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*for a sustainable future*

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# UNIDO Energy

**UNIDO Energy**  
**A Profile**



**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION**

economy environment employment

# Contents

Introduction .....	1
A Brief History of Energy Work within UNIDO .....	2
UNIDO's Energy Focus .....	2
UNIDO's Core Energy Programmes.....	3
<i>Energy Efficiency</i> .....	3
<i>Rural/Renewable Energy</i> .....	5
<i>Climate Change and Kyoto Protocol</i> .....	8
Global Forum Activities .....	9
Productive Use for Rural/Renewable Energy .....	10
UNIDO's Competitive Edge in the Energy Field.....	11
Partnerships .....	12
UNIDO and the GEF.....	12
UNIDO Funding Strategies .....	14
Why UNIDO .....	15

# *Introduction*

Energy is a fundamental pillar of modern society as well as being an essential building block for socio-economic development.

International concern and debate surrounding energy has grown at an ever-increasing rate over the past two decades, with the issues of climate change and poverty alleviation (energy for the poor) now taking centre stage. According to the present economic growth predictions, of both the developed and developing world for the next 50 years, the demand for energy will rise dramatically over the coming decades. Furthermore, population growth, particularly in the developing countries, will place a considerable additional demand on energy resources. It is widely acknowledged that at present up to two billion people, one third of the world's population, lack access to modern energy services, with the majority of those people living in the poorest regions of the world. As the predicted population growth materializes in the developing world, the pressure on local environments to supply the required energy sources will increase considerably as will the amount of released greenhouse gas (GHG) pollutants. How the international community and governments respond to these issues will be of vital importance if society is to achieve a sustainable future.

While it is easy to make the statements above, the international efforts and measures that will be required to successfully address energy issues such as climate change and the provision of affordable modern energy services in developing countries, particularly when addressing the needs of their rural areas, are extremely challenging in a number of ways. However, a wide number of international bodies, United Nations agencies, governments, private companies, and Non-Governmental Organizations (NGOs) are focusing attention on energy issues. The United Nations Industrial Development Organization (UNIDO) is one of the lead agencies taking up the energy challenge.



## A Brief History of Energy Work within UNIDO

Industry and energy has been a central theme of UNIDO's work for over 25 years. The Organization's technical cooperation programmes address both the supply and demand side, in developing countries through provision of energy for industry and by improving industrial energy end-use efficiency. UNIDO has also promoted renewable energy technologies, in particular within the rural regions of developing countries.

Between 1987 and today, some 180 energy-related projects with a total budget of US\$ 65 million have been implemented in developing countries, at the policy, institutional and enterprise levels. By fostering the development of efficient, cost-effective and environmentally sound energy systems and providing access to energy for the poor, UNIDO's activities have been promoting sustainable industrial development as well as helping to fight poverty.

### UNIDO's Energy Focus

UNIDO aims to help its clients in developing countries to solve two fundamental problems: de-linking economic growth and increased use of energy; and reducing the environmental damage that occurs with expanded energy use. UNIDO's overall focus on energy has three core programmes:

- Energy Efficiency
- Rural Energy
- Climate Change and Kyoto Protocol

In developing these three programmes, UNIDO makes use of both of its "operational tools" being:

- The development and implementation of Technical Cooperation (TC) projects and programmes;
- Carrying out Global Forum (GF) activities, including the preparation of studies and organizing international conferences on pertinent issues of the sector.

# UNIDO Energy:

## A Profile

UNIDO's status and capacity as a specialized technical agency allows it to undertake efficiently all stages of the project cycle from project identification, project formulation and development, through to full implementation, and monitoring and evaluation. This capacity allows UNIDO to implement energy projects rapidly and to the highest degree of quality.

### UNIDO's Core Energy Programmes

#### Energy Efficiency

Energy is a prerequisite for successful industrial development and economic activity: without an effective energy supply, neither are possible. While there are at present few real constraints on the overall supply of energy to industry, there are a number of serious issues when considering industrial energy use and the sustainable growth of industries, particularly in developing countries. Such issues range from the additional cost of energy processes due to inefficient utilization (lower competitiveness), to the vulnerability to price shocks on imported fuels and the externalities associated with wide-scale inefficient and unclean utilization of energy, both at the local/national level and the regional/global level.

UNIDO focuses its energy efficiency programme to:

- Support programmes on environmentally sustainable industrial development strategies and technologies, including the transfer of environmental technologies within high priority industrial subsectors.
- Carry out activities in the field of energy related to improvement of energy-efficiency of industries and to cleaner production.

Industrial energy usage can have a considerable effect on the "cleanliness" of a given industrial facility or sector. UNIDO addresses energy consumption in one of two ways. Firstly, energy use can be taken as an independent component of production (and pollution). Secondly, it can be taken as part of a wider programme aimed at promoting cleaner production of an industry as a whole through combining many aspects UNIDO's energy programmes and cleaner production programmes.

