MEDIUM-SIZED PROJECT BRIEF

PROJECT SUMMARY

Project Identifiers	
1. Project Name: *Barrier Removal to Encourage & Secure Market Transformation and Labeling of Refrigerators.*	2. GEF Implementing Agency: *UNDP*
3. Country or countries in which the project is being implemented: *Tunisia*	4. Country eligibility: *Tunisia ratified climate change convention on* 15 July 1993.
5. GEF focal areas(s): *Climate Change*	6. Operational program/short-term measure: *OP 5 Removal of Barriers to Energy Efficiency and Energy Conservation.*
7. Project linkage to national priorities, action plans, and programs: *The growth rate of the Tunisian energy consumption is as high as 4.5% per year and rising. Currently, Tunisia consumes less energy than it produces. However, given its scarce resources and its growth in consumption, it will soon have a deficit and become a net importer of energy. Given this situation, Tunisia has embarked in an ambitious energy conservation policy to control the energy demand. In 1987 GOT launched a National Energy Conservation Plan which is being implemented by Agence pour la Maîtrise de l'Energie (AME). AME is the proposer of the current project.*	
8. GEF national operational focal point and date of country endorsement: Ms. Benzarti, Director International Cooperation, Ministry of Environment dated 9 January 1998	
Project Objectives and Activities	
9. Project rationale and objectives: *Objectives:* 1) Energy efficiency and consumption labels developed & adopted for refrigerators. 2) Market transformation of refrigerator technology initiated and achieved. *Goal and Rational:* Increased use of- and demand for energy efficient refrigerators.	Indicators: 1) *Marked decrease in CO2 emissions* 2) ***Increased local manufacturer investment in** energy efficient refrigerator design and components.* 3) *Mandatory labels enacted at end of year one of the project.*
10. Project outcomes (see p.7 for details): 11) *A refrigerator labeling system;* 12) *Manufacturer compliance with labels;* 13) *Two internationally certified testing facilities;* 14) *Consumer awareness of availability and favorable economics of energy efficient refrigerators;* 15) *Manufacturer knowledge of energy efficient design and production; and* 16) *Retailers and vendors stock and promote efficient refrigerators.;*	Indicators: 1) *Consumers purchase energy efficient refrigerators* 2) *Labels evident on locally manufactured refrigerators;* 3) *Testing of manufacturer products;* 4) *Retailers stock energy efficient refrigerators;* 5) *Manufactures produce efficient refrigerators.*
11. Project activities to achieve outcomes (including cost in $ for each activity): 12) *Formulation of labeling format & standards (17,000);*	Indicators: 1) *Higher capacity of manufacturer to design and produce efficient refrigerators;* 2) *In country capacity to test manufacturer*

13) *Training of manufacturers, testing laboratories and retailers (130,000);* 14) *Undertake a pilot labeling experience (17,000);* 15) *Certify two Tunisian testing facilities (122,000)* 16) *Undertake an efficient refrigerator promotion program (110,000);* 17) *Implement a creative financing program (144,000);* 18) *Undertake an extensive manufacturer support program (135,000).*	*products;* 3) *Consumer awareness of availability and favorable economics of energy efficient refrigerators*;
19. Estimated budget (in US $ currency): PDF: - GEF: 710,000 Co-financing: 1,256,000 in-kind: 632,000 (Government of Tunisia) in-kind: 57,000 (ADEME-France) in-cash: 547,000 (Government of Tunisia) TOTAL: 1,966,000	
13. Information on project proposer: *Agence pour la Maîtrise de l'Energie (AME) is the implementing agency of the Tunisian National Energy Conservation Plan. The main instruments of this plan are:* • *Mandatory energy audits in the industry, transport, tertiary sectors;* • *Financial incentives to energy conservation investments and products;* *AME is also in charge of energy demand analysis studies and preparation of national energy balances. AME promotes energy conservation and renewable energies by carrying out information and raising of awareness campaigns. AME has a staff of 70 professionals and a yearly budget of nearly seven million dollars two million of which are provided by foreign assistance.*	
14. Information on proposed executing agency (if different from above):	
15. Date of initial submission of project concept: *No project concept was submitted.*	
Information on Institution Submitting Project Brief	
16. Project Identification number: TUN/97/G31	
17. Implementing Agency contact person: Karim El-Nagdy /UNDP/RBAS/ New York	
18. Project linkage to Implementing Agency program(s): This project conforms with the Country Cooperation Framework and is in line with other climate change activities being implemented by The UNDP country office in Tunisia.	

