and unhygienic. This has serious implications, not only for the environment, through the uncontrolled commercial harvesting of indigenous trees to meet demand, but also for institutional budgets, the health of catering staff and the quality and nutritional value of the food being cooked.

A fledgling industry has developed to supply improved cooking technologies to institutions, signifying that stove manufacture has commercial potential. But the range of products and services being offered is limited, potential customers are largely unaware of the costs and benefits of investing in better systems and overall connectivity between buyers and sellers is poor. A vibrant commercial trade in institutional cooking services would give rise to a variety of environmental, economic and health benefits.

This proposal is for a project that will catalyse a dynamic, sustainable and commercially viable industry and market for improved institutional catering services. The approach is intended to be explicitly private sector-oriented, identifying and tackling bottlenecks and connectivity problems to ensure that more appropriate and affordable stove hardware becomes available to better-informed customers. The project will not engage in trade itself. It will work with producers to make a business case, raise market awareness, improve product diversity and quality and assist in promotion. It will work with potential customers to provide information, advice and linkages to providers of appropriate stove technology and services. It will also work independently to measure and document impacts, develop objective comparisons of costs and benefits, and identify and tackle bottlenecks to improve linkages both horizontally and vertically in the market place.

It is envisaged that the project will be run by an independent project management unit under a consulting firm reporting to the ProBEC Office in South Africa and the Department of Energy in Malawi. A project manager will be in charge of day to day operations, with advice from ProBEC's team as required. Experts in relevant areas will be contracted by the management firm to provide specific services such as training, materials development, monitoring and support in engineering and quality assurance. An officer will be seconded from the Department of Energy and will be responsible for data collection and monitoring. The Department of Energy will have an additional function of raising funds for the project.

The project duration is three years with a total budget of €340,000. It is proposed that €80,000 for the first 8 months is secured from ProBEC and GATE, while efforts are made to source financing for the remaining €260,000.

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Acronyms

DoE	Department of Energy
EDMU	Education Development Management Unit
ICS	Improved Catering Services
MaSSAJ	Malawi Safety, Security and Access to Justice project
MEWP	Malawi Energy White Paper
MK	Malawi Kwacha (90 MK per US\$, July 2003)
PSL	Petroleum Services Ltd.
SME	Small and Micro Enterprise
GTZ	German Agency for Technical Cooperation

1. Introduction

1.1 Malawi Overview

Malawi covers an area of 118,484 km² and at the last census in 1998 had a population of 9.8 million people, 86% of whom were living in rural areas. With an annual per capita income estimated at \$220, Malawi is among the ten poorest countries in the world. Given the impact of AIDS, limited natural resources, weak infrastructure and a poorly developed commercial sector, Malawi depends heavily upon the support of international donors to sustain its economy.

According to the government's Department of Energy (DoE), 97% of Malawi's primary energy supply is derived from biomass, mainly in the form of firewood, but also including charcoal and agricultural residues. Malawi has recently been through a process of energy policy formulation that culminated in the publication of the "Malawi Energy Policy White Paper" in March 2002. This paper acknowledges the dominant place of wood energy in the national energy mix and the importance of developing more coherent approaches to rational wood energy utilisation. Biomass energy conservation is listed as a priority activity. The paper also observes that "the biomass sector ... employs nearly 55,000 individuals jointly generating MK 880 million per annum". Woodfuel trade is clearly a significant industry. But uncontrolled wood harvesting, mainly of a commercial nature, depletes about 50,000 ha of natural forest each year and annual demand for firewood is said to exceed sustainable supply by 3.5%.

Poverty, disease, population growth and economic stagnation have contributed to a situation in Malawi where limited natural resources are being over-harvested for short-term financial gain. There is a need to develop new economic opportunities at the same time as managing the environment more sustainably. This proposal addresses the commercialisation of improved institutional catering services, an area that has the potential to contribute significantly to both of these goals.

1.2 Project Background

A need for better cooking systems in Malawian institutions¹ was identified by a study carried out jointly by the government's Department of Energy and GTZ ProBEC in 2002². The study, which covered nearly 80 schools, hospitals, restaurants and bakeries across the country, highlighted a variety of serious problems related to cooking in institutions such as inefficient use of fuel (mainly firewood), poor kitchen management, low standards of health and hygiene and poor quality of cooked food.