Traditionally, UNIDO has addressed industrial energy efficiency issues by a technology transfer approach at the plant level. The implemented projects would mostly either be requested and funded by developing countries themselves



(under Trust Fund arrangements), be part of UNIDO initiatives or come under the programmes of the United Nations Development Programme (UNDP). UNIDO has often served as UNDP's executing agency for technical assistance projects within industry.

UNIDO's traditional plant level based approach involved tackling a plant's industrial energy consumption in a variety of technical ways. Firstly, a project could implement a lower energy consumption method of production processing or the project could initiate product changes linked with lower process energy inputs. Previous UNIDO projects in this field have also focused on product line or production component substitution as well as plant rehabilitation with an increased energy efficiency goal.

UNIDO has an extensive and successful history of conducting these types of projects in many countries though a wide range of sectors. Some of these sectors include, iron and steel, aluminum, copper, foundries (ferrous and non-ferrous), pulp and paper, cement, brick, petroleum refineries, fertilizers, building materials, food and beverages, pharmaceuticals, and the manufacturing of various capital goods. UNIDO has also implemented clean coal technology projects and energy auditing and management programmes.

Over recent years, energy issues, including industrial energy consumption, have evolved from a mainly financial and developmental nature into a more global environmental concern with the prospect of climate change. In addition to this, the nature and volume of bilateral and multilateral funding available for industrial energy projects has also changed over the past decade or so. Donors are more inclined to fund the incremental costs of industrial energy efficiency initiatives in developing countries rather than direct plant intervention approaches as has been the case in the past. This "incremental cost" approach to energy efficiency has been further advanced by the advent of the Global Environment Facility (GEF). Within the context of energy efficiency (as well as all other areas of GEF funded climate change/energy activities), GEF only funds the incremental cost of any project or programme with all other costs being met through co-funding, either nationally by the host country or through other donor/business sources. Following GEF's funding parameters, many other sources of multilateral assistance are also changing to a more incremental cost focused approach.

In line with of these developments, UNIDO's approach to industrial energy projects has also evolved, gradually shifting away from the plant level based approach to a more sectoral/subsectoral approach. This approach is relatively unique to UNIDO. An energy project will typically involve identifying the barriers to energy

# UNIDO Energy:

## A Profile

efficiency improvements within a given sector followed by the removal of these barriers through a given set of activities. The barrier removal activities focus around capacity building at various levels as well as designing and putting in place appropriate regulatory reforms. A project will seek to establish the capability, resources and suitable enabling environment for the given sector to adopt energy efficiency improvements in a profitable, autonomous and sustainable manner.

While projects will still contain a definite component of plant level interventions, these are more in the context of an overall capacity building drive through showcasing pilot plants. Beyond the pilot plants, a project will typically seek to establish the permanent capacity for partnerships and networking between government, industrial bodies and companies as well as with the appropriate funding tools and mechanisms, such as a revolving fund for example. Through these kinds of established capacities, the consolidation and up grading of national sectoral/sub-sectoral expertise can be achieved. This approach leads to a strong country ownership and self-sustainability, which in turn leads to a far greater overall project impact both environmentally and economically.

A good example of this new approach is the Town and Village Enterprise (TVE) GEF project being executed in China by UNIDO on behalf of UNDP, a detailed account of which is given on Project Case Study Card One.

In all its projects, UNIDO emphasizes the requirement of increased profitability and competitiveness for the companies and sectors involved. Although the issue of the reductions of GHG emissions is important, to make any project both attractive and sustainable to prospective companies/sectors, the issue of increased profitability and competitiveness must be central. Without such considerations, projects in this field will not be sustainable or replicable and hence the potential environmental gains will not be realized.

### Rural/Renewable Energy

Presently up to two billion people (one third of the world's population) lack access to modern energy services. The vast majority of these people live in the rural areas of the poorest regions of the world. The crucial link between energy and poverty has made the issue of energy access of the rural poor of major importance for the international community and developing country governments. In the rural environment, energy is needed for:

- Meeting the basic needs such as cooking, drawing water, heating, illuminating; and
- Generating jobs and income on and off the farm.







Providing energy services to rural areas requires:

- Establishing and securing the supply of energy for basic needs (Liquified Petroleum Gas (LPG), Compressed Natural Gas (CNG), other fossil fuels, biomass-based energy, solar and hydro energy).
- Securing the long-term supply of energy to rural households/communities, through innovative programmes in terms of financing, technology adaptation and application.
- The supplied energy source should seek to increase the income generating capacity of the households/communities to pay for itself, either in-full in the long-term or at least to some agreed subsidized rate.

Technology options for the above are known and well explored. Therefore, the real challenge is the “packaging” of rural energy programmes, that is, combining components such as capacity building, technology transfer, training, financing, costing, increasing the income level of rural people, maintaining and repairing, etc.

