

ITC & ITDG ENERGY CAPABILITY STATEMENT



itc

intermediate technology consultants

ITDG

PRACTICAL ANSWERS
TO POVERTY

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INTERNATIONAL ENERGY STAFF

SELECTED ENERGY PROJECTS

ENERGY CAPABILITY STATEMENT



Who we are, how we work

As the consulting arm of the international NGO, ITDG, we provide high quality, independent and professional advice to governments, NGOs, aid agencies and the private sector. Our consultants are international and include 200 professionals in eight country offices working in *two strategic theme areas*:

1) **Rural and Urban Infrastructure**

To improve access of communities to essential basic services (such as transport, energy, waste, communications and housing) through various mechanisms including private sector delivery.

2) **Increasing Enterprise Opportunities and Access to Markets**

To enhance livelihoods by creating opportunities for the use of technology by small enterprise through capacity building, business development services and improved access to markets.

Our core competencies are in improving access of enterprises and communities to a broader choice of technology options through developing local capacity. ITC staff use participatory methods and work with stakeholders at all levels. Under our two strategic themes we specialise in:



€# **Energy and Environment**, we focus on decentralised electrification, renewable energy services, energy from biomass, energy efficiency of small enterprises and energy usage and demand surveys as well as water supply, transport and low cost construction.

€# **Enterprise Development**, we work with Small and Medium Enterprises (SMEs), helping to stimulate innovation, improve productivity and support business development across all sectors. We facilitate private sector involvement in a variety of urban and rural sectors such as transport, waste and energy.

ITC provide the following services:



€# **Project Design and Management - monitoring and evaluation of** complex projects with international multi-disciplinary teams.

€# **Institutional Development** and organisational development to provide efficient, customer and client-focused support and services.

€# **Training and Capacity-building** – conducting training, designing training manuals, training trainers.

€# **Policy and Strategy development and Policy Guidelines** to improve infrastructure service for the poorest.

€# **Market Analysis and Participatory Approaches** - studies to identify needs and opportunities for technology change for sustainable production.

Intermediate Technology Consultants (ITC) has been working in the field of energy for 30 years. It has a proven track record of managing complex, multi-disciplinary international projects and has worked on renewable energy policy and strategy issues in Africa, Asia and Latin America as well as Europe.



ITC has developed a proven approach to identifying users' needs and opportunities for technology change, managing that change and providing support to local institutions to ensure sustainability. Activities include:

- €# energy needs assessment, demand surveys and market studies
- €# resource assessment, for example, hydrological studies, wind monitoring, solar energy assessment and biomass surveys



- €# feasibility studies covering the technical, social and economic aspects of biomass, solar, wind and hydro use
- €# technology development and adaptation to local socio-economic contexts
- €# policy analysis, institutional development, strategic planning and action plans

- €# training courses in all aspects of rural and renewable energy, both general and technology specific
- €# specialist technical support for practical project design, implementation and evaluation to incorporate rural and renewable energy including: biomass combustion systems for industrial applications, for example agro-processing, lime making and waste incineration; solar photovoltaic systems for specialist and high value energy applications; micro, mini or small hydro power and wind pumping or electricity generation.



ITDG's Energy Programme

For millions of people in rural and urban areas of the developing world the lack of access to energy services: the fuel to cook with, light to study by, power for radios, or for tools to earn a living, are barriers to achieving a healthy and secure livelihood. ITDG is broadening its energy programme from micro-hydro and stoves through working with the users of different types of energy technologies to understand their needs better. By focusing on the communities where we work, the energy programme is increasingly working with other sectors, addressing the health, gender and income aspects of projects as equally high priorities as the technologies which are involved.

Energy and Poverty



Over two billion people around the world rely on traditional fuels (for example wood or agricultural residues) for their cooking, and live without electricity or any other modern energy. In many areas availability of traditional sources of energy is declining, for reasons such as deforestation. Also many communities are not likely to have access to grid electricity for decades because of their remoteness and relative poverty. A radically different approach to energy provision is needed, an approach which understands the situation of poor peoples and the range of technologies which might be able to realise an improvement in their lives.