Responding to the findings of the report, a one week mission was fielded to Malawi in July 2003 to develop a project proposal to address the concerns that had been raised. The mission's terms of reference specified that a proposal should be developed for a project to raise standards of institutional catering through the promotion of improved cooking stoves and management practices on a self-sustaining basis through the private sector. Lessons were to be drawn from a commercially-oriented model taken from Kenya, where institutional stove marketing is well developed in the private sector.

¹ Defined as institutions catering on a regular, long-term basis for at least 50 people per day.

² ProBEC is the Programme for Biomass Energy Conservation in Southern Africa, based in Pretoria. The 2002 study is entitled: "*SME and Institutional Cooking in Malawi: An assessment of the technical and socio-economic potential of improved biomass stoves*". By Paul Mushamba, GTZ-ProBEC, with the Malawi Dept. of Energy. August 2002.

2. Project Justification

2.1 Catering Institutions

There are believed to be 550-600 institutions in Malawi that, on a daily basis, cook for 50 or more people. Excluding hospitals, these institutions cater for approximately 290,000 people. Table 1 provides a summary.

Table 1: Summary of Institutions of Mass Catering in Malawi

Type of Institutions	Jurisdiction	No. where catering takes place	Ave. no. catered for per instn.	Total no. catered for
Boarding secondary schls.	Ministry of Education	68	400	27,200
	Private Schools Assoc. of Malawi	260	700	182,000
	Catholic Church	8	500	4,000
	Presbyterian church, Central Region	2	400	800
Community day sec. schools	Ministry of Education	35	700	24,500
Boarding primary schls.	Ministry of Education	45	150	6,750
Special educ. primary schools	Catholic Church	16	200	3,200
Technical schools/colleges	Min. of Labour & Vocational Trng.	7	300	2,100
	Catholic Church	2	300	600
Boarding commercial schools	Private Schools Assoc. of Malawi	15	20	300
Teacher training colleges	Ministry of Education	5	300	1,500
Special educ. teacher trg. colleges	Catholic Church	2	50	100
University of Malawi & colleges	Ministry of Education	7	857	6,000
Mzuzu University	Ministry of Education	1	400	400
Convents	Catholic Church	7	50	350
Prisons	Prison Service	23	391	9,000
Prisons officer college	Prison Service	1	500	500
Central hospitals	Ministry of Health	4	n/a	
District hospitals	Ministry of Health	22	n/a	
Hospitals	Christian Health Assoc. of Malawi	21	n/a	
Rural hospitals	Ministry of Health	3	n/a	
	Christian Health Assoc. of Malawi	18	n/a	
Mental hospitals	Ministry of Health	1	n/a	
	Christian Health Assoc. of Malawi	1	n/a	
Tea estates (Mulanje/Thyolo)	Private tea companies			20,000
Totals:		574		289,300

Source: Presentations made by respective ministries and organisations' education secretaries at stakeholders' planning workshop, GTZ Lilongwe, 17th July 2003.

Note: (a) Data for Presbyterian Church cover only Central Region (Nkhoma Synod).
 (b) There are 700-800 community day secondary schools, of which 5% are assumed to cater. This figure is a Ministry of Education estimate and is not definitive.
 (c) In-patient population figures for hospitals are still required; it is known that government hospitals treat approximately 4 million patients per year.
 (d) Tea estates cater for up to 40,000 workers during the peak season.
 (e) The statistics are not exhaustive. e.g. they do not include orphanages, children's homes, tobacco farms, factories and commercial training institutes.

In addition to these formal catering institutions there are up to 20,000 small and micro-enterprises (SMEs) involved in the cooking and selling of foods. The DoE/GTZ 2002 study revealed that 90% of these formal institutions and SMEs cook with firewood.

2.2 Prevailing Cooking Systems

The staple dish in Malawian institutions is *nsima* (maize flour porridge). This is often supplemented with ‘relishes’ such as beans, pigeon peas or cabbage. With the exception of prisons, where only two meals per day of *nsima* are provided, most institutions offer three meals plus two servings of tea every day. The typical institutional menu is rather basic and all the staple foods can be prepared by straightforward boiling.

