



# MDG & Energy

for Sustainable Development





Increased access to reliable and affordable energy services is a critical factor for achieving the Millennium Development Goals (MDGs). These goals were adopted by the United Nations Millennium Summit in 2000 to focus attention on the most pressing global development needs. Foremost among them is the commitment to reduce by half the proportion of people in the world living on less than a dollar a day, with a target date of 2015. The other MDGs set targets for increasing primary education, promoting gender equality and empowering women, improving health conditions, and ensuring environmental sustainability.

Although there is no specific MDG relating to energy, it will be impossible to achieve the MDGs without improving the quality and quantity of energy services in the developing world. In fact, access to energy services affects practically all aspects of sustainable development, including access to water, agricultural productivity, population levels, health care, education, job creation, gender equality and climate change impacts. More than 2 billion people suffer from energy constraints that limit their opportunities for economic development and improved standards of living. Women and children are disproportionately affected by smoke from open indoor fires, and by the burdens of responsibility for gathering increasingly scarce traditional fuels. Affordable, more efficient and cleaner energy sources are needed in many

parts of the world for cooking and heating. Access to mechanical power

is also needed for income-producing activities.

In 2002, the World Summit on Sustainable Development (WSSD) brought discussions on energy to the forefront of global debate. The Plan of Implementation adopted at the summit made specific recommendations linking access to reliable and affordable energy services with efforts to eradicate poverty. The plan also emphasized the importance of producing, distributing and consuming energy in ways that support sustainable development and protect the world's natural resource base. Energy was, for the first time in an intergovernmental process, directly linked to the MDGs. Table 1 highlights the linkages between energy services and the MDGs.

To meet sustainable development objectives, conventional approaches to energy must be reoriented to promote energy efficiency, renewable energy, and cleaner fossil fuels technologies. In 2005, the UN General Assembly will review progress on meeting the MDGs, and in 2006 and 2007 the UN Commission on Sustainable Development will focus on energy issues. These meetings will provide opportunities for the international community to promote sustainable energy as a central component of national, regional and global development strategies in order to fully realise energy's potential for contributing to achievement of the MDGs.

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**TABLE 1: ENERGY LINKAGES WITH THE MILLENNIUM DEVELOPMENT GOALS**

MDGs	ENERGY LINKAGES
1 ERADICATE EXTREME POVERTY AND HUNGER	<ul style="list-style-type: none"> <li>● Energy inputs (electricity and fuels) are needed for agriculture, industrial activities, transportation, commerce, and micro-enterprises.</li> <li>● Most staple foods must be cooked, using some kind of fuel, to meet human nutritional needs.</li> </ul>
2 ACHIEVE UNIVERSAL PRIMARY EDUCATION	<ul style="list-style-type: none"> <li>● Teachers are reluctant to go to rural areas without electricity.</li> <li>● After dark, lighting is needed for studying.</li> <li>● Many children, especially girls, do not attend primary schools because they have to carry wood and water to meet family subsistence needs.</li> </ul>
3 PROMOTE GENDER EQUALITY AND EMPOWER WOMEN	<ul style="list-style-type: none"> <li>● Adult women are responsible for the majority of household cooking and water boiling activities. This takes time away from other productive activities. Without modern fuels and stoves and mechanical power for food processing and transportation women often remain in drudgery.</li> </ul>
4 REDUCE CHILD MORTALITY	<ul style="list-style-type: none"> <li>● Diseases caused by lack of clean (boiled) water, and respiratory illnesses caused by indoor air pollution related to the use of traditional fuels and stoves, directly contribute to mortality in infants and children.</li> </ul>
5 IMPROVE MATERNAL HEALTH	<ul style="list-style-type: none"> <li>● Lack of electricity in health clinics, and lack of lighting for night-time deliveries, adversely affect women's health care. Daily drudgery and the physical burdens of fuel collection and transport also contribute to poor maternal health conditions, especially in rural areas.</li> </ul>
6 COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES	<ul style="list-style-type: none"> <li>● Electricity for radio and television can spread important public health information to combat deadly diseases.</li> <li>● Health care facilities, doctors and nurses need electricity for lighting, refrigeration, and sterilisation in order to deliver effective health services.</li> </ul>
7 ENSURE ENVIRONMENTAL SUSTAINABILITY	<ul style="list-style-type: none"> <li>● Energy production, distribution and consumption all have many adverse effects on the local, regional and global environment, including indoor air pollution, local particulates, land degradation, acid rain, and global warming. Cleaner energy systems are needed to address all of these to contribute to environmental sustainability.</li> </ul>
8 DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT	<ul style="list-style-type: none"> <li>● The World Summit for Sustainable Development (WSSD) called for partnerships among public entities, development agencies, civil society and the private sector to support sustainable development, including the delivery of affordable, reliable and environmentally sustainable energy services.</li> </ul>

**R**ecognising the need to engage a broad range of actors in achieving sustainable development goals, the World Summit on Sustainable Development placed new emphasis on partnership approaches. Since public sector efforts alone will not be sufficient, inclusive planning processes are needed to leverage host government and donor resources by mobilising businesses, civil society organisations and other stakeholders to work towards implementing sustainable development initiatives. Over the past several years, UNDP has made significant progress in building the types of partnerships required for marshalling resources and implementing concrete actions to expand sustainable energy services in support of the MDGs.