The solutions are not always simple. Three decades of experience in running energy projects in poor communities has shown that introducing a new technology is unlikely to be successful unless effective the social, institutional, environmental and economic factors are effectively incorporated into the project's design.

ITDG's approach

ITDG focuses on affordable and local solutions specifically for the poor. The technology approach advocated by ITC and ITDG can help the poor in rural and urban areas to access energy to improve their standard of living and to create opportunities for increasing income.

The activities of ITC/ITDG energy programme fit within our strategy of promoting practical energy solutions for poor people. Our purpose **is to increase the capability of vulnerable people to access sustainable energy services** by promoting practical energy solutions.



Landmarks in our work

ITDG's credibility began with its success in the fields of micro-hydro and in the development and promotion of energy-efficient stoves. With a relatively small investment

ITDG has shown that these technologies can make energy options available to poor people. Our work has now broadened in scope and addresses the issues which are barriers to livelihood improvement of beneficiary groups. Some current developments are:

Solar Lantern - the Solar Lantern developed by ITC has been designed as a low-cost alternative to solar home systems.



Waste to Energy - to identify and develop appropriate technologies for producing energy from low-value waste to support urban livelihoods. This is being undertaken by developing case studies which analyse the waste streams, the stakeholders involved in solid waste management and livelihood opportunities from different waste to energy options. There is a significant section of the urban poor whose livelihood is dependent on informal waste processing and keep a positive impact on this beneficiary group.

Street Foods - pioneering energy based intervention strategies with street food vendors in urban areas of Sri Lanka and Bangladesh. The preparation and sale of street food provides employment and income to millions of people around the world, as well as affordable nutrition for low-income people.

Small Wind Energy Systems - wind turbines offer a cost-effective alternative to solar home systems in supplying the basic energy needs (eg. for light and to power a radio) of rural households.

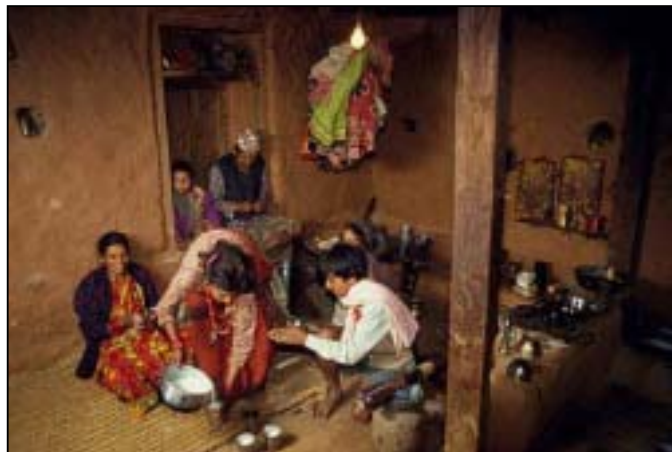


Smoke - kitchen smoke is a dangerous pollutant which is responsible for many deaths and much of the ill-health experienced by poor people in the developing world. ITDG is working to find effective ways to reduce this smoke.

Influencing Others, Advocacy and Communication Strategies

ITC/ITDG also engages the important role for change to be instigated at institutional, governmental and intergovernmental levels. In all countries where ITDG works attention is given to networking and advocacy at this level. A new initiative from ITDG's energy programme is the Sustainable-energy Policy And Research 'Knowledge-Network' (SPARK-NET) which has recently won funding from the European Commission. Its aim is to establish an interdisciplinary interactive knowledge network in Southern and East Africa in the field of energy for low-income households in rural areas. SPARK-NET brings together policy makers, research centres, universities, manufacturers, and NGOs (and through them communities and end-users) around the issues of household energy so as to contribute to the development of effective policy. SPARK-NET will help to maximise the impact of community policies and community research, stimulate dialogue and innovation, and enhance the impact of national/donor funding by identifying priority areas for research, exchanging experiences and disseminating best practices.

Through our country offices we are lobbying for change in our areas of operation. An example of this is advocacy and influence in Kenya through the East African Energy Technology Development Network. This brought together 22 organisations and government institutions with an aim to strengthen advocacy work at the national and regional levels.