All institutional cooking in Malawi has traditionally been carried out on open fires (with three stones or metal tripods) using wood harvested from indigenous trees. A brick hearth system has also been introduced to Malawi and was being used in 60% of the institutions covered by the 2002 study. Although the brick hearth arrangement has the considerable advantage of eliminating smoke from the kitchen, it appears to offer little improvement in efficiency over the open fire given the typically large size of the fireplace, the high thermal mass of the bricks and pots, and a widespread lack of proper management. Refer to Figures 1 to 4 for pictures of open fires and brick hearths in use.



Figure 1: Open fire cooking system, Lauderdale tea estate



Figures 2 & 3: Brick hearth system, Kaphuka private secondary school, Blantyre

**Figure 4: Interior of kitchen at Kaphuka:
smoke-free but wasteful of energy**



Per capita firewood consumption using open fires or brick hearths is estimate at 320 gms/person/meal⁴. This is extremely high. In Kenya, for example, institutions cooking with commercially available cooking stoves use less than 100 gms/person/meal with similar diets and pots sizes.

High rates of firewood consumption have two negative impacts. The first is environmental and the second is economic.

Most institutions buy wood commercially through private contractors, either by the stacked cubic metre or the lorry load. The price varies considerably accordingly to availability, ranging from MK 200-700 (\$2.20-7.80) per cu.m. plus transport costs, depending on availability. This equates to MK 520-1,800 (\$5.80-20.00) per tonne at source (assuming an air dry weight of 380 kg per stack). This may be doubled once transport is taken into account. Contractors source wood from the cheapest possible sources, often extracting indigenous trees from communal areas. Harvesting techniques are rudimentary and there is no effort to promote sustainability or encourage regeneration by, for example, leaving a percentage of trees standing, removing only certain branches or spreading harvesting more thinly over large areas. The impacts can be locally devastating. Total annual consumption is estimated at 120,000 t. with a value of MK 120 million (\$1.3 million)

In terms of economics, the high level of fuelwood consumption that characterises institutional cooking in Malawi represents a significant drain on limited financial resources. Expenditure on firewood at a institutions such as schools ranges from MK 35,000-80,000 (\$390-890) per month for typical institutions catering for 300-500 people. At many boarding schools expenditure on energy amounts to between 20 and 50% of total catering budgets, reducing the funds available for vital items such as food and books.

The huge open fires characteristic of institutional cooking have other negative impacts: cooks are exposed to excessive heat for extended periods; due to the use of freshly cut wood there is high incidence of smoke and other products of incomplete combustion that pose a serious health hazard; food is commonly burned because the heat of the fire is not (or cannot be) properly controlled; and the lack of lids on pots often means that food is contaminated with soot and dirt. Refer to Figures 5 and 6.

⁴ Figure from Bellerive Foundation, Kenya based on institutional surveys carried out between 1990 and 1994 using same systems as found in Malawi.



Figure 5: The use of open fires and wet wood makes for smoky, unhygienic cooking



Figure 6: Poorly fire management leads to burning and caking of food (nsima shown here)

2.3 Past Efforts to Introduce Improved Cooking Systems

The negative implications of existing cooking systems have been appreciated for some time. A World Bank-supported initiative to upgrade school infrastructure resulted in the installation of electric oil jacket stoves in most government schools in the late 1980s. While these systems proved clean and convenient in comparison with open fires, they were found to be expensive to operate and prone to breakages that could not be locally repaired. Leakage of thermal oil, failure of the electric elements and inability to locate competent technical support became common complaints. The additional problem of unreliable electricity supply meant that these systems, over time, were rendered redundant. The vast majority of institutions have reverted to open fires or brick hearths.

The only project known to have attempted, on an organised basis, to upgrade catering standards in Malawian institutions was a pilot venture of ActionAid Malawi and a Kenyan NGO, the Bellerive Foundation, in 1993 and 1994. This project imported 91 high quality wood stoves from Kenya and installed them in 16 institutions of secondary education throughout Malawi. The installation was accompanied by a package of training in food, fuel and kitchen management for head teachers and boarding masters and matrons, as well as practical training for the cooks at each beneficiary institution. The stoves were known as the 'SMP' as they had originally been designed for the Danida-funded School Maintenance Project in Tanzania.