PROJECT DESCRIPTION

PROJECT RATIONALE AND OBJECTIVES

As the recently finalized (Tunisian funded) *"Etudes de Marche des Refrigeratuers Domestiques en Tunisie"* has proven, any priority area for action to achieve a more sustainable and rational energy consumption pattern, should focus on the refrigeration sector. More specifically, the argues study assures that it would be possible to harness the major globally significant potential for electricity savings through market penetration of- and market transformation to more efficient refrigerator models. Tunisian authorities (and AME in particular) are well are of this fact and have already conducted a detailed market analysis of the refrigerator consumption and proliferation in all parts of Tunisian society (available upon request). To harness such benefits there is a need to achieve a better average efficiency of refrigerator units sold and manufactured in Tunisia. However, a number of critical barriers (institutional, technical, information, capacity and market) will have to be addressed. As the cost of such barrier removal activities is perceived as being unrecoverable, the Tunisian authorities have requested GEF assistance to help fund the increment associated with needed activities. As such, an initiative would work towards removing the key barriers the use of energy-efficient refrigerators and the promotion of a more rational consumption pattern of electricity, the proposed project is in line with the GEF Operational Programme Number 5 "*Removing Barriers to Energy Efficiency and Energy Conservation*". This project will ultimately lead to the reduction in the use and import of fossil fuel for the generation of electricity and, therefore, would lead to a substantial reduction in the amounts of CO_2 emitted to the atmosphere. More specifically, it is estimated that over the period 1998-2030, greenhouse gas emission avoided as a result of market transformation and labeling would amount to 15.5 million tons of CO_2 equivalent.

In addressing the above barriers, the project would ensure that energy efficiency and consumption labels are developed and adopted by all local refrigerator manufacturers (who supply 95% of the Tunisian market needs), thereby guaranteeing consumer awareness of the consumption and economic perspective of purchasing any potential unit. The project will also ensure an effective testing, monitoring and enforcement capacity in the country to achieve compliance with labeling standards and requirements. The economic, technological and environmental implications of labeling make it a major action in the implementation of Tunisian policy aiming at sustainable development. Furthermore, critical barrier removal activities will also serve to activate market forces and promote Market Transformation to more efficient models. At the same time, the project will ensure that local manufacturers are able to join market development and comply with labeling criteria and future binding standards that limit consumption. Such standards are expected to be issued around the year 2005.

CURRENT SITUATION (Baseline course of action)

Household electrical consumption, and refrigeration in particular, is a major electricity-consuming sector in Tunisia. This is demonstrated by the sharp increase over the last decade in the rate of equipment of households supplied with electricity, from 51% in 1984 to 65% in 1994. Household electric power consumption for refrigerators has also increased over the past few years reaching 460

GWh in 1994, i.e. 35% of the domestic electric power consumption, or 9% of the total electric power consumption in Tunisia. At the current rate (baseline situation), electricity demand of the household refrigerators will increase from 704 GWh in the year 2000 to 2,290 GWh in 2030, i.e. more than three-fold increase over 30 years, or an average increase of 4% per year during the period 2000-2030.

Refrigeration is today one of the priority electric household needs in Tunisia. Nevertheless, energy efficiency figures are a minor criterion, if not entirely ignored, in the selection of a refrigerator by the consumers, as compared to other determining criteria such as the brand, sturdiness, exterior and interior aspect, and ease of purchase payment terms.

In 1995, the average weighted consumption of a typical simple refrigerator (without freezer) was 1.04 kWh per appliance per 24 hours. That of a typical refrigerator-freezer reached 1.8 kWh per day. The specific consumption of a refrigerator-freezer is therefore 73% higher than that of a simple refrigerator. However, to be significant, any comparison must take into consideration the average characteristics of these two lines of appliances.

Current Standardization and Testing Mechanisms

Tunisian standards are developed according to need or upon request within the framework of a *National Norms Commission* comprising representatives of the administrative department concerned, the appropriate industrial sector, the consumers, and technical experts in the area of application. A guideline issued by the Government Ministry responsible for INNORPI (*The National Institute for Standardization and Industrial Property (Institut National de la Normalisation et de la propriete Industrielle)* recommends that it conform as much as possible to current European and international practices for standards (ISO, EN, etc.). As such, INNORPI will be the lead agency responsible for the design and approval of the proposed labeling format and testing procedures for this project.

There are already existing standards applicable to household refrigeration in Tunisia. These standards are essentially concerned with safety and suitability to intended purpose. Six Tunisian standards pertaining to household refrigeration equipment were identified. Five of these standards are officially endorsed, while the sixth one is only recorded. However, issues regarding refrigerator energy consumption and efficiency are not treated in the current Tunisian standards.