## Country level activities

With offices in nearly every developing country, UNDP can facilitate strategic partnerships to address complex national economic and social issues, and help identify integrated development solutions that include measures to increase access to energy services.

Through its Country Programme, UNDP works with developing country governments on improvements in energy and development planning and implementation. UNDP also supports multi-stakeholder processes that bring together ministries, planning agencies, businesses and consumer groups to work towards sustainable solutions to national energy challenges.

## Meeting community needs

Sustainable development takes place through widespread long-term community-level actions that are responsive to, and also help shape, international conventions, regional agreements and national plans. By supporting grass roots activities, UNDP helps local people select their own development priorities and work towards meeting their chosen objectives. Successful local energy projects can then be scaled up and replicated elsewhere, as appropriate. Taken together, these local activities can achieve truly global impacts in terms of access to energy services, improved living standards, and lower greenhouse gas emission levels.



*Courtesy Energy Houses project, Morocco.*

## RURAL ENERGY HOUSES PROGRAMME IN MOROCCO

The Energy Houses project in Morocco is designed to provide energy services in rural areas that lack grid-based power. Each 'energy house' is a micro-enterprise involving local entrepreneurs, which receives grant contributions from UNDP. Supported by national ministries and agencies, local communities, renewable energy companies, and national banks, the programme provides young entrepreneurs with technical training and financial backing to develop rural business enterprises that market renewable energy products, such as photovoltaic systems, solar water heaters and improved stoves, install and maintain the equipment, charge batteries and distribute gas.

The programme also builds awareness about the connections between renewable energy and natural resource protection through demonstration activities promoting an integrated approach to sustainable development. This project exemplifies the importance of partnerships involving national governments, local community organisations, private entrepreneurs and investors to meet rural development needs through increased energy services. After an initial phase that led to the creation of 50 energy houses, and the establishment of 150 micro-enterprises, this programme is expected to be scaled up to create a total of

1,000 energy houses.

## International cooperation

Global partnerships can provide effective mechanisms for defining commonly shared problems and channeling resources and expertise in support of specific types of energy initiatives. UNDP is actively engaged in several new partnerships launched at the WSSD. The Global Village Energy Partnership promotes expanded energy markets in rural areas, while the 'Liquefied Petroleum Gas (LPG) Rural Energy Challenge' boosts efforts to deliver cleaner, more

efficient fuels for household use and business development. UNDP is also a partner in the Global Network on Energy for Sustainable Development, facilitated by the UN Environment Programme, which is working to build and share energy expertise among leading research and academic institutions. In addition, UNDP works on energy activities jointly with many partners, such as other UN agencies, the World Bank, the World Energy Council and the World Business Council for Sustainable Development.



*Women selling charcoal  
in a market in Ghana.  
Courtesy NREL, USA*

## THE GLOBAL VILLAGE ENERGY PARTNERSHIP (GVEP)

UNDP was one of the founding partners of GVEP, which brings together representatives of developing and industrialised countries, public and private organisations and multilateral institutions to increase access to modern energy services as a means of reducing poverty and enhancing economic and social development. The partnership offers a number of services, including: support for country action plans, capacity development, funding facilitation, knowledge management and monitoring and evaluation. GVEP also facilitates in-country communication and coordination, building on existing experience and adding value to the work of its partners. The Partnership now includes more than 425 partners worldwide.

GVEP is currently engaged in programmes in 17 countries in Africa and Latin America, and is expected to expand activities in Asia over the coming year. It has been instrumental in bringing together actors in key sectors such as water, health, and education to find ways that energy can be used to address countries' development needs. As part of its GVEP activities, UNDP has also worked to build capacity and initiate programmes in consumer lending and micro-finance to expand access to energy services.

**For more information, please see [www.gvep.org](http://www.gvep.org)**



*LPG Gas: Clean source for cooking*

The LP Gas Rural Energy Challenge, a public-private partnership between the World Liquefied Petroleum Gas Association (WLPGA) and UNDP, targets rural and peri-urban areas with the objective of expanding affordable access to LP gas. Modern efficient fuels are essential not only for heating and cooking, but also to support small businesses that use heat processing. The LPG Challenge addresses the adverse impacts on health, the environment and economic productivity related to dependence on traditional biomass fuels in rural areas. This is a situation that impacts more than two billion people worldwide and disproportionately affects women and children. The partnership is building on the capacity of public and private sector organisations, including governments, industries, investors, local communities, and civil society groups, to create viable and sustainable markets for LP gas delivery and consumption in selected developing countries. UNDP has been instrumental in facilitating national consultations to identify projects on LPG access, distribution and safety in 6 pilot countries (Ghana, Honduras, Morocco, South Africa, Vietnam and possible future activities in China). In addition to project development resources provided by UNDP, funds are being mobilised from private sector partners in the LP gas industry.