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INTERNATIONAL ENERGY STAFF

SELECTED ENERGY PROJECTS

Selected ITC and ITDG International Energy Staff

Name	Title	Specialist Area	Regional Office
Teodoro Sanchez	Team Leader Infrastructure	Rural Electrification and Renewable Energy: Solar, Wind and Hydro	ITDG-UK
Tinashe Nhete	Energy Technology Manager	Planning and Implementing Rural Energy Schemes (Principally Micro Hydro)	ITDG Southern Africa
Absolom Masendeke	Programme Manager	Community Energy Development Project Manager and Social Scientist	ITDG Southern Africa
Lasten Mica	Energy Programmes Manager	Renewable Energy Systems - Design, Testing and Dissemination, Photovoltaic Systems	ITDG Southern Africa
Daniel Theuri	Energy Programme Manger	Household Energy and Biomass Energy	ITDG East Africa
Martha Mathenge	Projects Officer – Energy Program	Participatory Approaches to Rural Energy and Household Energy Expert	ITDG East Africa
Lydia Muchiri	Energy Projects - Manager	Capacity Building, Gender and Energy Development Expert	ITDG East Africa
Tamzeen wa Gathui	Projects Officer – Energy Program	Project Design and Management, Solar Electricity for Household Use.	ITDG East Africa
Susil Liyanarachchi	Projects Director	Project Design and Management	ITDG Sri Lanka
Jayantha Gunasekera	Programme Manager	Energy Policy, Micro Hydro, Wind	ITDG Sri Lanka
Upali Pannilage	Programme Manager	Community Managed Infrastructure	ITDG Sri Lanka
Namiz Mustapher	Project Manager	Capacity Building, Biogas	ITDG Sri Lanka
D B Sarath	Project Manager	Micro Hydro	ITDG Sri Lanka
Satya Ranjan Saha	Agro-processing Manager.	Household Energy And Improved Energy for Small Enterprise.	ITDG Bangladesh
Majzoub Mohamed	Programme Director	Community Energy Development and Biomass Expert	ITDG Sudan
Saul Ramirez	Project Engineer - Energy	Rural Electrification Engineer	ITDG Latin America

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SELECTED ENERGY PROJECTS

ITC AND ITDG'S EXPERIENCE IN THE ENERGY SECTOR

PROJECT TITLE	CLIENT	PROJECT LEADER	CONTRACT VALUE \$USD	DATE	COUNTRY
Hosting the Global Village Energy Partnership Technical Secretariat	World Bank	ITDG	\$1,000,000	2004 - 2006	International
Networking for Promotion of Renewable Energy Technology	EC Co-financing	ITDG	\$312,993	2004 - 2006	Sri Lanka
Energy Reform and Access Project	World Bank / GoM	ITC	TBC	2004 - 2005	Mozambique
Development of Rural Energy Policy and Strategy	Bureau of Public Enterprises Nigeria, World Bank	ITC	\$413,156	2003 - 2005	Nigeria
Design of Institutional PV Market and Capacity Building	World Bank / Government of Ethiopia	ITC	\$84,810	2003 - 2004	Ethiopia
Development of Rural Electrification Strategies and Policy Framework	World Bank	ITC	\$229,850	2003 - 2004	Papua New Guinea
Impact of Big Dams	World Wildlife Fund	ITC	\$53,998	2003 - 2004	Mozambique
Warwickshire ENGAGE Project	Warwickshire County Council	ITC	\$9,000	2003	UK
Energy for Schools	Ashden Trust	ITDG	\$234,298	2002 - 2005	Kenya
Smoke - Reducing Kitchen Smoke Pollution in Poor Households	Health Foundation	ITDG	\$358,844	2002 - 2005	Kenya, Tanzania & Uganda
Smoke, Health and Household Energy - Clean Indoor Air	DFID KaR	ITDG	\$533,329	2002 - 2005	Kenya, Nepal, Sudan & UK
Micro Hydro Energy Reform and Access Program (ERAP)	Price Waterhouse Cooper, World Bank	ITC	\$60,000	2002	Mozambique
Waste Pelletisation Feasibility Study	Business Linkages Challenge Fund	ITC	\$19,780	2002	Rwanda
Ethno-Engineering Training Manuals	Inter-American Development Bank	ITC	\$15,000	2001- 2003	Latin America
Private Sector Participation in Energy	World Bank	ITC	\$74,000	2001 ongoing	Mozambique
Stoves & Household Energy (SHE) Programme, Kenya	EC Co-financing	ITDG Kenya	\$595,278	1999 - 2003	Kenya
Generic Training Material for Rural Electrification Projects	World Bank	ITC	\$76,322	2001 - 2002	International
Renewable Energy and Rural Enterprises	Inter-American Development Bank	ITDG Peru	\$650,000	2000 - 2003	Peru
Disseminating Approaches to Sustainable Livelihoods	DFID	ITC	\$165,200	2000 - 2001	Kenya & Nepal
IRESSI - Integrated Renewable Energy Systems for Small Islands	European Commission	ITC	\$141,750	2000 - 2001	Europe