The ActionAid pilot project in Malawi was intended to lead to a much larger programme to establish local manufacturing capacity, install improved stoves and train staff in all government institutions of secondary education, at that time numbering 177, but donor funding was not forthcoming and the initiative was not sustained. Nevertheless, nine years later the Bellerive stoves are functioning well in most of the beneficiary institutions where they were installed and a Blantyre steel fabricator, Petroleum Services Ltd. (PSL), has taken up their manufacture in a limited way within Malawi. Since 1994 it is thought that about 90 additional stoves have been purchased from PSL and installed in Malawian institutions, mostly with donor support. Figures 7 and 8 show the original Kenyan stoves in use and an example of a similar stove now available from PSL.



Figure 7: An original 'SMP 100' stove from Kenya in use at Robert Blake Secondary School, Dowa



Figure 8: A 50 litre steel stove of the Bellerive 'Hoteli 50' design at Petroleum Services Ltd., Blantyre

Since 1994 there have been no comprehensive efforts to promote better catering in institutions, though there are a number of activities underway in particular sub-sectors.

A DFID-funded project known as MaSSAJ (Malawi Safety, Security and Access to Justice) is currently supporting the improvement of infrastructure in Malawi's 23 prisons. All prison cooking is carried out by the inmates themselves on large open fires. Per capita consumption is 1.5 kg per meals, higher than in any other type of institution in Malawi and reflecting not only the inefficiency of the open fires that are being used, but also an absence of any kind of management or accountability on the part of the prison managers and inmates themselves. MaSSAJ is in the process of identifying suitable technologies for the rationalisation of prison catering, beginning with a sample of nine prisons.

The World Food Programme, in conjunction with UNICEF, operates a school feeding programme in eight districts of Malawi. 200,000 children in 201 primary schools are provided with a daily meal of corn-soy blend. Cooking is carried out in oil drums on unprotected open fires.

The World Bank, through an Education Development Management Unit (EDMU), is constructing 20 day secondary schools. However none will be providing cooked food. The African Development Bank is working through the Ministry of Education to establish a number of model schools, but this is a small-scale initiative and also not thought to include kitchen development.

⁵ According to the Commissioner of Prisons, 9,000 prisoners consume 2,185 cu.m. per month at a price of K 275, and eat two meals of *nsima* per day.

2.4 Private Sector Stove Promotion Initiatives

The initiatives of the World Bank and ActionAid/Bellerive almost a decade ago were the last comprehensive efforts by donor organisations to upgrade catering in Malawian institutions. But a number of companies have begun to offer improved catering hardware on a private, commercial basis. The stove industry is by no means well developed and the technologies on offer do not necessarily represent the best value for money in all cases, but the fact that there are both functioning producers and willing buyers suggests that there is potential demand for improved cooking hardware that has not been fully tapped.

PSL produces the highest quality stove of those designed to burn firewood, and offers a range of pot capacities from 12 up to 200 litres. With the exception of an inferior fire grate, these adhere closely to the original Kenyan design specifications supplied to PSL by ActionAid in 1994. PSL's stoves range in price from around MK 101,000 to 199,000 (\$1,100-2,200), including 20% surtax.

At the other end of the scale of quality and efficiency is a private fabricator in Mzuzu who, with GTZ support, has made about 30 portable metal stoves of approximately 60 litre capacity for use in donor-supported primary school feeding programmes. These cost MK 8,000 (\$90) per unit, complete with pot. Apart from lower efficiency than the SMP stoves from PSL, the principal drawback with these stoves is their low durability and a predicted lifetime of only 1-1½ years. See Figure 9.



Figure 9: A low-tech portable woodstove used in a primary day school feeding programme, Mchinje District

The Malawi Industrial Research and Development Centre offers an improved version of the traditional brick hearth that comprises a smaller firebox and a chimney. The cost, including a 100 litre pot, is MK 51,000 (\$570). See Figure 10.

6 12 litre 'Mama' stove MK 101,462; 50 litre 'Hoteli' stove MK 111,960; 100 litre 'SMP' stove MK 141,115; 200 litre 'SMP' stove MK 199,519.



**Figure 10: On right-hand side, an improved brick hearth system,
Kaphuka Private Secondary School, Blantyre**
(note: improved hearth not used by cooks)

There are more sophisticated stoves in use in some of the tea estates around Mulanje and Thyolo. One type uses waste steam from tea drying operations and another is based on an oil jacket heated using firewood. The production cost of the oil jacket stove in an estate workshop is about MK 160,000 (\$1,800), excluding any allowance for profit as these stoves are made for the tea companies' own use. See Figures 10 and 11.