**For more information, please see: [www.undp.org/energy/lpg.htm](http://www.undp.org/energy/lpg.htm)**

## UNDP'S APPROACH TO ENERGY

UNDP's work on sustainable energy is concentrated on supporting achievement of the MDGs, especially the target of reducing by half the proportion of people living in poverty by the year 2015. As the development coordinator for the UN system, UNDP assists national governments in formulating integrated policy approaches to development challenges, including strategies that incorporate sustainable energy solutions. With offices in nearly every developing country, UNDP is uniquely placed to facilitate capacity building efforts in the area of energy that are vital to achieving the MDGs. UNDP helps developing countries build the capacity required to formulate and implement policies and programmes to make sustainable development a reality.

UNDP provides countries with capacity development and technical assistance to support sustainable energy initiatives. At the regional level, UNDP's five Regional Cooperation Frameworks help countries and institutions share their knowledge and 'best practice' experiences. Globally, UNDP undertakes analyses of energy trends, and acts as an advocate regarding linkages between sustainable energy and development goals.

UNDP funds energy activities through its regular resources, as well as in its role as an implementing agency of the Global Environment Facility (GEF). UNDP's Thematic Trust Fund (TTF) on Energy and Environment also serves as a vehicle for mobilising additional resources for country-level activities.

## UNDP's Corporate Energy priorities

The corporate energy priorities of UNDP are as follows:

- 1: Strengthening national policy frameworks to support energy for poverty reduction and sustainable development
- 2: Promoting rural energy services to support growth and equity
- 3: Promoting clean energy technologies for sustainable development
- 4: Increasing access to investment financing for sustainable energy

A fifth cross-cutting corporate energy priority involves energy policy advocacy and analysis.



*Courtesy: Rural Energy Development Programme, Nepal*

## UNDP GLOBAL ENVIRONMENT FACILITY (UNDP - GEF)

The GEF is a financial mechanism structured as a trust fund that operates in collaboration and partnership with three implementing agencies — UNDP, the United Nations Environment Programme (UNEP) and the World Bank — for the purpose of achieving global environmental benefits. GEF funds support projects in environmental focal areas relating to biodiversity, climate change, international waters, ozone depletion, persistent organic pollutants and land degradation.

### UNDP-GEF STRATEGIC PRIORITIES

UNDP-GEF provides important contributions to the field of sustainable energy through its climate change mitigation programme, which includes six strategic priorities:

1. Transformation of markets for high-volume products and processes
2. Increased access to local sources of financing for renewable energy and energy efficiency
3. Power sector policy frameworks supportive of renewable energy and energy efficiency
4. Productive uses of renewable energy
5. Global market aggregation and national innovation for emerging technologies
6. Modal shifts in urban transport and clean vehicle/fuel technologies

### UNDP-GEF AND UNDP'S SUSTAINABLE ENERGY PROGRAMME

UNDP-GEF's work in the area of greenhouse gas mitigation contributes significantly to UNDP's overall sustainable energy priorities of furthering policy analysis, technical assistance, capacity development and knowledge management. UNDP-GEF efforts to create enabling environments for market transformation through technical expertise, support power sector reform and introduce innovative local financing mechanisms all help to strengthen national frameworks for sustainable energy strategies, and complement UNDP's core focus on poverty reduction, sustainable development and achievement of the MDGs.

To date, UNDP-GEF has provided total financing of approximately US\$2.1 billion for climate change mitigation projects, including about US\$0.6 billion in direct grants and US\$1.5 billion through GEF-leveraged co-financing.

UNDP is also the implementing agency for the GEF Small Grants Programme. This GEF programme provides grants of up to US\$50,000 directly to non-government organisations and community-based groups for projects related to climate change mitigation.

For more information on UNDP-GEF, please go to: [www.undp.org/gef](http://www.undp.org/gef)

# OVERVIEW OF UNDP ENERGY ACTIVITIES

UNDP's sustainable energy and climate change portfolio has been rapidly expanding in response to increased international emphasis on the role of energy services in combating poverty, as well as growing concerns about the impacts of global climate change.

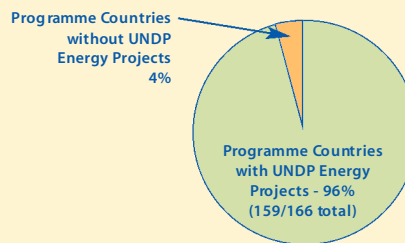
As shown in Figure 1, between 1996 and 2003, energy-related projects were implemented in 159 out of the 166 countries where UNDP was active in offering development assistance. During the same period, the total amount of programmed resources (core and non-core) for energy was US\$1.96 billion, for nearly 380 energy-related projects.

Although the amount of UNDP regular resources allocated for energy activities has declined, as a percentage of overall UNDP regular resources, the share for energy activities has remained almost constant from year to year. Meanwhile, increased funding from GEF grants and GEF-leveraged co-financing from external partners has boosted overall programming resources (Figure 2).