ITC AND ITDG'S EXPERIENCE IN THE ENERGY SECTOR

PROJECT TITLE	CLIENT	PROJECT LEADER	CONTRACT VALUE \$USD	DATE	COUNTRY
Encouraging Clean Development Mechanism Projects to Aid Poverty Alleviation	DFID	ITC	\$352,539	1999 - 2004	Kenya, Tanzania & Ghana
Africa Private Infrastructure Financing Facility	World Bank, Price Waterhouse Cooper	ITC	\$28,000	1999 - 2002	Sub-Saharan Africa
Community Micro-Hydro Power Programme	UNDP	ITDG	\$216,000	1999 - 2001	Kenya
Mechanisms to Improve Energy Efficiency in Small Industries	DFID	ITC	\$318,875	1999 - 2001	India & Ghana
Strategy for Household Energy	Inter-Governmental Authority on Development	ITC	\$675,000	1999 - 2001	The Horn of Africa
Improved Stoves and Fuel Substitution Project	CARE	ITC	\$60,471	1999 - 2000	Haiti
Renewable Energy for Rural Infrastructure Development	World Bank	ITC	\$90,000	1999 - 2000	Vietnam
Using Rice Husks as a Source of Energy for Brick-making	AGEP - SENREM/DFID	ITDG Peru	\$97,540	1999 - 2000	Peru
Aga Khan Rural Support Programme - Gilgit	DFID	ITC	\$103,068	1998 - 2002	Pakistan
European Electrolabel	European Union	ITC	\$174,055	1998 - 2000	Europe
Initial Evaluation of Clean Development Mechanism Type Projects in Developing Countries	DFID	ITC	\$211,170	1998 - 2000	Kenya, Nepal & Sri Lanka
Development and Marketing of Micro Solar Lanterns	DFID	ITC	\$525,600	1997 ongoing	Kenya
Rural Electrification Policy Workshops	DFID	ITC	\$270,000	1997 - 2000	Uganda, India & Brazil
Participative Approach to Community Energy	German Agro Action + Various	ITDG	\$128,844	1996 - 2004	Zimbabwe
Low Cost, Low Maintenance Propeller Turbines	DFID	ITC	\$383,000	1996 - 2000	Peru
Upesi Project (Ceramic Stove - Wood & Biomass Burning)	DFID & European Commission	ITDG	\$531,252	1996 - 2000	Kenya
Participative Planning Guidelines for Off-Grid Electricity	DFID	ITC	\$280,000	1995 - 2000	Nepal, Zimbabwe & Sri Lanka
Energy Forum - Developing & Popularising Decentralised Energy Options	EC + Various	ITDG	\$934,536	1994 - 2004	Sri Lanka
Micro Hydro Power Promotion Fund	Inter-American Development Bank	ITDG Peru	\$1,200,000	1993 - 2005	Peru

GLOBAL ENERGY PROJECTS



International

Hosting the Global Village Energy Partnership Technical Secretariat

Client	World Bank
Dates	2004 - 2006
Amount	\$1,000,000

ITDG is hosting the technical secretariat of the Global Village Energy Partnership (GVEP), a Type II Partnership launched at the World Summit on Sustainable Development. GVEP is a 10-year implementation-based program that seeks to increase energy access to those unserved and underserved in a manner that enhances economic and social development and reduces poverty. A "Partnership of Partnerships", GVEP brings together developing and industrialised country governments, public and private sector organizations, multilateral development institutions, consumers, and non-government organizations (NGOs).