**Figure 10: Steam jacket stove,
Lauderdale tea estate, Mulanje**



**Figure 11: Wood-fuelled oil jacket stove,
Glenorchy tea estate, Mulanje**

2.5 Costs and Benefits of Catering Improvement

From the point of view of an institution engaged in mass catering, the balance between costs and benefits of an improved cooking system will feature highly in any decision to upgrade stove hardware. The availability of better information and the presentation of an attractive value proposition are clearly important elements of any marketing package. An example outlined in Table 2 demonstrates the type of argument that could be convincing to an institution such as a school contemplating the purchase of a new stove.

Table 2: Calculation of pay-back period for an improved institutional stove

	Open Fire	'SMP' type improved stove
Firewood consumption (gm/person/meal)	320	70
Firewood cost (MK/person/meal)	0.6	0.1
Firewood cost (MK/80 people/meal)	51.2	11.2
Firewood cost (MK/80 people/day)	179.2	39.2
Saving compared with open fire (MK per day)		140.0
Payback period (years)		3.3

Assumptions: (a) Firewood costs 2 MK/kg, including delivery;
 (b) 100 litre 'SMP' stove costs MK 141,115 (from PSL) and cooks for 80 people;
 (c) 78% fuel saving achievable under optimal management, based on Bellerive Foundation field surveys in Kenya;
 (d) School year is 10 mths; payback would be faster in institutions cooking all year round.

In this case, a payback period of 3.3 years could be expected if an SMP stove of 100 litre capacity was installed. This assumes optimal management and a wood saving of 78% compared with open fires. Poor management will increase the payback period. On the other hand a lower purchase price, which might arise from greater competition in the stove fabrication market, will shorten the payback period.

The data required for this type of analysis is currently unavailable to either institutions or stove producers, meaning that a convincing case cannot easily be made for investment in improved cooking systems - in spite of what seems to be a fairly clear economic benefit.

2.6 Observations on Current Situation

It is encouraging to note that in the absence of recent donor-supported initiatives to promote better catering in Malawian institutions, there are a number of manufacturers of improved cooking equipment offering a variety of technological options to institutions. The fact that PSL, for example, on the basis of design drawings given to them from Kenya, are producing stoves commercially nine years after the ActionAid/Bellerive project ended is an indication of the opportunities for profitability that may exist in this sector.

There are, however, significant problems with the current situation:

- **Incomplete market knowledge:** There are limited data available to potential manufacturers on the nature and size of the market, including numbers of institutions, cooking systems in place, numbers catered for, costs of fuel and the likely financial benefits of switching to alternative systems. This impedes the development of attractive value propositions that might convince potential customers of the benefits of upgrading their cooking systems.
- **Lack of customer awareness:** In the same way that manufacturers are poorly informed on the nature of the market, institutional managers are equally ignorant of the variety of improved cooking options already available in the marketplace. There is poor connectivity between suppliers and prospective customers.

- **Variable product quality and lack of independent performance data:** The quality of available stoves and support services is highly variable. Claims by equipment manufacturers regarding fuel savings or other benefits are not verifiable. There is a lack of information with which to make a sound case to prospective stove customers.
- **Limited purchasing power:** Even if armed with sound product knowledge and a good sense of the costs and benefits of an improved cooking system, institutions with limited financial resources may be unable to find the funds necessary to make this kind of capital purchase, at least in one lump sum.
- **Poor kitchen management:** The management of food and fuel is not, in most cases, an area to which institutional managers give much attention. Kitchens are smoky and dirty, there is gross wastage of fuel by cooks working without supervision and many managers seem unsure of how much fuel they consume and how much it costs. High levels of wood consumption are apparently viewed as a normal component of recurrent expenditure. This attitude has two implications: the first is that potential customers do not see a need for improvement, being largely oblivious to the drawbacks of their existing systems; the second is that if they do get an improved cooking system, perhaps through a donation, they are likely to manage it quite poorly. This can be observed in many institutions with donor-funded stoves where cooks over-fill the fireboxes with large, wet pieces of uncut firewood, thereby failing to derive the real benefits of fuel saving, smoke reduction and longevity that these improved technologies can offer. To install new fuel-saving technologies without a change in management attitudes would be to lose the full benefits of what those technologies can offer.