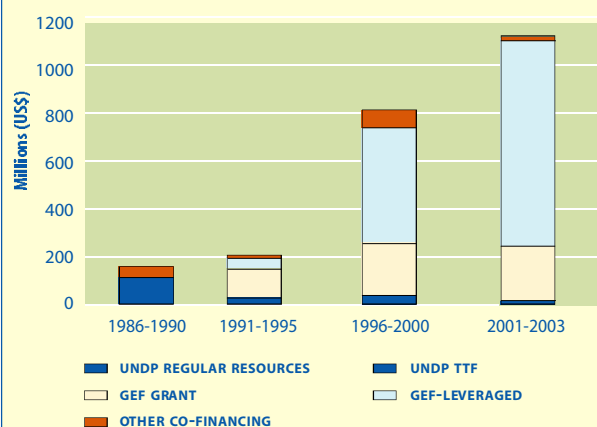
In addition to the general energy portfolio of projects, UNDP has also worked on rehabilitating the electricity network in northern Iraq through the Oil for Food programme, and provided financing for over 800 GEF Small Grants Programme projects in more than 50 countries since 1996.

Although overall funding for UNDP energy activities has increased substantially, there have been significant regional variations (see Figure 3). The Asia Pacific region has presented substantial opportunities for investments in large-scale energy systems that reduce greenhouse gas emissions in heavily populated carbon-intensive countries such as China and India, thus facilitating a transition to sustainable energy pathways for economic growth. UNDP-GEF projects played a significant role in this area. In rural areas, especially in Africa and the Least Developed Countries, the challenge is to provide energy services for the poor that help create new income-producing opportunities. Innovative approaches used by UNDP and other groups need to be fully examined and sharpened, in order to attract the public and private financing

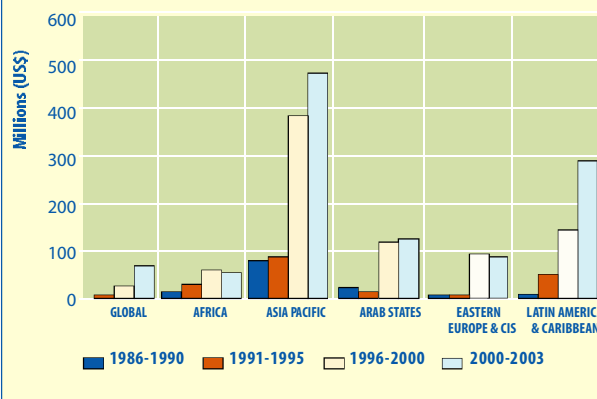
**FIGURE 1: NUMBER OF UNDP COUNTRIES IMPLEMENTING ENERGY PROJECTS (1996-2003)**



**FIGURE 2: OVERALL UNDP ENERGY PROJECTS PORTFOLIO: 1986-2003 (EXCLUDING IRAQ OIL FOR FOOD PROGRAMME AND GEF SGP PROJECTS)**



**FIGURE 3: REGIONAL GROWTH IN FUNDING FOR ENERGY PROJECTS 1986-2003**



required to scale up these initiatives.

In addition to the regular energy portfolio, UNDP provides special financing for projects focused on local community energy needs and expanding rural livelihoods through the GEF Small Grants Programme.





*Courtesy: Multifunctional Platform Project, Mali.*

**B**uilding on its cross-sectoral working ability and its inclusiveness in building constituencies, UNDP has had significant success in helping countries incorporate energy issues into national poverty plans, demonstrating linkages between national energy and gender policies, and mainstreaming climate change responses into macro policy-making processes. Over the last few years, UNDP's energy activities have been particularly strong in two areas: strengthening national policy frameworks to support energy for poverty reduction and sustainable development (Energy Priority 1) and promoting

clean energy technologies (Energy Priority 3). Recognising the critical importance of energy access for the poor, UNDP is also increasing its work on expanding access to energy services in rural areas (Energy Priority 2). Since the Kyoto Protocol to the UN Framework Convention on Climate Change (UNFCCC) is about to enter into force, country-level demand for work in innovative financing mechanisms for sustainable energy technologies (Energy Priority 4) is expected to expand significantly.

Activities in each of UNDP's energy priority areas are discussed more fully in the following sections.

## ENERGY PRIORITY 1: Strengthening National Policy Frameworks to Support Energy for Poverty Reduction and Sustainable Development



*Courtesy Multifunctional Platform Project, Mali*

UNDP efforts in this priority area focus on incorporating sustainable energy issues into three types of policy dialogue: macro-economic reform; sustainable development planning; and energy sector reform, including power sector policy frameworks supportive of renewable energy and energy efficiency. All three of these need to address energy in ways that support growth and equity if the Millennium Summit Goal for poverty reduction is to be achieved. Within national decision-making processes on economic, environmental and energy policy-making and regulation, UNDP's energy activities aim to advance the interests of poor and marginalised groups and increase their access to energy services.

Recognising the importance of linking micro-level efforts to macro-development strategies in order to

successfully scale up rural energy interventions for poverty reduction, UNDP has been increasingly involved in developing national energy plans and legislation for rural energy delivery. An example of such efforts is UNDP's facilitation of the integration of energy considerations into national development tools such as Poverty Reduction Strategy Papers (PRSPs) and National Sustainable Development Strategies. In addition, UNDP-GEF is working to integrate climate change considerations into national development strategies through capacity development to help countries meet their UNFCCC obligations by undertaking greenhouse gas inventories and submitting National Communications.