Sri Lanka

Networking for Promotion of Renewable Energy Technology

Client	EC Co-financing
Dates	2004 - 2006
Amount	\$312,993

The project is to promote environmentally sound renewable energy technologies (ESRET) to meet the unmet energy demand of rural communities living in off-grid

areas of Sri Lanka. Practical and affordable mechanisms for accessing ESRET by rural communities will be developed during the two-year project period. This will be achieved through Private-Public-Civil Society Partnerships between stakeholders at local, provincial and national level in Sri Lanka and in the EU. Promotion of ESRET will contribute to environmental protection through the reduction of carbon emissions as well as contributing to national development goals by improving the living conditions of rural communities.

Mozambique

Energy Reform and Access Project

Client World Bank / GoM

Dates 2004 - 2005

Amount To be confirmed

Advising the Government of Mozambique in the preparation, marketing, bidding, evaluation, negotiation, and implementation of rural electricity concessions, including grid connection and isolated mini grids.

Nigeria

Development of Rural Energy Policy and Strategy

Client Bureau of Public Enterprises, Nigeria / World Bank

Dates 2003 – 2005

Amount \$413,156

Working with the Government of Nigeria the ITC-Econ One Consortium developed an electrification policy and strategy approaches including regulation structures for grid extension and off-grid, including solar PV and micro hydro solutions. Conducted a National rural energy survey to assess demand and for market modelling. Developed pilot project designs to trial methods of reducing costs of electricity transmission, distribution, household connections and metering.

Ethiopia

Design of Institutional PV Market and Capacity Building

Client World Bank / Government of Ethiopia

Dates 2003 - 2004

Amount \$84,810

Recommendations for a national programme of solar PV investments for remote schools, health centres and community water supply schemes, based on a market assessment conducted in 5 provinces.

Papua New Guinea

Development of Rural Electrification Strategies and Policy Framework

Client World Bank

Dates 2003 - 2004

Amount \$229,850

Produced recommendations for innovative approaches to rural electrification on the basis of 5 detailed case studies of potential rural electrification schemes in different provinces. Designed projects to demonstrate alternative models for widespread electrification with a mix of private and community ownership, based on locally-based participative approaches.

Mozambique

Impact of Big Dams

Client World Wildlife Fund

Dates 2003 -2004

Amount \$53,998

Research paper for WWF to provide an assessment of the economic viability of the proposed Mpanda Uncua dam and to identify the most sustainable electricity options for meeting Mozambique's development needs over the next 10 to 20 years.

UK

Warwickshire ENGAGE Project

Client Warwickshire County Council
Dates 2003
Amount \$9,000

Project identifying possible renewable energy projects in Warwickshire.

Kenya

Energy for Schools

Client Ashden Trust
Dates 2002 - 2005
Amount \$234,298

Project involved the development and implementation of mechanisms to enable off-grid secondary schools to acquire appropriate and renewable energy technologies. Included in the project was the assessment of energy supply and end use dynamics; recommend options; improve energy management techniques, efficient end use and facilitate the installation of appropriate energy technologies through a tailor-made credit scheme. There was also the objective of raising awareness of renewable energy technologies among communities in the project area.

Kenya, Tanzania & Uganda

Smoke – Reducing Kitchen Smoke Pollution in Poor Households

Client Health Foundation
Dates 2002 - 2005
Amount \$358,844

Reducing the exposure of women and children to indoor air pollution (IAP) from biomass fuels to improve long-term health in poor rural households in Uganda and Tanzania. The project influenced policy on maternal and child health issues related to IAP through existing networks that adopted best practices and advocated for country-wide awareness on the dangers of smoke; The project influenced the adoption of smoke alleviation interventions as a means of improving health for mothers and children through a cleaner household environment with reduced IAP and lower morbidity and mortality rates.

Kenya, Nepal, Sudan & UK

Smoke, Health and Household Energy – Clean Indoor Air

Client DFID KaR
Dates 2002 – 2005
Amount \$533,329

Project set-up to empower poor people to reduce major health risks, especially to women and children, caused by smoke from kitchen fires. It involves monitoring of smoke (carbon monoxide and particulate matter) indoor air pollution (IAP) levels and provision of IAP reduction interventions in peri-urban households.