It should be pointed out that Tunisia currently does not have any system in place for the certification or accreditation of laboratories. A project to establish such a system for the various testing laboratories is being formulated under the aegis of a national council created for that purpose. Currently, only one national laboratory, the Centre Technique des Industries Mécaniques et Electriques (CETIME), independent of the manufacturers, possesses adequate logistical testing and evaluation capacities for refrigeration appliances. Its role in this area, however, is limited to conducting tests on behalf of the Ministry of Commerce, in order to determine the conformity of imported refrigerators to applicable Tunisian standards, especially safety standards. Through this project, the role and capacity of CETIME will be strengthened and expanded authorizing and

accrediting it to undertake testing of refrigerators for energy consumption. The proposed GEF project will finance the certification of CETIME (on issues pertaining to testing of energy consumption) by an internationally renowned certifying laboratory/agency thereby ensuring manufacturer confidence and support for the process. Specifically, the certifying agency will certify that CETIME conforms with the testing standards and methods set up by INORPRI in regard to testing for energy consumption. The balance needed for achieving the testing certification on issues of health and other (baseline) standards will be financed by CETIME. A second laboratory (to be determined at the outset of the project) will undergo the same process (with similar financial setup) of certification and accreditation. As such, there will be two competing laboratories working in Tunisia both authorized to undertake testing of energy consumption in locally manufactured refrigerators.

Trade Issues

Tax benefits are currently provided for equipment used in energy control or in the areas of renewable energy for which no equivalent equipment is produced locally. This equipment is exempt from the Value Added Tax and import duties are reduced to 10% of the applicable customs duties, upon presentation of a certificate delivered by the Agence pour la Maîtrise de l'Energie. The list of eligible equipment is established by way of decree and revised yearly.

Current imports taxes on foreign refrigerators are at 43%, a level not very encouraging for the prospects of import and sale of energy efficient models and designs that are currently not available on the Tunisian market. This, however, is changing. The establishment of a free trade zone between Tunisia and the European Union will be gradually initiated in the year 2000 with decreasing import taxes on all equipment till the year 2008 when import taxes are completely eliminated. This factor will serve as a great incentive for Tunisian refrigerator manufactures to support and benefit from the proposed GEF initiative which will help prepare them for both inevitable competition from Europe and the planned Tunisian minimum energy consumption standards to be enacted about the same time.

Local Manufacturers

Tunisian manufacturers are well placed to initiate the upcoming process of labeling supported by this GEF project. They all have testing equipment to perform traditional tests called statistical tests. These tests are essentially concerned with safety (electricity, refrigerant gas) and operating standards (e.g. temperatures obtained inside the appliances). Moreover, four manufacturers (out of a total of eight) have complete or nearly complete testing installations, consisting of a controlled atmosphere chamber and various testing apparatus, and are capable, in terms of equipment, of conducting standardized electric power consumption tests. This will greatly facilitate the internal monitoring process that is essential for a successful labeling program. With the initiation of this project and the expected drop in import taxes, other manufacturers are expected to follow suit in establishing of adequate testing facilities. This will ensure a productive and efficient working environment between the manufacturers and the certifying laboratories (CETIME and other) who will authorize each manufacturer to place a standard label indicating energy consumption and/our efficiency on his product.

Montreal Protocol.

Tunisia signed the Montreal Protocol in 1989 and its amendments of London in 1992 and Copenhagen in 1993. In line with the above, Tunisia embarked in 1991 on the preparation and implementation of a National Program for the Elimination of Ozone Depleting Substances. This program includes regulatory measures and investments in technology and production retrofitting to phase out ODS. On the regulatory side, regulations have been issued for ODS' import control and a ban has been placed on these substances for specific uses such as refrigerator manufacturing. The activities are managed and implemented by the National agency for the Protection of the Environment (Agence National de Protection de l'Environnement) with funding from the Multilateral Fund of the Montreal Protocol.

The Program also includes the following initiatives:

➢ A US $ 1.8 million project started in 1994 that:

- supports investments needed for production line retrofitting and transfer of technology to 1 refrigerator manufacturer, 1 foam manufacturer and 1 aerosol producer;
- capacity building of refrigeration technicians.

The above project will result in the eliminating 270 tons of CFCs.

➢ A US $ 1.2 million project with the same objectives as the project above, however, with focus placed on four different refrigerator manufacturers, 2 aerosol producers and 1 foam manufacturer. The project will result in eliminating 230 tons of CFCs.

Furthermore, additional financing has been sought to support the phase out in all other ODS employing manufacturers in Tunisia. The project has been approved but has not been initiated yet.

Barriers

As mentioned earlier there are a number of critical barriers that inhibit labeling and market transformation from being self-launching. Below are a list of preliminary barriers that will be briefly discussed. The list is in no way exhaustive and project document formulation will more clearly define the structuring of these barriers and their cross-reaction with one another.