The solution of the “energy problem” in the rural areas is a necessary condition for sustainable development. The benefits to be gained are many: economic (productive uses, job creation, income generation), social and health (basic needs, communication, health services, improvement of status of women), environmental (indoor air quality, local and global pollution and climate change), etc.

The promotion of renewable energy technologies is an important part of UNIDO’s rural energy and climate change mitigation programme. However, UNIDO is of the opinion that rural communities in developing countries need initiatives tailored to their specific needs and to the rational utilization of local and national resources. Therefore, if a particular national situation favours the development of a mixed fuel (renewable and/or fossil fuel) based approach; UNIDO develops projects that will provide a well constructed and tailor-made supply chain of energy solutions in the cleanest and safest manner.

In many situations the development of renewable energy solutions could, in the long-term, ultimately provide the least-cost scenario, not only to rural communities/households themselves but also at a more macro-economic level. This is particularly true of countries that have limited or no access to indigenous energy reserves. Small Island Developing States (SIDS) present an especially poignant example of

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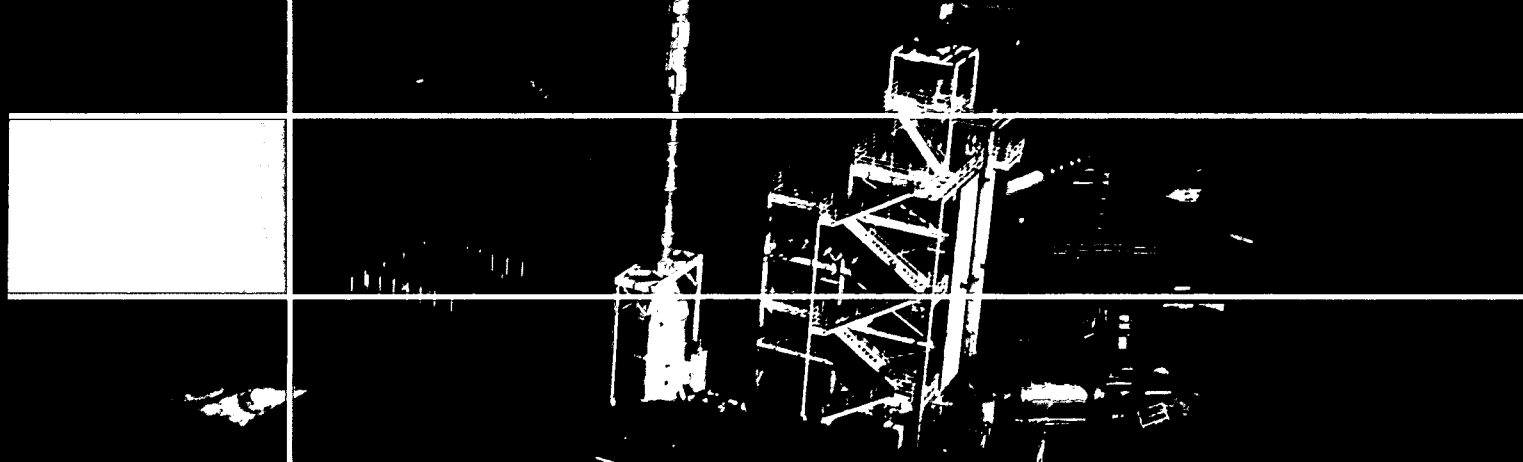
## A Profile

this with local energy economies often heavily dependent on energy imports. This makes them particularly susceptible to global energy market price fluctuations and shocks. Successful renewable energy programmes could contribute to a lessening of the dependence on energy imports that many developing countries, including SIDS, presently experience, thus insulating their economies to some degree from the effects of potentially damaging global energy price fluctuations.

Unfortunately, the large up-front costs of renewable energy systems combined with the poverty of the rural people within developing countries present a situation that is not conducive to the wide-scale application of these technologies. To address this situation, a number of agencies such as UNDP, UNIDO, the United Nations Environment Programme (UNEP), the World Bank, and a host of NGOs and private companies have been developing a range of different service delivery models with varying degrees of success in terms of financial sustainability. UNIDO projects seek, where possible, to adapt and add to the proven energy provision models, based on the socio-economic needs of the community(s). The approach that UNIDO takes in its rural and renewable energy projects is one of barrier identification, assessment and removal through appropriate capacity building measures. In either adapting existing models and business plans or developing new ones, UNIDO looks far beyond the energy aspects of the project alone. In conjunction with partners (i.e. Governments, NGOs, academia and UNDP field offices), UNIDO studies and evaluates a wide range of factors that can link amongst other things, increased production, new types of production, and new social possibilities to the energy supplied by the project. This aspect of UNIDO's rural energy work is further detailed in the "Productive Use of Rural/Renewable Energy" section of this document.