### MAINSTREAMING ENERGY INTO NATIONAL DEVELOPMENT PROCESSES

In **Burundi**, UNDP capacity development efforts (through training sessions and workshops for government decision-makers), and public awareness campaigns by means of informational materials and seminars, resulted in a national strategy to integrate energy concerns into the Poverty Reduction Strategy Paper process.

In the **Central African Republic**, a UNDP energy project led to the formation of local committees which raised awareness in rural communities through participatory workshops and consultations on the opportunities and challenges of renewable energy technologies and informed private sector companies and the national government authorities regarding community energy needs.

In **Mali**, UNDP efforts have contributed to the development of key energy indicators, including indicators related to the role of women in energy collection and usage, and energy services supply and demand factors in rural areas.

In **Nepal**, UNDP has supported the strengthening of national policy frameworks on rural energy for sustainable development and poverty alleviation, which has resulted in the formulation of the 'Rural Energy Policy and Institutional Framework'. This is the first such policy framework for the country and it is in the process of being adopted by the government. This policy framework is designed to make renewable energy more accessible to people living in remote areas.

In **Belize**, a UNDP project produced an evaluation of the energy sector and recommendations on sustainable energy options for poverty reduction and economic growth, ultimately resulting in the development of a National Energy Plan, which was presented to the Prime Minister's Office.

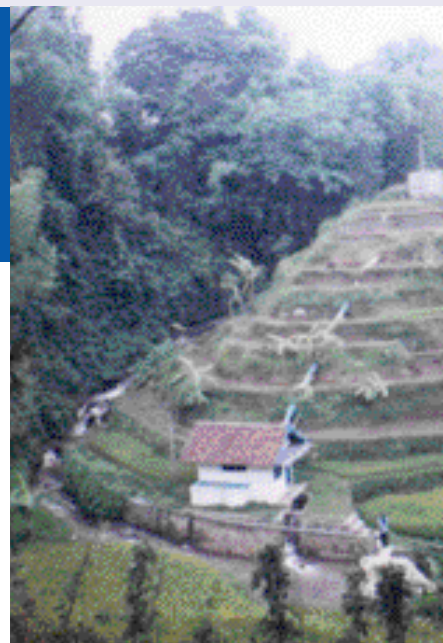
A project in **Guatemala** fostered a multi-stakeholder dialogue that successfully produced a Renewable Energy Incentives Law that was passed by the Guatemalan Congress in late 2003. The project aims to follow up with widespread capacity development through workshops, promotional materials, and renewable energy demonstration projects (with a particular focus on rural areas), with the ultimate goal of contributing to national sustainable development and poverty alleviation.

In response to a request from the National Energy Commission in **Nicaragua**, UNDP has engaged in extensive capacity development efforts, engaging national energy actors through workshops and consultations that have led to adjustments to the energy regulatory framework and input into the Rural Electricity Policy.

## ENERGY PRIORITY 2: Rural Energy Services to Support Growth and Equity

By focusing on meeting needs for heating, cooking and electrical power in rural areas, UNDP is working towards increasing people's access to types of energy services that support economic growth and social equity. Under this priority, UNDP pays special attention to the critical role of energy services in supporting income-generation activities in rural areas, and to the distinct energy needs of women, who are disproportionately impacted by lack of access to energy services.

A majority of UNDP's projects in this area have been in Least Developed Countries in the Asia-Pacific region, Africa, and the Latin America and Caribbean region. They have generally involved an integrated approach that combines local and district level activities with supportive national policy frameworks. Project experiences have shown that establishment of energy markets in rural areas is most successful when business training and incentives, financing arrangements, and national energy and economic development policies are all closely coordinated. Another noticeable trend is that while there were notable rural energy interventions in Africa and Asia for electricity



*Microhydro Power House  
at Seloliman, Indonesia*

purposes, there were comparatively fewer projects on mechanical and thermal issues. Given the time, energy and opportunity costs incurred by the poor, especially rural women and children engaging in tedious tasks directly related to obtaining affordable energy for mechanical power, cooking, and heating, there is a clear need for further work in this aspect of rural energy issues.

## RURAL ENERGY DEVELOPMENT PROGRAMME IN NEPAL



*Courtesy: Rural Energy Development Programme, Nepal.*

Since 1996, UNDP has supported Nepal's Rural Energy Development Programme (REDP), which has successfully expanded access to sustainable energy services in remote areas through micro hydro, solar power and improved cooking stoves. The programme has applied a holistic approach to rural development, with an emphasis on community mobilisation and empowerment. Through participatory processes, local men and women have been actively engaged in development plans to improve their agricultural production and use new technologies to power small-scale industries. Over 150 micro hydro plants have been installed by the REDP in steep areas of rural Nepal where there was no likelihood of grid-connected electricity.

In view of the success so far, the programme is being scaled up through a partnership with the IDA fund of the World Bank which will support an additional 150 micro hydro plants. Pumped water, mechanical power for food processing activities, and improved stoves that reduce the need to gather fuel have relieved some of the drudgery of daily subsistence activities, especially for women. In addition, the availability of electricity combined with community-based skills training and savings and investment programmes has enabled villagers to develop new income-generating enterprises. Some of these success stories were utilised in developing the country's 'Rural Energy Policy and Institutional Framework'.