1. Institutional barriers:

    A. No Tunisian standards addressing energy efficiency and testing of energy efficiency of refrigerators;
    B. Lack of adequately certified laboratories capable of undertaking testing for energy efficiency/consumption (and other); and
    C. Lack of an adequate enforcement mechanism to enforce energy efficiency standards.

2. Market and awareness barriers:

    A. Lack of consumer awareness on favorable life-cycle economics of high efficiency refrigerators;
    B. Lack of consumer awareness on the existence of high-efficiency models and design;
    C. Lack availability of energy efficient models. Vendors do not keep stock due to current lack of consumer demand;
    D. Manufacturer perceived risk due to limited evidence of demand for high efficiency models; and
    E. Inadequate financial infrastructure to support creative financing mechanism between vendor, consumer and/or third party.

3. Technical and know-how barriers:

    A. Limited manufacturer know-how on design and dimensioning of energy efficient refrigerators;
    B. Inadequate testing/monitoring facilities and capabilities to monitor/test efficient/consumption levels;
    C. Insufficient retailer know-how to market and explain the simple attractive benefits of efficient refrigerators; and
    D. Inadequate laboratory capacity to undertake testing and certification of manufacturers.

EXPECTED PROJECT OUTCOMES

Achieving the main objectives of the project will result, in the long-term, in achieving the project's main outcome which is the long-term reduction of CO2 emissions. This will be achieved through securing the following project outputs.

1. A refrigeration labeling system that is operational and enforced;
   This outcome will contribute to removing a variety of barriers such as barriers 1(A), 2(A),(B) and 3 (D) above.
2. Support and compliance of manufacturers through the implementation of a "manufacturer support program";
   This outcome will contribute to removing a variety of barriers such as 1(C), 3(A),(B) above.
3. Two internationally certified laboratories for approving, monitoring and testing of manufacturer products. This will include the development of adequate testing and certification procedures;
   This outcome will contribute to removing barriers 1(B),(C), and 3 (D) above.
4. High-level of consumer awareness and readiness to purchase will be achieved through extensive promotion and awareness efforts, in addition to the establishment of financial incentives and use of creative financing principles.
   This outcome will contribute to removing barriers 2(A),(B),(D) and (E) above.

5. Strong manufacturer confidence in- and knowledge of design and production of energy efficient models;
   This outcome will contribute to removing barriers 2(C),(D) and 3 (A) above.
6. Stocks of energy efficient refrigerator models are readily available at vendors and retailers.
   This outcome will contribute to removing barriers 2(B),(C) and 3 (C) above.

ACTIVITIES AND FINANCIAL INPUTS

The activities will concentrate on removal of the institutional, technical, market and awareness barriers set out above. Technical support will be provided to the concerned Tunisian institutions (mainly INNORPI) to design adequate labeling (format and testing) and enforcement procedures. Furthermore, the capacity of testing laboratories will be enhanced through providing them with adequate testing facilities and procedures, as well as the necessary and appropriate training. Certifying these laboratories by an internationally certifying agency will allow them to gain the confidence of all parties, especially the manufacturers who will be the subject of these tests. Manufacturers' fear of labeling regulation enactment will be overcome through a "manufacturer support programme" that will focus on building capacity to design and manufacture energy efficient refrigerators, while providing gravely needed know-how and design techniques. Retailers and vendors will also be targeted in an effort to improve their own knowledge of efficient models and to solicit them to stock and promote such models. Finally, consumers will be prompted to buy energy efficient refrigerators through extensive promotion campaigns, financial incentives (not subsidies) and the design of a creative financing mechanism to address the "initial cost" barrier of purchasing an efficient refrigerator.

The project will have the following activities to achieve the set objectives:

Activity 1: *Formulation of standards and labeling formats, and preparation of enforcement procedures (Cost $ 64,000 of which 17,000 is GEF financed)*

In this activity, the standards and procedures for testing energy consumption in addition to an agreed upon labeling format will be prepared. When the above standards and procedures are enacted following the "pilot labeling experience" (see activity 3) a statute will be issued and published in the *"Journal officiel de la République Tunisienne"*. Such a statute will include procedures and standards for: energy consumption measuring procedures, calculation of an energy efficiency index, definition of energy efficiency categories and methods for their determination, labeling formats precise description and drafting of enforcement procedures .

Activity 2: *Training of manufacturers, laboratories and retailers (Cost $ 110,000 from GEF)*

Manufacturers will be trained in measurement techniques, design and analysis of thermal systems, materials and insulation science and procedures, preliminary testing methodologies, designing of energy efficient refrigerators and quality control.