An example of a particularly successful UNIDO rural energy project is the Multifunctional Platform. This project was originally developed by UNIDO in conjunction with the International Fund for Agricultural Development (IFAD) in 1993 for Mali and Burkina. It was later relaunched in 1996 with the support of UNDP for further expansion. The platform was initially designed to fulfill the role of an energy supply system using a form of bio-diesel with the generated energy being used by the platform itself in a number of productive ways. A more detailed description of the project is given on Case Study Card Two. Another UNIDO renewable energy project currently under implementation is the GEF funded 'Isle de la Juventud' project in Cuba. This project intends to supplement the island's existing diesel based electricity with renewable sources and thus displace future additional diesel expansion. A brief description of this project is also given on Case Study Card Two.





## Climate Change and Kyoto Protocol

Following the successful agreements in Bonn and Marrakech, the rules and procedures governing the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI) have been formulated, including simplified modalities for small-scale CDM projects. With the CDM Executive Board up and functioning with the help of its three Panels on Methodologies, Accreditation and Small-scale CDM, enough regulatory and methodological structure has been put in place to support the uptake of CDM projects. Thus, it is reasonable to expect that there will be a significant increase in CDM project activities in the near future. The carbon market continues to evolve rapidly despite setbacks and delays in the entry into force of the Protocol.

UNIDO's work supporting the implementation of the Kyoto Mechanisms has focused on capacity building to enable developing countries to develop high-quality GHG reduction projects in the industrial sector. Since 1999 UNIDO has completed a series of background studies under its pilot (first phase) project "Developing National Capacity to Implement Industrial Clean Development Mechanism (CDM) Projects in Africa". The countries of focus for this project are: Ghana, Kenya, Nigeria, Senegal, Zambia and Zimbabwe. This project has been subsequently replicated for the Association of South East Asian Nations (ASEAN) countries (Indonesia, Malaysia, Philippines, Thailand and Viet Nam). These projects are further detailed on Case Study Card Five.

In 2001, UNIDO completed the next phase of assistance for several of these countries determining the existing barriers to the transfer of climate-friendly industrial technologies. This was completed in conjunction with detailed needs assessments for industrial technology and the required capacity building measures. The capacity building effort has been targeting reductions in transaction costs, particularly those pertaining to methodological issues in additionality analysis and baseline calculation. Additional work has been undertaken to mobilize industrial stakeholders on industry and CDM and to prepare more in-depth analyses of industrial CDM project opportunities.

To enable project developers to prepare high-quality projects starting from project identification and baseline analysis, UNIDO is developing "Operational Guidelines and Decision-Support Tools for Baseline Assessment". In parallel, UNIDO will provide training for nationals from participating countries in the promotion of CDM investment opportunities. UNIDO has completed a publication entitled "CDM Investor Guide for Brazil", which will serve as a source of knowledge

# *UNIDO Energy:*

## *A Profile*

and information on some key issues, including the energy sector in Brazil and the priority sectors for CDM projects in the industrial and energy sectors, such as the chemical, food and beverages, textiles, pulp and paper subsectors, and renewable energy. Six national project proposals for Ghana, Kenya, Nigeria, Senegal, Zambia, and Zimbabwe will help prepare the background and technical documentation needed for projects to be acceptable to CDM investors and Certified Emissions Reduction credit (CER) purchasers. In Ghana, Kenya, Nigeria and Zambia these projects will assist in the preparation of CDM project documentation for already short listing for potential investors.

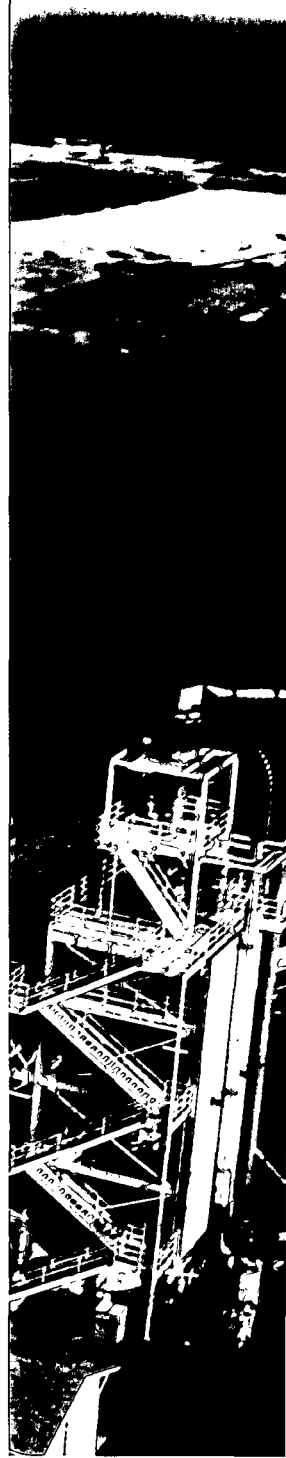
Experience to date suggests that there is a considerable demand for studies encapsulating applied knowledge and technical information on technology-specific baselines, the monitoring and verification of emissions reductions, the possibility and scope of project bundling for small-scale CDM projects, baseline studies for electricity grids, etc. UNIDO is presently developing a number of studies in these areas.