## THE GEF SMALL GRANTS PROGRAMME



Through implementation of the Global Environment Facility's Small Grants Programme (SGP), UNDP provides funding for grassroots activities that protect the environment while at the same time generating sustainable livelihood opportunities. From 1996 onwards, the SGP disbursed over US\$18 million for more than 800 community-based energy and climate change mitigation projects, from improved cook stoves to renewable energy projects introducing solar, micro hydro, biofuels, and wind systems used to meet community demands for electric power and lighting, communications, water pumping and micro-enterprise applications.

## ENERGY PRIORITY 3: Clean Energy Technologies for Sustainable Development



*Energy audits in buildings can save energy and reduce greenhouse gas emissions.*

In this priority area, UNDP supports the introduction and adaptation of low emission technologies that can promote economic growth, social development and environmental sustainability. Increased energy efficiency and the use of renewable energy technologies will support win-win development options that address local economic and environmental needs, as well as global concerns about the threats of climate change as a result of fossil fuel combustion. UNDP-GEF plays a central role in this area. A main area of focus is on market transformation for high volume, commercial energy systems, with support for national innovation to adopt emerging low-carbon technologies (such as biomass gasification systems) and transportation alternatives (such as fuel-cell buses). Modern energy technologies can increase energy efficiency in industrial production processes, heat and power generation, business and transportation equipment, and household appliances, thereby reducing fuel requirements and energy waste.

In this area, UNDP-GEF has been very successful in forging partnerships to mobilise funding

from local companies and banks, and private and institutional investors. Clean energy investments have contributed to a transition to low-carbon energy systems in relatively large, carbon-intensive economies in Asia, Latin America and parts of Eastern Europe. A number of projects started in the mid-1990s have now been scaled up as barriers to market reform have been removed, and as local entrepreneurs and investors have become more experienced in energy-related enterprises. The removal of institutional, technical, and economic barriers to market reform in support of energy efficiency measures and renewable energy have resulted in furthering economic development through income-generation in industrial and residential settings as well as significantly reducing national expenditures on energy production and consumption.



*Bagasse, the fiber residue from sugar cane is an important energy source.  
Courtesy: NREL, USA*

## WIND ENERGY IN TUNISIA

The use of wind power for grid-based electricity generation is a high priority for the Tunisian Government. Through a UNDP-GEF supported wind power project, Tunisia is seeking to attract sizable foreign direct investment in its energy sector, and develop the technical expertise necessary to promote commercial wind-based applications. Other goals include liberalising electricity production through the addition of new institutions in the power production market, and reducing greenhouse gas emissions. The project is designed to strengthen the institutional, regulatory and operational capacities of key energy agencies, including ANME (the National Energy Management Agency), the IPP Bureau (the country's Independent Power Production regulator), DGE (the National Electricity Board) and STEG (the incumbent power utility). It will also support a production-based "smart subsidy" scheme for the deployment and commercial operation of 100MW wind power systems on an internationally competitive basis.

This project is designed to remove barriers to energy efficiency in Kazakhstan's municipal heat and hot water supply systems, thereby lowering fossil fuel consumption and associated greenhouse gas emissions and achieving economic savings through lower expenses for energy production. Activities include revising the existing legal and regulatory framework for tariff issues, billing and collection; building the capacity of local heat supply companies to provide services on a commercial basis; and introducing new mechanisms for project implementation and financing, such as Energy Service Companies (ESCOs).

The project has contributed to the reformulation of tariff regulations to fully reflect the costs of delivering services and financing investments. Other initiatives include tax privileges for residents who save energy, and a social support scheme to assist vulnerable population groups.

## ENERGY PRIORITY 4: Increasing Access to Investment Financing for Sustainable Energy



*Above: Farmers processing agricultural products.  
Left: Installing a milling machine on the multifunctional platform.  
Courtesy: Multifunctional Platform project, Mali*

Financing mechanisms are critical for the sustainability and replication of energy projects. Consequently, UNDP sees a need to focus on enhancing developing countries' capacity to obtain investment financing for sustainable energy options beyond traditional official development assistance, including innovative ways of attracting investments and mobilising local financial resources. UNDP addresses financial barriers to energy projects in a cost-

effective way by partnering with micro-finance institutions, savings groups, and energy service companies.

With increasing attention to climate change issues and the pending entry into force of the Kyoto Protocol and its associated carbon-trading mechanisms, new energy financing opportunities are emerging. Developing countries need information and capacity development to take maximum advantage of these opportunities. Using a 'learning by doing' approach, UNDP has supported developing countries' efforts to learn about and participate in the implementation of these new energy financing mechanisms, including the Clean Development Mechanism (CDM) through feasibility studies, institutional capacity development, and pilot projects.

Since 1997, UNDP has supported a FINESSE project in the Philippines designed to address barriers to the diffusion of renewable energy technologies by focusing on financing constraints. People in rural parts of the Philippines have limited access to energy services, and generally lack sufficient capital to buy renewable energy equipment to meet their energy needs. The FINESSE project helped the Development Bank of the Philippines streamline its lending guidelines and operating procedures in order to expand its renewable energy lending portfolio. In addition, training sessions for banking staff improved their capacity to evaluate and manage proposals for renewable energy financing.