Laboratories will be trained in advanced testing methodologies in addition to data processing and analysis. Emphasis will be placed on energy issues.

Retailers and vendors will be instructed on issues pertaining to label information, simple energy efficiency notions, "simple pay-back" time "life-cycle" cost calculations. Furthermore, they will be taught how to pass this information on to the consumer in a purchasing situation thereby clarifying to them the benefits (financial and environmental) of by efficient models and influencing them to purchase the efficient alternative.

Activity 3: *Initiate, monitor and evaluate pilot labeling experience (cost $ 27,000 of which 17,000 will be financed by GEF)*

This activity will be carried out with the participation of one major retailer and one or two manufacturers willing to be involved early in the project. This activity will be initiated after the two local laboratories have been certified by the international agency, mid-way through training activities, and standards and labels preparation, but before the enactment of the labeling regulation.

Precise measurements will be carried out to determine the energy efficiency categories and indices, experimental formats of the draft labels will be placed on refrigerators with all the information deemed appropriate, consumer reaction (especially to- but not limited) to the label will be carefully reviewed and analyzed to allow improvements in the label design.

With the experience drawn from this initial programme, the label will be enacted and enforced as explained under activity 1.

Activity 4: *Undertake a manufacturers support programme (Cost $ 135,000 fully financed by GEF)*

International expertise on the subject of design and production of energy efficient refrigerators will be provided to all eight local manufacturers. In addition training activities (Activity 2), manufacturers will be provided with up to date advice on methodologies, know-how and needed/recommended investment in their facilities or techniques to improve the efficiency of their product.

The manufacturers themselves have agreed to carrying the cost of any needed follow-on investment in testing equipment or retrofitting/updating of procedures resulting form the advice provided and knowledge transferred to the manufacturers as part of this activity.

Activity 5: *Certification of CETIME and one other laboratory (by an internationally renowned partner) (Cost $ 480,000 of which 122,000 is required from the GEF)*

To gain the acceptance and confidence of the manufacturers, CETIME and another testing laboratory have to be adequately equipped with testing facilities and their procedures adequately certified to be able to command the respect and abidance of the manufacturers are subject to

testing and monitor for adherence of equipment with issued label. The adequate laboratory equipment (e.g. controlled climate room, measuring equipment, data logging and processing (including software)) and the proper measuring and calculation methodologies will be defined within and provided by the project. The implementation of these methodologies and the training of staff will enable the laboratories to achieve the desired/needed certification.

In keeping with the principals of incremental cost, the cost of certification of the local laboratories carried by GEF will only cover the cost certifying the laboratory for energy consumption measurements and calculations. The base cost of certifying the laboratories for monitoring for health and other local standards will be carried by the Government of Tunisia.

Furthermore, it is estimated that Tunisian manufacturers and institutions will invest TD 390,000 to improve their testing capabilities and achieve certification for the local requirements.

Activity 6: *Undertake a raising of awareness and promotion program to ensure that consumers buy and retailers stock the more efficient refrigerators (Cost $ 181,000 of which 110,000 is from the GEF)*

To create a demand for more energy efficient models of refrigerators, an extensive awareness and promotion campaign educating the public on understanding the label, simple notions of energy efficiency and costs savings and usefulness of energy efficient products will be undertaken. The campaign will use all media such as the press, television and radio as well as leaflets distribution and posters at vendors shops. Demonstration models will also be available form the beginning of the project.

The "Organisation de Défense du Consommateur", an active consumer rights and support organization will be closely associated to this campaign.

Activity 7: *Put in place a financial incentives program with vendors and other interested financial parties to overcome first cost barrier (Cost is $ 124,000 fully financed by GEF)*

An analysis of creative financing opportunities will be undertaken in the Tunisian context keeping in mind the need to address the first cost barrier of buying an energy efficient refrigerator. As a result of this analysis, an adequate financial mechanism will be put in place to help consumers overcome the first cost barrier to purchasing the efficient but more costly models. Such a mechanism will involve the consumers, vendors and third party financiers (banks, lessors ...etc.) if necessary.

Monitoring

The cost of monitoring and evaluation of the complete labeling program is $ 55,000 and will include impact assessments (on energy consumption, market transformation...etc.), market reaction surveys in addition to more traditional UNDP/GEF monitoring and evaluation procedures (see page 15). These activities will be GEF financed. Furthermore, the cost for

enforcement of labeling during the project is $118,000 and is an in-cash contribution from the Government of Tunisia.

Lastly, detailed design of project activities and implementation strategies has been budgeted at $60,000 to be used at project document design phase.