2.7 Implications

In light of these observations, the following conclusions may be drawn:

- (a) There is a proven need to improve the efficiency and management of institutional catering in Malawi, given that current cooking systems are expensive to operate, promote environmental destruction and have negative impacts upon health, safety and hygiene.
- (b) The potential market for improved systems is large and could sustain a modestly-sized stove manufacturing and distribution industry incorporating a number of producers and technologies.
- (c) A fledgling industry already exists for the supply of improved cooking stoves, but market connectivity is poor, quality is variable and there are opportunities for design innovation.
- (d) There are positive signs that a market demand is developing, but this is stifled by limited interest in improving the current situation, incomplete knowledge of the available options and insufficient awareness of the costs and benefits of doing so.
- (e) There is a need to provide a variety of support to both producers and potential customers, and to establish better linkages between them in order to catalyse the development of a more vibrant and sustainable trade in institutional catering services.
- (f) Experience from elsewhere suggests that if mechanisms can be introduced to promote commercial trade in cooking hardware and services then an energy industry will be able to support itself through a network of competent producers and interested buyers. This will not happen automatically; donor support is temporarily required to overcome bottlenecks.

3. Project Details

3.1 Goal, Purpose and Results

The proposed project has a three year duration. The overall goal is to accrue environmental, financial and health benefits, which will result from the existence of a dynamic, sustainable, commercially viable industry & market for improved institutional catering services (ICS)⁷.

The approach is intended to be explicitly private sector-oriented, identifying and tackling bottlenecks and connectivity problems to ensure that more appropriate and affordable stove hardware becomes available to better-informed customers. The project will not engage in trade itself. It will work with producers to make a business case, raise market awareness, improve product diversity and quality and assist in promotion. It will work with potential customers to provide information, advice and linkages to providers of appropriate stove technology and services. It will also work independently to measure and document impacts, develop objective comparisons of costs and benefits, and identify and tackle bottlenecks to improve linkages both horizontally and vertically in the market place.

There are three project results, one addressing supply, one addressing demand and one facilitating linkages between the two. Result 1 is that a variety of appropriate and affordable institutional cooking hardware and services are available in the market. Result 2 is that potential consumers are well informed of the costs and benefits of ICS. Result 3 is that market connectivity is established and bottlenecks are removed. The three results, taken together, will necessarily lead to the existence of the healthy trade in institutional stoves and associated services that is envisaged.

The logical structure is summarised in the Project Planning Matrix below.

⁷ This term is intended to cover stove hardware, training, service and follow-up support.

3.2 Project Planning Matrix

	Indicators	Assumptions
Project Goal: Financial savings, environmental and health benefits are accruing	1. Cost of cooking energy in 100 of Malawi's residential catering institutions is reduced to less than 10% of catering budget; 2. Harvesting of trees for institutional cooking is reduced by 40% in 100 institutions; 3. Food is better cooked in smoke-free kitchens.	
Project Purpose: A dynamic, sustainable, commercially viable industry & market exist for improved institutional catering services in Malawi	1. At least 5 enterprises in Malawi are disseminating improved institutional catering equipment on a commercial basis by YR3; 2. Sales of institutional cooking equipment increase at a rate of 20% annually; 3. Businesses make new investments in production machinery, staff and promotion material for institutional catering equipment.	The business case that is developed is favourable
Result 1: A variety of appropriate and affordable institutional cooking hardware and services are available in the market	20 improved cooking devices are being produced commercially by YR3.	
Result 2: Potential consumers are well informed of the costs and benefits of improved institutional stoves and services	All catering institutions have accurate information on improved catering equipment and services by YR3.	
Result 3: Market connectivity is established and bottlenecks are removed	Project and producers respond to at least 5 customer enquiries per week by YR3.	
<p>Activities-Result 1</p> <ol style="list-style-type: none"> Undertake market study Prepare business case for developing improved catering services industry Assist commercial partners to prepare business plans Compile a comprehensive supply-side database Support product development in response to market feedback Develop value propositions for different market segments Enter into cooperation agreements with commercial partners <p>Activities-Result 2</p> <ol style="list-style-type: none"> Compile a technical performance guide for cooking hardware Establish a data collection and monitoring capacity for cooking hardware Prepare and distribute generic promotional material Support producers to develop product specific promotional material Engage in awareness raising activities on institutional catering improvement <p>Activities-Result 3</p> <ol style="list-style-type: none"> Establish a project management unit Identify and address constraints inhibiting purchase of institutional cooking equipment Develop & deliver a range of suitable training materials Engage in practical awareness raising and demonstration activities on improved institutional catering 		

3.3 Activities

3.3.1 Introduction

Each result will be achieved through the implementation of various activities. These activities are elaborated here.