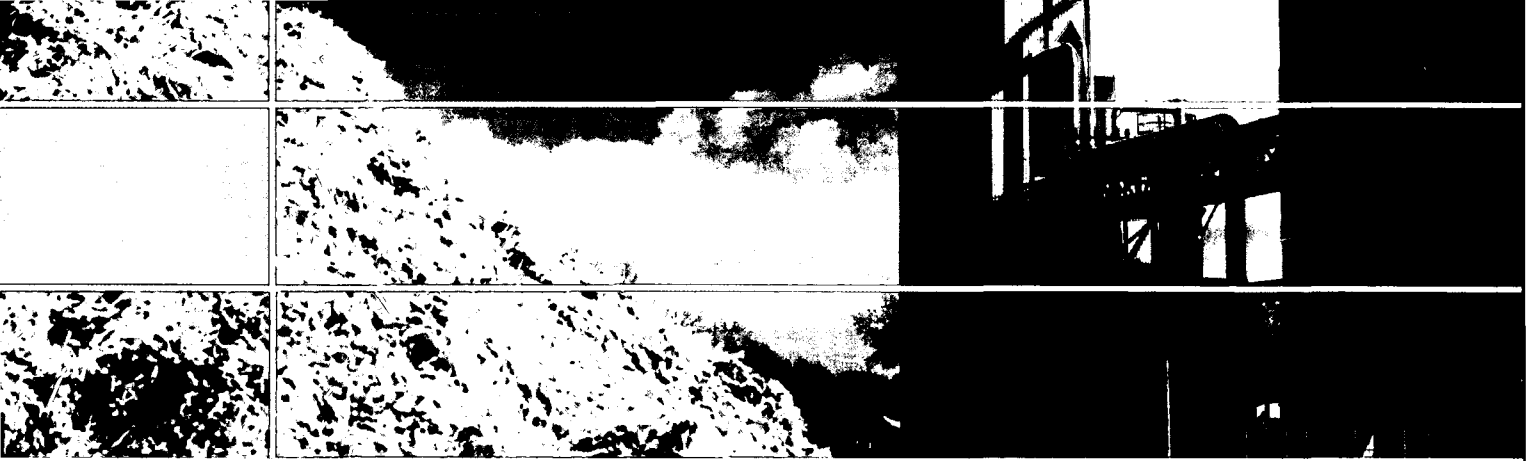
UNIDO is developing targeted research proposals that will be presented to GEF and the Scientific and Technology Advisory Panel (STAP) Research Committee for funding. UNIDO envisages the engagement of academic institutions and industry in the identification of targeted research agendas in the field of climate change. This is to ensure the applied nature of the research and its educational and outreach benefits for multiple stakeholders in participating countries.

### **Global Forum Activities**

Global forum activities include preparation of studies, publications and organization of international meetings to discuss key energy issues for sustainable development. For example, the Third United Nations Conference on the Least Developed Countries (LDC-III), which met in May 2001, where UNIDO was the lead agency for the special session on energy. Most recently, the UNIDO Rural Energy Initiative was launched by the Director-General at the World Summit on Sustainable Development, in Johannesburg. Furthermore, UNIDO establishes and supports a number of international centres of excellence in the energy field.

In addition, the UNIDO Energy Programme participates in a wide variety of international and national energy-related meetings. At these fora, UNIDO presents its Energy Programme and strengthens areas of cooperation.





## Productive Use for Rural/Renewable Energy

Recently, the use of the term “productive use” regarding rural energy and particularly renewable energy projects has become widespread. A number of attempts at defining exactly what productive use means have been made, but in UNIDO’s view it is essentially a generic term and dependent on the design of each individual project. Basically it can be summed up as a project that makes a positive impact economically (and/or socially) in a substantive manner to the target beneficiaries of the project. This approach to project design and content is intended to achieve greater degrees of sustainability, diversity in project types, and development impact. One of the main promoters of the productive use approach has been GEF.

In terms of UNIDO’s approach to rural energy and renewable rural energy projects, the emphasis has always been on productive uses, albeit without the new encapsulating term itself. UNIDO appreciates the fact that introducing an energy system into an economically deprived rural (or peri-urban) environment with the intention of reaching a financially viable and sustainable outcome in the mid to long-term requires that the energy provided by the deployed system be able to strengthen the local income-generating capacity and/or create opportunities for new income streams. For example, while the Multifunctional Platform was originally intended as an energy supply system, using a form of locally produced bio-diesel, the productive use of the supplied energy was the overriding concern of the initial project design process. The platform was designed to utilize the produced energy by providing such services as crop milling and husking, welding, sawing, water pumping, and battery charging.