SUSTAINABILITY ANALYSIS AND RISK ASSESSMENT

The project will in general work horizontally through all major activities to ensure sustainability. A major factor contributing towards the sustainability of the project is active manufacturer participation willingness to engage in the process. Manufacturers will be active participants in the pilot labeling experience, will have access to expertise in the field of efficient energy design and will receive training. Moreover, capacity of Government institutions responsible for testing and monitoring manufacturer compliance and adherence will be built to effectively deal with all aspects of labeling. Lastly, the following vital factors will also work to ensure sustainability: a) establishment of Government approved standards for labeling of & testing of energy consumption; b) establishment of internationally certified testing laboratories; and c) enhancing the capacity of the manufacturers.

A project risk could be the distortion of the conditions for competition between manufacturers. This risk will be minimized by conducting a needs assessment (as part of Project Document design) of all potential manufacturers to be included in the information dissemination and training. The Government laboratories will assist those incapable manufacturers until they build their own capacity for self-testing and monitoring.

STAKEHOLDER INVOLVEMENT AND SOCIAL ASSESSMENT

Key stakeholders include the Ministry of Trade, Ministry of Industry, INNORPI, CETIME, AME and consumer protection and environmental NGOs.

Social assessment will be conducted in the initial stages of the project and will focus on the costs and benefits of the use of energy-efficient appliances. The project will also rely on information dissemination activities nationwide to inform the public of the short-term and long-term benefits of using energy-efficient equipment and consumer's rights to know about the availability and benefits of energy-efficient appliances.

INCREMENTAL COST ASSESSMENT

Inducing market transformation of domestic refrigerators to more efficient models is associated with a cost that is unrecoverable for both the Tunisian public and private sectors. This project serves to foster the needed market transformation through a barrier removal process and at the same time pave the way for the enactment of standards in case of market failure. Achieving

either market transformation or enactment of standards is associated with unrecoverable costs for Tunisia. Through this barrier removal process, the GEF project is providing/promoting an alternative that would result in significant reductions in domestic demand for electricity and thereby serve domestic as well as global interests. As is evident in the Incremental Cost Matrix shown below, a substantive baseline (in-cash as well as in-kind) serves to keep with the GEF principals of incremental cost.

INCREMENTAL COST MATRIX

	Baseline	Alternative	Increment (Alternative-Baseline)
Global environmental impact	Unjustified high level of CO_2 emissions	Increased use of- and demand for energy-efficient refrigerators	Marked decrease in CO_2 emissions (15.5 million tons by 2030)
Domestic impact	- Production of refrigerators with high running cost and high use of electricity - Certification and testing facilities for safety and operational features only	-Production of and demand for refrigerators with low running cost and low use of electricity - Certification of testing facilities for energy consumption measurements and calculations in addition to basic features	Decrease in level of growth of electricity consumption.
Costs (US$)	**Baseline Costs**	**Alternative Costs**	**Incremental Costs**
Formulation of standards	47,000 - ADEME	64,000	17,000
Training	0	130,000	130,000
Pilot labeling experience	10,000 - ADEME	27,000	17,000
Manufacturer support prog	0	135,000	135,000
Certification of Labs	358,000 - GOT	480,000	122,000
Awareness & promotion	71,000 - AME (GOT)	181,000	110,000
Financial incentives prog	20,000	144,000	144,000
Enforcement of labeling	118,000 - GOT	118,000	0
Monitoring, evaluation & support	20,000	55,000	35,000
In-Kind contribution	632,000 (GOT)	632,000	0
Total	*1,256,000*	*1,966,000*	*710,000*

The baseline financing of the Government of Tunisia is estimated at about TD 700,000 (or $ 632,00) covering government institutions labor costs and other local expenses such as offices, utilities, transportation and other services for a period of two years. Co-financing in accordance with GEF policies on incremental costs is justified, because baseline activities would have been focused on changes that are in the immediate national interest. Incremental GEF support is required to enable the reorientation of planned baseline actions, and the implementation of additional activities to remove barriers to the envisaged alternative (energy efficiency enhancement). None of the said activities would exclusively be either Incremental or Baseline action and therefore both baseline and incremental funding is used to implement the activities, produce the outputs and remove the barriers. This is exemplified in activities focusing on standards and labeling. Baseline funding is being provided by the Government of Tunisia to cover the cost of laboratory certification for monitoring of standards of national interest, such as

health and safety standards. At the same time incremental funding from the GEF will be used to cover the cost certifying the laboratories for energy consumption measurements and calculations. In this context it is important to note, that the baseline funding made available by the Government of Tunisia has been reallocated from national funding earmarked general energy management purposes to achieve full consistency with the global environmental objectives of the GEF intervention.