*Courtesy: FINESSE project, Philippines.*



*Staff of the Development Bank of the Philippines visiting a site with a large-scale PV system.*

*Courtesy: FINESSE project, Philippines.*

## PUBLIC-PRIVATE PARTNERSHIPS TO IMPLEMENT THE CLEAN DEVELOPMENT MECHANISM (CDM)

UNDP has focused on strengthening the ability of developing countries to take advantage of the CDM by engaging the private sector and enhancing the capacities of national governments to undertake CDM operations. Investments by developed countries and private companies in low-carbon projects located in developing countries can be used to satisfy the developed countries' emission reduction requirements under the Kyoto Protocol while contributing to sustainable development benefits in the host developing countries. From 1999-2003, UNDP led an interagency group project to engage the private sector in potential CDM activities, in partnership with UNIDO, UNCTAD, and the World Business Council for Sustainable Development (WBCSD). In Brazil, the group developed a biomass cogeneration project and a rural solar energy project as pilot CDM projects. In South Africa, the initiative led to a landfill gas capture project and a biomass pulp and paper waste recovery project. Experiences from these projects clearly identified critical barriers to effective CDM implementation, including lack of knowledge and capacity on CDM project implementation, governance issues, regulatory procedures, greenhouse gas markets and negotiations on carbon contracts. The absence of efficient, transparent and participatory policies, mechanisms, and institutions in the host countries increases transaction costs and impedes CDM operations.

UNDP supports its country-level energy initiatives through global and regional advocacy, and analysis of energy trends and strategies. These activities assist countries in identifying appropriate sustainable energy entry points, national policy options and available financing mechanisms.

Effective knowledge management is crucial for making UNDP's advisory services widely accessible. Using Internet websites and electronic communica-

tions, as well as more traditional information-sharing tools, UNDP is able to make policy guidance, success stories and lessons learned from project experiences readily available to governments, and other energy and development partners around the world. UNDP also facilitates exchanges of knowledge through broad-based regional and thematic networks, and maintains its own network of experts within its regional centres.

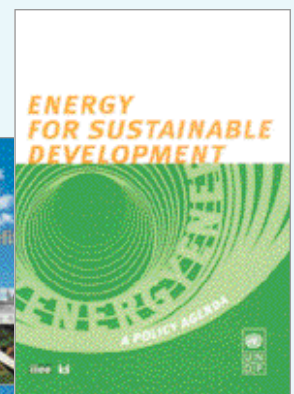
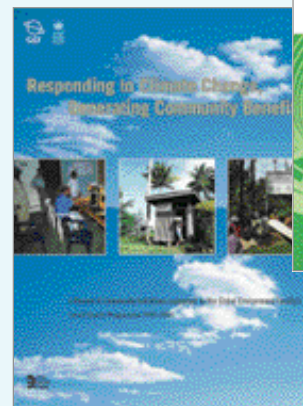
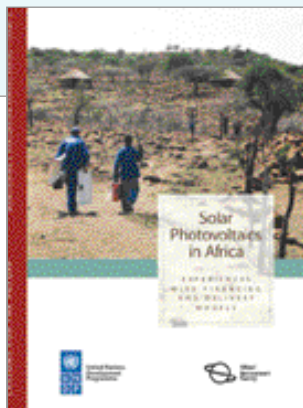
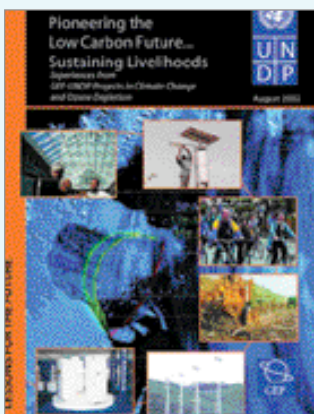
## SHARING KNOWLEDGE ON ENERGY FOR SUSTAINABLE DEVELOPMENT

Major challenges involve improving systems to make information more accessible, and transforming information into useful knowledge through studies and analyses that capture lessons learned and support UNDP's programming and advocacy work.

The focus of UNDP's overall knowledge management strategy is on connecting people through networks and creating 'communities of practice'. In the energy area, the Energy and Environment Practice Network consolidates expertise within the organisation. In addition, UNDP-GEF facilitates learning networks organised around GEF strategic priorities.

The UNDP energy and climate change portfolio (including UNDP-GEF's work in this area) contains nearly 400 projects initiated since the mid-1990s. Experiences from these projects are captured in reports and evaluations that share valuable lessons and promote replication of successful approaches. UNDP also offers courses, training workshops and programming kits. Building on its large energy portfolio under the climate change focal area, UNDP-GEF plays a significant role in developing knowledge products. Through these knowledge products and services, UNDP enables countries to identify national priorities that can be supported by UNDP regular resources and GEF resources, formulate relevant projects, and integrate field experiences into national policy-making.