More recently, under its new status with GEF as an Executing Agency with Expanded Opportunities, UNIDO entered a small number of rural renewable energy projects, all with productive use as a central theme. Two examples of these GEF/UNIDO projects are given on Case Study Card Three. Both projects are based in Zambia, with the first looking at establishing a number of renewable energy powered “mini-grids” in rural regions. The second project seeks to establish a number of renewable energy powered telecentres offering tailor-made information and communication technology (ICT) services to rural communities. These were some of the first productive use projects to be presented to GEF by any agency for funding consideration.

UNIDO is well placed to develop and implement rural energy projects based on productive use applications. Combining aspects of UNIDO’s extensive work in the

# *UNIDO Energy:*

## *A Profile*

agro-industry and small/medium enterprise (SME) sectors, allows it to develop rural energy projects that not only increase energy access per se in rural regions but also cater for a more integrated overall social and economic development potential. This approach not only increases the overall impact of an energy project but also increases its long-term sustainability.

The increasing international attention that is being directed at the issue of rural energy access in developing countries combined with the intrinsic need for rural energy projects to be able to strengthen and create income generating opportunities has lead UNIDO to develop its rural energy initiative, "Rural Energy for Productive Use". This initiative was launched by the Director-General of UNIDO at the World Summit on Sustainable Development (WSSD) and intends to set the standard for rural energy projects in terms of generating comprehensive productive use applications of rural energy technologies. A more detailed description of this new initiative is given on the "Rural Energy for Productive Use Initiative" document that accompanies this pack.

### **UNIDO's Competitive Edge in the Energy Field**

A number of different multilateral agencies and NGO's are conducting work in the field of energy, both in terms of development and environmental protection. While the work being conducted by these different bodies is extremely valuable and productive, UNIDO is also fulfilling a major role and will hence continue to expand its activities in the energy sector.

Presently, UNIDO has one of the largest dedicated energy teams within the United Nations system. UNIDO's relatively small size and tight focus through its mandate as a specialized technical agency has afforded it the ability to carry out projects rapidly and dynamically, through both the processes of project development and project implementation. The fact that UNIDO has served as the executing agency on a large number of projects, both independently and for the larger development agencies, has allowed it to develop a capacity to identify, develop and execute projects in an autonomous manner without the need for large-scale outsourcing. However, if required, UNIDO has access to the services of a wide range of recognized international energy consultants and experts. Furthermore, UNIDO's in-house technical expertise, experience and resources mean that our projects are implemented to the highest level of quality.





The in-depth understanding of the process and manufacturing industries that UNIDO possesses, ranging from the actual energy consumption, raw material sourcing, and product production to final marketing etc, has given UNIDO the ability to formulate a unique sectoral approach in energy intensive industrial manufacturing. This sectoral approach has put UNIDO in an especially strong position to offer effective and comprehensive services to its clients in developing countries. Within the field of rural energy development, UNIDO combines a number of different areas of its work, such as agriculture and rural cottage industries, into integrated productive use rural energy projects. This gives UNIDO the ability to develop energy projects that are tailor-made for improved socio-economic development in the rural regions of developing countries.

## Partnerships

Within the field of sustainable energy development, there is a strong need to form constructive, meaningful and informative partnerships, especially where rural energy is concerned. The economic, financial, social, environmental, political and institutional issues surrounding energy use and modern energy access are complex and difficult to overcome. Energy projects will thus only benefit from partnerships between the relevant different United Nations and other agencies, governments, NGOs and private companies.

UNIDO actively seeks to form these necessary partnerships to ensure the effectiveness and sustainability of the projects it conducts. UNDP, through its field presence in virtually all of the developing countries, offers a unique perspective on the different national environments and hence is an ideal candidate for constructive and fruitful partnerships. UNIDO has successfully executed a large number of UNDP administrated and/or financed projects, both in energy related areas as well as non-energy related areas.

## UNIDO and the GEF

GEF was established in 1991 with the aim of addressing four areas of threat to the global environment: biodiversity loss, climate change, degradation of international waters, and ozone depletion. In addition to the above four areas of operation, GEF also engages in and funds programmes in the field of persistent organic pollutants (POPs) and land degradation. After the 1992 Earth Summit in Rio de Janeiro, GEF was restructured and given the aim of serving the environmental



# *UNIDO Energy:*

## *A Profile*

interests of people in all parts of the world, to protect the global environment and promote sustainable development. The work that GEF funds through its implementing agencies: UNDP, UNEP and the World Bank, in the above areas is extremely important in the effort to maintain the global environment.