3.3.2 Result 1

Undertake market study

- Compile a comprehensive list of all institutions in Malawi where mass catering takes place, including types of institution, numbers catered for and, where possible, the institutions' names and contact details;
- In a representative sample of institutions, determine factors relevant to the purchase of improved catering services, such as existing cooking systems, expenditures on fuel and catering, quality of management, knowledge of alternative systems and willingness and capacity to invest in such systems.

Prepare business case for developing improved catering services industry

- Gather information on investment requirements and production costs for different type of cooking systems in the private sector;
- By combining the information on the potential market with that on the expected costs of production, assess the likely commercial viability of supply of improved catering services.
- Provide a summary in the form of a national-level business case for prospective producers, including likely turnover based on different assumptions.

Assist commercial partners to prepare business plans

- Based on known market requirements, work with potential producers to develop appropriate costings, cashflows and realistic projections for the production and supply of improved catering services.

Compile a comprehensive supply-side database

- Identify all existing and potential producers of improved catering hardware based on predicted demand for different types of stove of different levels of sophistication;
- Compile and keep this information updated in an accessible form.

Support product development in response to market feedback

- Using resources available both locally and internationally, advise manufacturers on new products, and modifications to existing products, that may improve performance or increase profitability.

Develop value propositions for different market segments

- Prepare convincing cases for potential institutional customers to make investments in improved catering services.

Enter into cooperation agreements with commercial partners

- Establish agreements with providers of institutional catering services that reflect a commitment on their part to make real investment in developing the institutional catering business, in return for the project's support.

3.3.3 Result 2

Compile a technical performance guide for cooking hardware:

- Collect data on all cooking hardware available in the market;
- Conduct fuel efficiency and other performance comparisons for each type of cooking stove under different management regimes;
- Produce a user-friendly guide to all existing and potential technologies, highlighting costs, benefits, specifications, prices, availability and other relevant information.

Establish a data collection and monitoring capacity for cooking hardware

- Train staff of the Department of Energy in energy monitoring techniques (e.g. stove efficiency tests, wood consumption surveys; comparative testing of alternative systems);
- Conduct comparative tests of available cooking systems to establish ease of use, efficiency, general performance and other characteristics relevant in purchasing decisions;
- Compile the results and make them available to potential customers;
- Establish an ongoing programme to monitor sales of improved cooking systems and their impacts.

Prepare and distribute generic promotional material

- Develop written materials that inform potential customers of the likely benefits of upgrading their cooking systems;
- Avail such material to relevant sectors for distribution to institutions under their jurisdiction;

Support producers to develop product specific promotional material

- Advise producers of appropriate marketing angles, unique selling points and value propositions, in order for them to develop promotional materials for their particular product lines.

Engage in awareness raising activities on institutional catering improvement

- Organise media coverage and other awareness-raising activities for both the project and the institutional catering services that it seeks to promote.

3.3.4 Result 3

Establish a project management unit

- Recruit and install a project manager and officer orderly/driver;
- Arrange for the secondment of a staff member from the Department of Energy;
- Identify, rent and equip an office in Lilongwe;
- Purchase capital assets (vehicle, office hardware, etc);
- Establish a functional project management unit with systems in place for administration, accounting, communication and record keeping.

Identify and address constraints inhibiting purchase of institutional cooking equipment

- Work with institutional decision-makers to determine the factors that promote or inhibit investments in improved cooking equipment;
- Look especially at financial constraints and the possibilities for financing schemes that may permit payment in instalments for ICS;
- Implement measures as necessary to overcome any bottlenecks.

Develop & deliver a range of suitable training materials

- Identify training needs among both private sector equipment producers, potential middlemen and agents, and institutional staff (such as boarding matrons or cooks);
- Conduct training as appropriate to raise standards of institutional catering management and promote increased sales of institutional catering services.