BUDGET

PROJECT BUDGET

Component	GEF	Other sources[1]	Project total
PDF:			
Personnel :	244,000	600,000[2]	844,000
Subcontracts:	160,000	280,000	440,000
Training:	130,000		130,000
Equipment:	90,000	320,000[3]	410,000
Travel:	30,000		30,000
Evaluation mission(s):	35,000	20,000	55,000
Miscellaneous:		36,000	36,000
Project support:	21,000		21,000
Project total (PDF + Project costs):	710,000	1,256,000[4]	1,966,000

Contrary to the incremental cost matrix table, the above table includes Government in-kind contributions to the project.

PROJECT IMPLEMENTATION PLAN

In close cooperation and coordination with the UNDP office, AME will appoint a full time coordinator to coordinate all project's activities throughout the project period of two years. This will be done as soon as financing is secured to allow the project coordinator to work with the project design team during the project document preparation phase. A project coordinating committee will be formed to compose of all related agencies, including: the Ministry of Trade, Ministry of Industry, Ministry of Environment, AME, INNORPI, CETIME, representatives of the manufacturers and the retailers, representatives of NGOs, and UNDP. This committee has already been formed and an initial meeting has been held. The coordinating committee will oversee all project activities in regards to planning, design, strategies and implementation of project activities. It will also serve to secure the high degree of coordination that is needed between project stakeholders.

[1] Other sources are expressed as in-cash and in-kind contribution by the Government.
[2] Salaries of counterparts
[3] New equipment and certification process initiated
[4] Includes 530,000 of in-kind GOT contributed labor costs n addition to other in-kind contributions

The project coordinator will prepare a detailed workplan during and after initiation when the coordinating committee meets again. During project document preparation phase, the project coordinator, will work with the project design team (in close cooperation with the Government counterpart and UNDP), to prepare the TOR and equipment specifications as well as prepare criteria for awarding subcontracts and procurement of equipment. Furthermore, detailed design of individual activities and implementation strategies will also take place during this phase. Monitoring and evaluation procedures used by the UNDP office for other projects will be applied for this project.

PROJECT IMPLEMENTATION PLAN

Duration Of Project (In Months): 24								
ACTIVITIES	**PROJECT-MONTHS**							
Completion of project activities	3	6	9	12	15	18	21	24
1. Formulation of standards.	[- -]			[---]				
2. Training (manufacturers, retailers, laboratories)	[----------]							
3. Pilot labeling experience		[-------]						
4. Manufacturer support programme			[-------]					
5. Certification of laboratories		[-----]						
6. Awareness and Promotion		[----------]			- - - - - - - - - - - - -			
7. Financial incentives programme .		[----------						
8. Monitoring and evaluation		[----------						----------]

PUBLIC INVOLVEMENT PLAN

Stakeholder Identification

Key stakeholders include the Ministry of Trade, Ministry of Energy, Ministry of Industry, INNORPI, CETIME, refrigerators manufacturers, and consumer protection and environmental NGOs. This is in addition to the GEF and UNDP.

Information dissemination and consultation

At least one workshop will be held with representatives of all key stakeholders to explain the project, identify responsibilities, modes of cooperation, and benefits to the affected parties, including both consumers and/or manufacturers. This will be done during the Project Document formulation phase. Moreover, continuous consultations will also be conducted with representatives of the local communities and consumers protection and environmental societies.

Social and participation issues

Social assessment will be conducted in the initial stages of the project and will focus on the costs and benefits of the use of energy-efficient appliances. The project will also identify the role of women in developing the final activities of the project and to ensure that they are included in the information dissemination plans and decision making process.

MONITORING AND EVALUATION

Monitoring of the project will be conducted mutually by the Ministry of Trade, Ministry of Industry (AME) and UNDP. About $ 55,000 has been allocated in the budget to allow for monitoring and evaluation. Market reaction surveys and detailed impacts assessments of project outputs will be undertaken throughout the project. Moreover, a survey will be conducted to acquire necessary data on performance indicators. Further still, a mid-term review will be conducted along with an assessment of stakeholders participation in the project design and implementation. A description of necessary steps for adjusting project implementation activities will be developed as a result of the monitoring and evaluation.