The overall strategic thrust of GEF-financed climate change activities is to support sustainable measures that minimize climate change damage by reducing the risk, or the adverse effects, of climate change. To realize these objectives, GEF has four Operational Programmes dedicated to climate change out of its full complement of twelve:

**Operational Programme 5:** Removal of Barriers to Energy Efficiency and Energy Conservation.

**Operational Programme 6:** Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs.

**Operational Programme 7:** Reducing the Long-Term Costs of Low Greenhouse Gas Emitting Energy Technologies.

**Operational Programme 11:** Promoting Environmentally Sustainable Transport.

UNIDO has been involved in GEF funded climate change projects for a number of years. Good examples of UNIDO's GEF funded work are the China TVE project (Operational Programme 5) and the Indian Coal Bed Methane project (Operational Programme 7), both of which are detailed in the Project Case Study Cards. These projects are being executed by UNIDO on behalf of UNDP in the latter's role of a GEF implementing agency.

GEF funded climate change projects, and hence energy projects focus on barrier removal and are intended to produce market-orientated results, i.e., the output of a project should be financially viable and hence sustainable without permanent donor support. Furthermore, as previously mentioned, GEF only fund the incremental cost components of any project. All other costs must be met through co-funding, either nationally by the host country or through other donor and commercial sources. UNIDO's own approach to energy initiatives blends exceptionally well to the GEF's project requirements and parameters, both in terms of its energy efficiency work using the sectoral/sub-sectoral approach and its rural energy programme where the utilization of renewable energy technologies offers the most suitable solutions.







In May 2000, GEF granted UNIDO the role of an Executing Agency with Expanded Opportunities. This new status means that UNIDO is able to prepare and submit Project Development Fund (PDF) Block B proposals directly to the GEF Council instead of submitting them through one of the three Implementing Agencies. In light of this new arrangement UNIDO submitted a number of PDF Block B proposals for consideration and funding. Three of the submitted projects feature in the Project Case Study Cards: firstly the Zambia based renewable energy powered mini-grids project; secondly the renewable energy powered ICT project; and lastly the Cuban Isle de la Juventud project. All of these projects fall under the GEF's Sixth Operational Programme. Of these three projects, the Zambian renewable rural mini-grid and Cuban Isle de la Juventud projects have completed their respective PDF stages and are now moving on to the full-scale implementation phase having passed the GEF Scientific Technical Advisory Panel (STAP) reviews and obtaining GEF Council approval. UNEP is fulfilling the implementing agency role for these projects.

This new UNIDO status provides a number of potential benefits to the project cycle, such as increased speed of project development and implementation. However, UNIDO still feels that the involvement of other organizations, particularly UNEP and UNDP, is beneficial for the successful and sustainable outcome of many of the types of climate change/energy projects that UNIDO intends to develop and implement in partnership with GEF.

## UNIDO Funding Strategies

UNIDO utilizes GEF, UNDP, special-purpose contributions of donors and its own programmable technical cooperation funds to finance its energy projects. GEF is one of the largest funding sources for UNIDO executed projects and will continue to be so. It is to be remembered, however, that GEF is a funding mechanism of the United Nations Framework Convention of Climate Change and hence has a "GHG emissions-reduction/global environment" mandate and not primarily a developmental perspective. Presently, the costs of capacity building, training and technology transfer required for local manufacture of energy equipment and structures may not be fully financed by GEF. Thus GEF funded projects will always require additional funding sources. Furthermore, as GEF only funds the incremental cost of the projects it supports, the requirement for co-funding and financing becomes a mandatory factor. This co-financing can come from UNIDO's own resources, from bilateral donors, from private enterprises, from the recipient country, or from a combination of all.

# A Profile

Beyond the funding issue itself, the issue of post-project sustainability is vitally important, especially in the case of rural energy projects. In order for rural energy projects to be viable in the long term, rural populations need to be able to afford the energy services they are purchasing. Hence, the income generation component of rural energy projects becomes crucial. The European Commission is one of the most powerful actors in the international scene, both through the activities of the Directorate-General for Energy and Transport (DG TREN) in the internal market and through external relations activities. UNIDO will pursue the necessary dialogue with DG-TREN and seek opportunities for collaboration on concrete initiatives with appropriate EC units.