Engage in practical awareness raising and demonstration activities on improved institutional catering

- Promote trade in institutional catering services by participating in appropriate activities and forums that raise the profile of improved catering (e.g. workshops, trade fairs, demonstrations, exchange visits between institutions).

3.4 Timeframe

The project will be implemented over a three year period, as per the following timechart:

	YR1	YR2	YR3
Activities-Result 1: <i>A variety of appropriate and affordable institutional cooking equipment and services are available in the market</i>			
1. Undertake market study			
2. Prepare business case for developing improved catering services industry			
3. Assist commercial partners to prepare business plans			
4. Compile comprehensive supply-side database			
5. Support product development in response to market feedback			
6. Develop value propositions for different market segments			
7. Enter into cooperation agreements with commercial partners			
Activities-Result 2: <i>Potential consumers are well informed of the costs and benefits of institutional stoves and services</i>			
1. Compile a technical performance guide for cooking hardware			
2. Establish a data collection and monitoring capacity for cooking hardware			
3. Prepare and distribute generic promotional material			
4. Support producers to develop product specific promotional material			
5. Engage in awareness raising activities on institutional catering improvement			
Activities-Result 3: <i>Market connectivity is established and bottlenecks are removed</i>			
1. Establish a project management unit			
2. Identify and address constraints inhibiting purchase of institutional cooking equipment			
3. Develop & deliver a range of suitable training materials			
4. Engage in practical awareness raising and demonstration activities on improved institutional catering			

3.5 Project Management

The project will be run as an autonomous unit of GTZ ProBEC. Funding will be channelled through the ProBEC office in South Africa, which will provide accountability and supervision but will not be involved directly in implementation.

The project itself will be run by an independent unit of a private consulting firm. This firm will be selected by GTZ-ProBEC through a process of open bidding on the basis of defined criteria

such as experience in improved stove design principles, product development, stove fabrication, implementation of training packages and catering improvement measures, marketing and commercial approaches to energy conservation. Overall, the firm needs to be an 'honest broker' without business interest in the project.

The implementation unit will comprise a project manager from the selected consulting firm, assisted by an office orderly-cum-driver, together with an Energy Officer seconded from the Department of Energy.

The project will recruit a number of consultants to provide technical support.

Besides reporting to the ProBEC-GTZ Regional Office in Pretoria, the project management unit will maintain links with the National Steering Committee of ProBEC (via the Department of Energy) in Malawi to integrate the institutional catering project with relevant biomass energy conservation activities at national level. The Department of Energy will contribute towards fund raising for the project.

3.6 Budget

The project budget is €340,000, as per the following breakdown:

Budget Item	Year 1	Year 2	Year 3
<i>Equipment</i>			
Vehicle (2nd hand pick-up)	15,000		
Computer, printer, copier, fax, phones	6,000	1,000	500
Office furniture, sundries	1,500	1,500	1,500
Other (field survey tools, etc.)	1,500	1,500	1,500
<i>Personnel</i>			
Project Manager (incl salary, rent, benefits)	18,000	18,900	19,845
Energy Officer (seconded)	2,500	2,700	2,900
Office Orderly/driver	2,500	2,700	2,900
<i>Office running costs</i>			
Rent	4,000	4,100	4,200
Stationery and supplies	2,000	2,000	2,000
Telephone, water, electricity	3,500	3,675	3,859
Vehicle running costs	7,000	8,000	9,000
<i>Consultancies & workshops</i>	18,500	23,000	23,000
<i>International travel</i>	5,000	5,000	5,000
<i>In-country travel</i>	3,000	3,150	3,308
<i>Meetings, fairs, demos</i>	3,000	3,000	3,000
<i>Technology development & training</i>	3,000	7,000	4,500
<i>Publicity and promotion</i>	3,000	4,000	4,000
<i>Overhead to consulting firm (ca. 10%)</i>	10,091	8,775	8,989
<i>Overhead to GTZ ProBEC (10%)</i>	10,909	10,000	10,000
Total:	€120,000	€110,000	€110,000

It is anticipated that the budget will be handled entirely by the selected project management firm, including the purchasing of assets, the recruitment of staff and the selection and supervision of consultants.

The initial budget sought is €80,000 to fund costs for the first 8 months. Submissions may then be made to additional donors for the required balance of €260,000.