PROJECT CHECKLIST

Project Activity Categories			
BIODIVERSITY	CLIMATE CHANGE	INTERNATIONAL WATERS	OZONE DEPLETION
Prot. Area zoning/mgmt:	Efficient production and distribution:	Water body:	Monitoring:
Buffer zone development:	Efficient consumption: X	Integrated land and water:	Country program:
Inventory monitoring:	Solar:	Contaminant:	ODS phaseout:
Ecotourism:	Biomass:	Other:	Production:
Agro-biodiversity:	Wind:		Other:
Trust fund(s):	Hydro:		
Benefit-sharing:	Geothermal:		
Other:	Fuel cells:		
	Other:		

Technical Categories
INSTITUTION BUILDING: X
INVESTMENTS:
POLICY ADVICE: X
TECHNICAL/MANAGEMENT ADVICE: X
AWARENESS/INFORMATION/TRAINING: X
OTHER:

PROJECT PLANNING MATRIX (Logical Framework Matrix)

PROJECT PLANNING MATRIX			
INTERVENTION STRATEGY	**OBJECTIVELY VERIFIABLE INDICATORS**	**MEANS OF VERIFICATION**	**ASSUMPTIONS**
Development Objective Market Transformation of domestic refrigeration technology initiated within first year of project and achieved in the medium term.	Within one year of project initiation, 25-50% of all local manufacturers will have initiated investments in energy efficient refrigerator design, components and testing/monitoring equipment.	➢ Manufacturer product surveys; ➢ Retailer surveys of locally manufactured stock.	➢ Enforcement mechanism of labels is successful; ➢ Demand for efficient models in continuously encouraged as models improve.
Immediate Objectives 1. Energy efficiency and consumption labels for all Tunisian domestic refrigerators developed and adopted by end of year 1 of project; 2. Increased use of- and demand for domestic energy efficient refrigerators	A mandatory labeling system is enacted and at the end of year one of project and an enforcement mechanism is put in place.	➢Labeling and enforcement procedures tested and revised (if necessary); ➢ A statute describing guidelines for labeling is drawn up and published in the "Journal officiel de la Republic Tunisienne". The statute will indicate that labeling of refrigerators will become mandatory by a time corresponding to the end of the current project.	➢ Manufacturer support program initiated and completed successfully; ➢ Manufacturers have access to finance for retrofitting and investments; ➢ Public demand for energy efficient models encourages market transformation (here) ➢ Manufacturers respond to public demand for efficient models (here)
Outputs 1. A refrigerator labeling system; 2. Manufacturer compliance with labels; 3. Two internationally certified testing facilities; 4. Consumer awareness of availability and favorable economics of energy efficient refrigerators; 5. Manufacturer knowledge of energy efficient design and production; and 6. Retailers and vendors stock and promote efficient refrigerators	➢ Retailers begin to stock a variety of makes and models of energy efficient refrigerators; ➢ Testing of all/most manufacturer products takes place either at manufacturer themselves or at certified national laboratories; ➢ Consumers purchase energy efficient domestic refrigerators; ➢ Labels indicating energy consumption and/or energy efficiency index are evident on all locally manufactured Tunisian refrigerators. ➢ Manufacturers produce energy efficient refrigerators.	➢ Consumer surveys of type and preferences of purchase; ➢ Retailer records of types and models of sale; ➢ Survey of retailer stock; ➢ Laboratory records of testing undertaken; ➢ Manufacturer specifications of product;	➢ Consumer acceptance of concept of Energy Efficiency label; ➢ Consumer acceptance of financial mechanism to overcome initial cot barrier; ➢ Vendors and retailers willing to take the risk of stocking more expensive refrigerators; ➢ Manufacturer willing to invest in product retrofitting
Activities 1. Formulation of labeling format & standards; 2. Training of manufacturers, testing laboratories and retailers; 3. Undertake a pilot labeling experience 4. Certify two Tunisian testing facilities 5. Undertake an efficient refrigerator promotion program; 6. Implement a creative financing program; Undertake an extensive manufacturer support program	**Inputs** ➢ Funds & expertise for manufacturer support ➢ Funds & expertise for equipment; certification and other support to local laboratories; ➢ Funds for awareness and promotion campaigns; ➢ Expertise on design of financing mechanisms		**Preconditions** ➢ Manufacturer support for labeling process is given; ➢ INNORPRI acceptance of concept of labeling is given; ➢ Local laboratories accept expanded duties of testing for energy consumption/efficiency and calculation of EE index.

ESTIMATED CO2 REDUCTION BENEFITS

The recently finalized *"Etudes de Marche des Refrigeratuers Domestiques en Tunisie"* has estimated that the yearly average savings achieved through labeling and successful market transformation to efficient refrigerators models amounts to 563 GWh.

Therefore:

563 GWh generated at 30%thermal efficiency equals about 1800 GWh equivalent.

In MTOE/year:

1800 GWh X 1 / 11280 (MTOE/GWh) = 0.166 MTOE/year

By the year 2030:

0.166 MTOE/year X 32 years = 5 MTOE

In MTCO2:

5 MTOE X 3.11 (TCO2/Ton Heavy fuel oil) = 15.5 MTCO2 = 4.2 MTCarbon

Unit Abatement Cost: 0.18 $/ton Carbon.