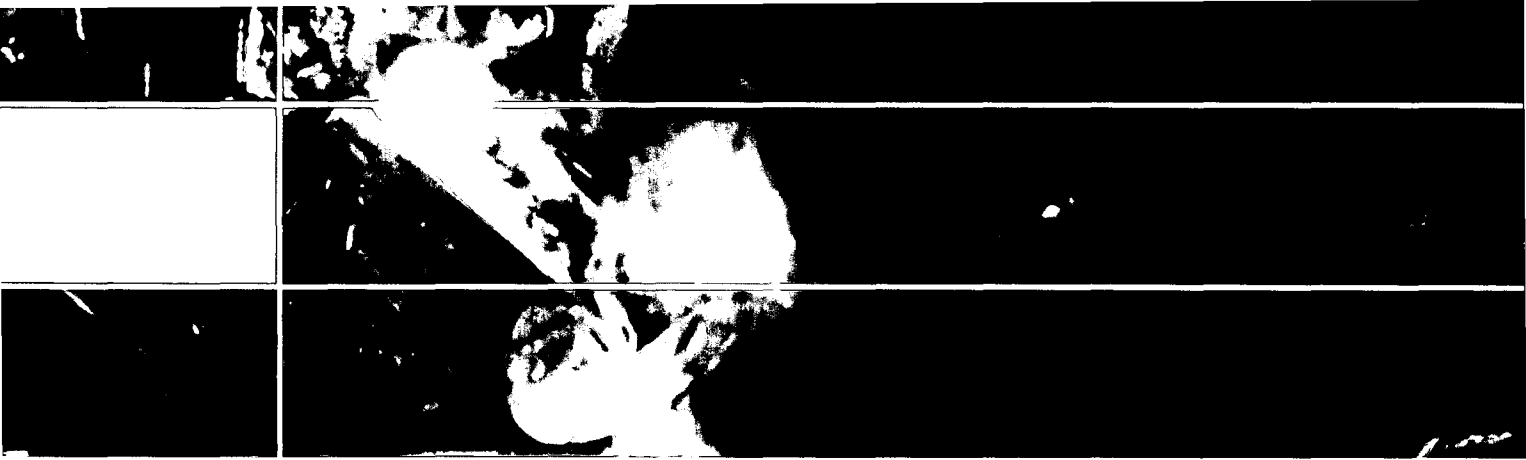
## Why UNIDO

UNIDO is a specialized agency and houses a wide range of technical skills and experience. UNIDO has one of the largest dedicated teams in the area of energy within the UN system. UNIDO's work on energy benefits from being linked to several other UNIDO service modules in an integrated fashion. In particular the service modules on SMEs, agro-industry, private sector development, investment promotion, cleaner production and transfer of environmentally sustainable non-ozone depleting substance technologies, present potentially positive synergies. Furthermore, UNIDO promotes the involvement and strengthening of local capacities, thus facilitating the cost-effective utilization of stakeholder grants and increasing the sustainability of post-project operation.

UNIDO provides integrated project services, that is, from project identification and formulation to implementation. All of the required services such as project personnel recruitment, subcontracting and procurement of project equipment can be provided under one roof. This provides for more effective and streamlined operations.

Through its various networks and centres such as Cleaner Production Centres and Investment Promotion Offices, UNIDO is well connected to experts and relevant institutions in developed and developing countries. UNIDO's country offices provide field-level, on-the-spot interventions during project development and implementation.





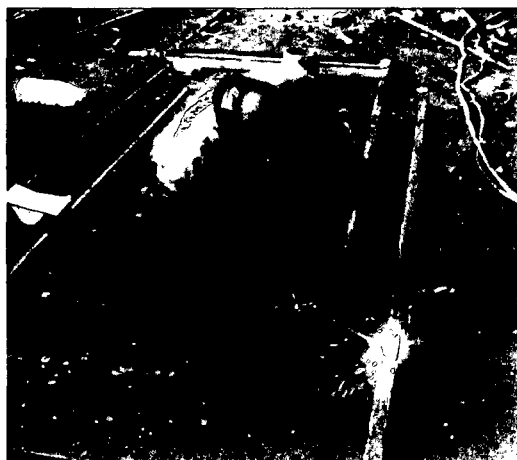
## **ABOUT UNIDO**

The United Nations Industrial Development Organization (UNIDO) is the United Nations (UN) specialized agency given the task of promoting industrial development, mainly in the world's developing and least developed nations. UNIDO helps governments, business associations and companies solve their industrial problems.

UNIDO's work addresses three broad dimensions of industrialization:

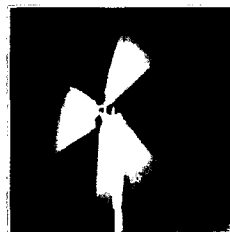
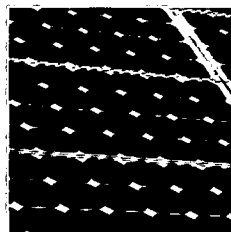
- **Competitive Economy;**
- **Sound Environment; and**
- **Productive Employment.**

These "3E's" are the essence of UNIDO's services, intended to: enhance the competitiveness of enterprises and of the countries in which they operate (Economy); address and prevent ecological problems from industrialization (Environment); and stimulate the creation of jobs in the manufacturing sector (Employment).



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This document has not been formally edited.



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