Mozambique

Micro Hydro Energy Reform and Access Program (ERAP)

Client Price Waterhouse Cooper / World Bank
Dates 2002
Amount \$60,000

Resource assessment (from primary sources) of micro hydro potential. Involved a study of the scope of micro-hydro investments and corresponding technical assistance and capacity building needs, which were fed into the first phase of the Mozambique Energy Reform and Access program. Terms of reference for programme of pilot micro hydro project investments were prepared.

Rwanda

Waste Pelletisation Feasibility Study

Client Business Linkages Challenge Fund
Dates 2002
Amount \$19,780

Assessed the viability of a waste pelletisation project to use organic municipal waste in Kigali as fuel. Recommended the adoption of the technology as a means of providing fuel for small enterprises and of reducing the volume of organic waste material while providing jobs to waste collectors, and sorters.

Latin America

Ethno-engineering Training Manuals

Client	Inter-American Development Bank
Dates	2001 - 2003
Amount	\$15,000

Guidelines were developed to aid the Inter-American Development Bank to raise awareness and provide guidance for public sector infrastructure providers and contractors about how to ensure greater involvement of indigenous communities in the design and implementation of infrastructure projects.

Mozambique

Private Sector Participation in Energy

Client	World Bank
Dates	2001 ongoing
Amount	\$74,000

Directed a study to assess requirements for private sector investment in energy services in Mozambique. It focuses on small-scale projects looking at increasing access to energy services for households/industries to modern forms of energy. Based upon the study's findings, provided advice to government on role of private sector in rural energy provision.

Kenya

Stoves & Household Energy (SHE) Programme, Kenya

Client	EC Co-financing
Dates	1999 - 2003
Amount	\$595,278

This project increased the capacity and commitment of development agencies in East Africa to implement effective household energy projects. It also highlighted the issue of household energy use in rural areas to influence governments in the region to adopt policies that help ease the burdens facing biomass users. The project helped partner organizations to assess energy needs and identify suitable options with communities while at the same time it offered a range of resource materials with information about stoves and household energy. To achieve its numerous aims, the project laid emphasis on conducting training workshops and offering direct technical

support, exchange visits information collection and dissemination, networking and advocacy work.

International

Generic Training Material for Rural Electrification Projects

Client World Bank
Dates 2001 – 2002
Amount \$76,322

Production of generic training packages and guidelines on rural electrification projects for community leaders, district officials and national policy makers as part of multi-sector Community-Driven Development projects. Involved the preparation of terms of reference for baseline surveys and facilitation teams.

Peru

Renewable Energy and Rural Enterprises

Client Inter-American Development Bank
Dates 2000 - 2003
Amount \$650,000

The objective of this project was to improve the livelihoods of three isolated rural communities in northern Peru, by creating small sustainable enterprises that generated and provided energy using renewable resources as raw materials. The project also concentrated on spreading new ways of using energy to create and increase production. ITDG created and reinforced the beneficiaries' capacities to manage approximately 30 micro hydro schemes (MHS), 15 of which were completely new, in order to ensure that the MHS was working efficiently in a permanent manner. The project also created and expanded 150 small rural enterprises, thus creating sources of employment and income for the local inhabitants.

Kenya & Nepal

Disseminating Approaches to Sustainable Livelihoods

Client DFID
Dates 2000 - 2001
Amount \$165,200

Case studies were produced by using the Sustainable Livelihoods framework and approach as a tool to reviewing energy projects. These were used as a basis for

workshops in Kenya and Nepal, aimed at disseminating Sustainable Livelihoods approaches to energy and other infrastructure professionals.

Europe

IRESSI - Integrated Renewable Energy Systems for Small Islands

Client European Commission

Dates 2000 - 2001

Amount \$141,750

Production of renewable energy strategies and action plans for the Isle of Wight, UK and Hiiuma Island, Estonia. Detailed feasibility studies produced for stand-alone RES systems for micro islands belonging to National Trust (Lundy, Brownsea and Farnes) and the French equivalent of NT, Conservatoire Littoral, for Millau Island, one of the Ponant Islands.