### Examples of UNDP energy-related publications





Information about UNDP sustainable energy activities is available on the following websites:



**UNDP energy website -**  
[www.undp.org/energy](http://www.undp.org/energy)



**UNDP-GEF website -**  
[www.undp.org/gef](http://www.undp.org/gef)

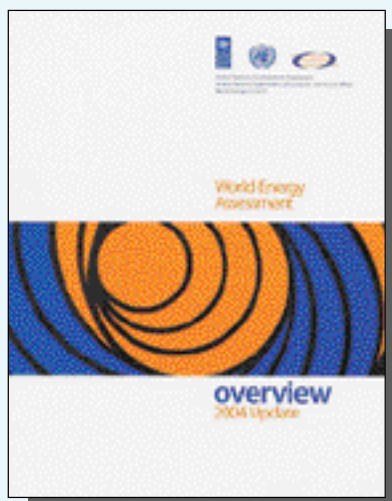


**GEF-Small Grants Programme -**  
[sgp.undp.org](http://sgp.undp.org)



**Global Village Energy Partnership website -**  
[www.gvep.org](http://www.gvep.org)

## **World Energy Assessment Overview Update 2004**

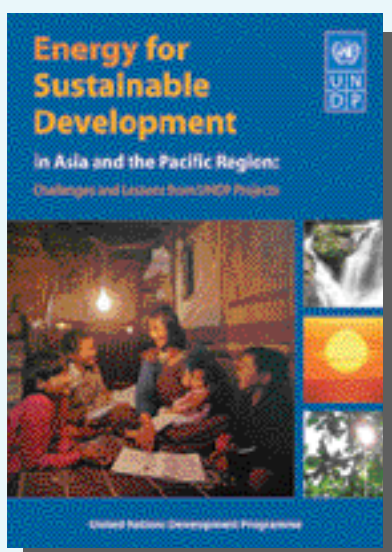


In 2002, UNDP, the UN Department for Economic and Social Affairs, and the World Energy Council collaborated in publishing the 'World Energy Assessment' (WEA). This 500 page document provided analyses and scientific data for decision-makers on energy trends and issues, as well as recommendations for a transition to a sustainable energy future. The WEA represented an important contribution to global energy discussions at the Ninth Session of the UN Commission on Sustainable Development (CSD) in 2001, which focused on energy, and at the 2002 World Summit on Sustainable Development.

The 2004 Update to the WEA Overview covers important new developments in terms of intergovernmental agreements, business trends and technological innovations. A follow-up study is planned as an input to the 14th and 15th Sessions of the CSD in 2006 and 2007, which will cover sustainable energy policies and implementation strategies.

<http://www.undp.org/energy/weaover2004.htm>

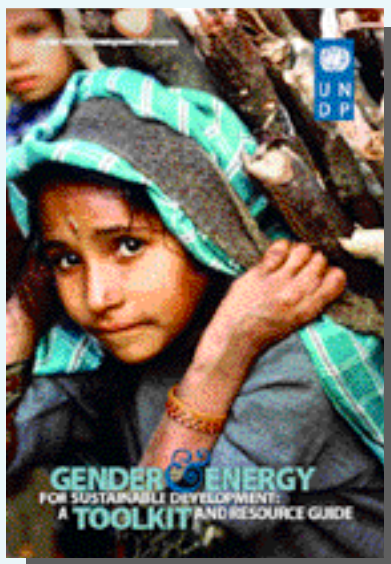
## **Sharing Regional Lessons – 'Energy for Sustainable Development In Asia and the Pacific Region: Challenges and Lessons from UNDP Projects'**



The Asia-Pacific region has figured prominently in UNDP's sustainable energy activities, both in terms of the amount of resources committed and the number of projects located there. Close to 700 million people in this region live on incomes of less than a dollar per day, most of them in rural areas without electricity or modern fuels. They depend primarily on subsistence agriculture and biomass fuels. These case studies from the Asia-Pacific region offer valuable lessons about the importance of community participation in choosing energy-related objectives and technologies, and identifying productive energy uses. They also demonstrate the need for energy strategies responsive to differences in countries' economic, social and environmental contexts.

<http://bangkokregionalcentre.undp.or.th/reports/index.html>

## Facilitating policy design and programming to link energy with the MDGs



UNDP produces analytical and operational knowledge products designed to help practitioners link energy with development priorities, such as poverty reduction, gender equality, and education.

A recent UNDP publication, jointly developed with Columbia University, entitled, *"Achieving the Millennium Development Goals: The Role of Energy Services - Case Studies from Brazil, Mali and the Philippines"*, quantifies the impact of energy services on achievement of the MDGs by analysing the developmental effects of energy-related interventions in these countries.

In collaboration with ENERGIA, UNDP has also recently released a new publication entitled *"Gender and Energy for Sustainable Development: A Toolkit and Resources Guide."* It has been designed for use by development practitioners, energy planners, community groups and gender experts. By explicitly addressing gender and energy linkages at the project and policy level, this publication is meant to promote better outcomes from development interventions in terms of the sustainability of energy services as well as the human development opportunities available to women and men.

To download these publications, please visit: [www.undp.org/energy/publications.htm](http://www.undp.org/energy/publications.htm)



*Modern energy services can help girls pursue a better education.*

*On the cover: A group of women visiting a pilot nursery farm in India.  
Courtesy: UNDP India office.*

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