Ghana, Kenya & Tanzania

Encouraging Clean Development Mechanism Projects to Aid Poverty Alleviation

Client DFID

Dates 1999-2004

Amount \$352,539

Study on CDM and its contribution to Environmental Protection and Poverty Alleviation, which arose from the Kyoto Conference on Climate Change, 1998 - 1999. The project contributed to the design of the CDM so that energy projects are encouraged, and also provided some capacity building for host countries to implement small-scale projects under the CDM.

Sub-Saharan Africa

Africa Private Infrastructure Financing Facility

Client World Bank / Price Waterhouse Cooper

Dates 1999 – 2002

Amount \$28,000

This project was established to support private sector investment in infrastructure projects in Africa. ITC's task was to look at the funding gap for small-scale energy projects (\$5-20 million) by identifying such projects in sub-Saharan Africa and looking at the funding and other constraints.

Kenya

Community Micro-Hydro Power Programme

Client	UNDP
Dates	1991 - 2001
Amount	\$216,000

In collaboration with Kenya's Ministry of Energy, contributed to the establishment of a sustainable infrastructure for the development of small hydropower for community development in sub-Saharan Africa. Collaborated with the University of Nairobi, the Department of Water, the Jomo Kenyatta University of Science and Technology, individual artisans, communities and individuals. The East African Cupertino secretariat on energy recognised the project's operations and concepts and adopted them for future replication in the three East African countries.

India & Ghana

Mechanisms to Improve Energy Efficiency in Small Industries

Client	DFID
Dates	1999 – 2001
Amount	\$318,875

Study of the potential for improving energy efficiency in specific industrial sectors in India and Ghana. Developed technical, institutional and market mechanisms that increased the adoption of energy efficient technologies for small and medium industries, based on Energy Service Company (ESCO) approaches.

The Horn of Africa

Strategy for Household Energy

Dates	1999 – 2001
Amount	\$675,000

Project set-up to strengthen the sustainability of household energy activities in the region and to explore new areas in the energy sector. Included commercialisation of rural stoves, technical training, documentation, information sharing, networking and advocacy work.

Haiti

Improved Stoves and Fuel Substitution Project

Client CARE
Dates 1999 - 2000
Amount \$60,471

The design and commission of an improved household stoves and fuel wood substitution project.

Vietnam

Renewable Energy for Rural Infrastructure Development

Client World Bank
Dates 1999 - 2000
Amount \$90,000

Produced training material on renewable energy electrification options for decision makers at national and regional levels, and district level officials and NGOs assisting communities to make decisions on electrification options using renewable energies.

Peru

Using Rice Husks as a Source of Energy for Brick-making

Client DFID / APGEP-SENREM
Dates 1999 - 2000
Amount \$97,540

This project worked with small-scale brick-makers in the Grau Region, encouraging them to use rice husks instead of firewood as fuel for the brick-making process. This reduced the deforestation caused by the indiscriminate felling of the natural carob tree forests in this area.

Pakistan

Aga Khan Rural Support Programme - Gilgit

Client DFID
Dates 1998 - 2002
Amount \$103,068

Short-term technical assistance for multi-disciplinary programme of work to alleviate poverty in remote, rural areas of Northern Pakistan. This included focused micro

hydro work in the Chitral region of Pakistan with activities including overall management of the micro hydro programme in Chitral, looking at end uses for micro hydro, demand side management of the electricity, training and capacity building for engineers so they could build, operate and manage micro hydro schemes and development of a comprehensive set of guidelines for the development of micro hydro schemes.

Europe

European Electrolabel

Client European Union

Dates 1998 - 2000

Amount \$174,055

Project promoting the integration of renewable energy technologies into everyday energy supplies across the EU, through the development of a Europe-wide 'Electrolabel' - a product label for renewable energy sources. This work was for the European Commission to bring together the work carried out in various EU countries on 'Green Electricity' accreditation.

Kenya, Nepal & Sri Lanka

Initial Evaluation of CDM Type Projects in Developing Countries

Client DFID

Dates 1998-2000

Amount \$211,170

Study designed to investigate the benefits delivered from small-scale energy development projects and programmes in the 3 country study areas and to examine how baselines could be derived for the range of project types studied. It was one of the first studies to demonstrate the value of small-scale projects for delivering direct sustainability benefits under the CDM and showed not only how baselines could be derived but also that large reductions in green house gas emissions could be achieved by bundling many small-scale projects.

Kenya

Development and Marketing of Micro Solar Lanterns

Client DFID
Dates 1997 ongoing
Amount \$525,600



Product development, field testing and marketing of low cost solar lanterns ("Glowstar") through private sector delivery mechanisms. Local marketing capacity has been developed and distribution networks established. The Glowstar is currently in full production and for sale on the worldwide market and the Environment Award for Engineers 2001 was won by Ray Holland and Oliver Wakelin of ITC for the development of the Glowstar Solar Lantern.

Brazil, India & Uganda

Rural Electrification Policy Workshops

Client DFID
Dates 1997 – 2000
Amount \$270,000

Preparation of training modules to guide development planners in off-grid electrification options. Delivered in three countries in 1999 and 2000 to participants, including representatives of the public and private sectors and NGOs. The outputs were strategies for the improvement of rural energy provision.

Zimbabwe

Participative Approach to Community Energy

Client German Agro Action + Various
Dates 1996 - 2004
Amount \$128,844

This project demonstrated the effectiveness of a participative approach that enabled communities to identify, select, install and operate a range of small scale, decentralised energy conversion systems that met their needs. Throughout the process, experiences acquired from the project were captured and issues arising debated at various levels in order to contribute to a better understanding of the practices in community energy supply. These included opportunities and constraints,

a database of locally available energy sources in selected areas and general guidelines in the experiences with the project and stakeholders.

Peru

Low Cost, Low Maintenance Propeller Turbines

Client DFID
Dates 1996 - 2000
Amount \$383,000

Developing innovative low cost, low head propeller turbines. A new design of low head propeller turbine was developed in collaboration with manufacturers in Peru. A production model has been installed at Las Juntas near Jaen in Northern Peru and has run without problems for 4 years. The design and manufacturing plans have been made available for manufacturers.

Kenya

Upesi Project (Ceramic Stove – Wood & Biomass Burning)

Client DFID & European Commission
Dates 1996 - 2000
Amount \$531,252

A continuation of the ITDG programme on the dissemination of improved stoves in East Africa, focusing on costs and benefits accruing directly from the production, marketing and use of Upesi stoves. The stoves had a good Benefit to Cost Ratio and the return on investment was also encouraging. In addition there were other spin off activities and benefits from this project including the kitchen improvement activities; stove innovations by producers and intermediaries; increased commercial production of the Kenya Ceramic Jiko stove, and producers and intermediaries getting involved in other business opportunities.

Nepal, Sri Lanka & Zimbabwe

Participative Planning Guidelines for Off-Grid Electricity

Client DFID
Dates 1995 – 2000
Amount \$280,000

Development of planning manuals and institutional guidelines for community participation in the choice of rural electrification approaches, to foster affordable

access to off-grid electricity in developing countries including a workbook to guide participants through the development of a project proposal and trainers notes on course content and methodology.

Sri Lanka

Energy Forum – Developing & Popularising Decentralised Energy

Options

Client European Commission + Various

Dates 1994 – 2004

Amount \$934,536

Enabling conditions were created for the widespread uptake of decentralised alternative energy systems by rural and urban people as viable and sustainable means of accessing basic energy needs.

Peru

Micro Hydro Power Promotion Fund

Client Inter-American Development Bank

Dates 1993 - 2005

Amount \$1,200,000

This project's purpose is to increase energy supply to poor rural communities, through the installation of micro-hydro electric plants for productive and domestic end-users. Through an agreement with the Bank, ITDG created a Revolving Fund whereby loans are granted to small-scale producers so that they can set up micro hydroelectric power plants for productive purposes. Maximum loans of US\$ 50,000 are granted mainly for purchasing equipment. . The project also concentrated on spreading new ways of using energy to create and increase production. ITDG created and reinforced the beneficiaries' capacities to manage approximately 30 micro hydro schemes (MHS), 15 of which were completely new, in order to ensure that the MHS was working efficiently in a permanent manner. The project also created and expanded 150 small rural enterprises, thus creating sources of employment and income for the local inhabitants.