

**United Nations Foundation/
UN Fund for International Partnerships**

**"Interim" Program Framework For
Sustainable Energy/Climate
Change**

May 2001

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Introduction

The United Nations Foundation (UNF) was established in January 1998 to support the UN and its causes – with special emphasis on population and women, the environment, children’s health and peace, security and human rights.¹ Subsequently, the UN Fund for International Partnerships (UNFIP) was created within the Office of the Secretary-General to act as the central mechanism for organizing, executing, monitoring and reporting on activities funded by UNF.

The UNF Board of Directors has identified Sustainable Energy/Climate Change as one of its two principal environmental funding priorities (along with biodiversity). In June and September 1999, UNFIP convened a Program Framework Group (PFG) on sustainable energy/climate change² composed of ten UN agencies, UN affiliates and outside experts to provide important advice on the future direction of the UNF Sustainable Energy/Climate Change Program. Following these initial consultations with the PFG members and outside experts, several drafts of a proposed Program Framework were developed in 1999. None was formally adopted.

During this period, the UNF Board of Directors considered the potential scope and content of the Sustainable Energy/Climate Change Program, and concluded that given the limited available resources, UNF staff should work with the UN to develop a Program Framework that was more narrowly focused than earlier draft versions. Similarly, the UNFIP Advisory Board has consistently emphasized the need to set priorities and identify those niche areas where UNF and the UN System could make a meaningful, value-added contribution.

Based on the Board’s guidance and in keeping with the priorities identified in the UN Secretary-General’s Millennium Report, UNF staff has been working over the past year to refine and narrow the priorities outlined in earlier draft versions of the Program Framework. This has been accomplished in close consultation with UNFIP, select UN agency representatives, and external expert/donor groups. From these structured consultations, a proposed draft “Interim” Framework was created and circulated to the PFG members for review and comment. Wherever feasible, the advice and input from PFG members was incorporated into the “Interim” Framework. The following document is the result of this effort. The “Interim” Framework is proposed as a guide for grant making until a formal Program Framework is developed, based upon the experience gained under the “Interim” Framework.

Considering the scale of the challenge and the number and diversity of the players, UNF and UNFIP recognize that this is a very difficult area to create program content sufficiently focused and programmatically structured to truly make a difference. Thus it is inherent that the “Interim” Program Framework will be a dynamic process that emphasizes learning by doing, and will be evaluated regularly to ensure that the direction being taken provides maximum impact.

It is understood and acknowledged that the “Interim” Framework leaves out many important UN initiatives in the area of sustainable energy and climate change. Some of these, such as general climate change capacity building activities, will only be considered on an exceptional basis.

¹ For a more detailed description of UNF history, structure, and broad criteria, visit UNF’s website at www.unfoundation.org.

² Please see the PFG Participants list in Annex I.

Similarly, only exceptional initiatives to improve energy efficiency in the transportation and building sectors may be considered.

Pending further experience, the UNF/UNFIP “Interim” Sustainable Energy/Climate Change Program will focus and concentrate grant making on programs and projects designed to:

- Develop and Demonstrate Sustainable and Commercial Approaches to Deliver Community-Based Renewable Energy Services;
- Improve Energy Efficiency in the Industrial, Residential, and Commercial Sectors through Market-Oriented Policies and Programs; and
- Promote the Clean Development Mechanism (CDM) as a Means to Engage the Private Sector in the Areas of Renewable Energy and Energy Efficiency.

This strategic focus is intended to produce tangible and replicable results on the ground. It allows for strategic grant-making that will have an important impact by targeting priority areas that contribute to mitigating climate change. At the same time, these activities will demonstrate benefits for sustainable development, support UN mandates and priorities, and play a catalytic role to leverage additional funding.

To be effective and to ensure the quality and impact of the climate change program as well as timely and efficient delivery of UNF resources on the ground, the “Interim” Program Framework gives a high priority to partnerships with the private sector, NGOs, government agencies, financial and donor communities, together with UN agencies active in the energy/climate change area. To maximize leverage of UNF resources, the “Interim” Framework will prioritize grant making in a few major Greenhouse Gas (GHG)-emitting developing countries, such as China, India, and Brazil.

Guidance

"Addressing the challenge of climate change is one of the most important tasks of the twenty-first century. The need to promote energy-efficiency and greater reliance on renewable resources is obvious. In the developing world, particularly in rural areas that are not connected to energy grids, the rapidly falling costs of solar cells and wind power have the potential to bring energy to the poor at reasonable costs, thereby also enhancing agricultural productivity and generating income."

---- UN Secretary-General in Millennium Report³

As we enter the 21st century, global climate change has emerged as one of the most significant challenges facing human society. In response, the UN has facilitated the development of several critical agreements that provide a framework for international cooperation on this issue. These include two major international agreements to reduce emissions of greenhouse gases: the UN Framework Convention on Climate Change (UNFCCC) in 1992 and the Kyoto Protocol in 1997.

³ Kofi A. Annan, Secretary-General of the United Nations. *We the Peoples: The Role of the United Nations in the 21st Century*. New York: United Nations Department of Public Information, 2000.

The UNF has adopted the UN Secretary-General's Millennium Report as a guide to further refine and narrow the priorities outlined in earlier draft versions of the Program Framework. The Millennium Report identified the challenge of climate change as a high priority, and calls for the promotion of renewable energy and energy efficiency to address this important challenge. The Secretary-General also supported the Clean Development Mechanism as a "market incentive to engage the private sector in the vital task of reducing global warming"⁴.

Energy production and consumption are the most significant human activities leading to global climate change. Energy also has strong links to other major global challenges, including poverty alleviation, the improvement of women's lives, human health, environmental protection, and energy security⁵. These are all top UN priorities. The promotion and use of sustainable energy systems can be used as significant tools to advance both the goals of sustainable development and climate change. This potential is underscored by the recently released World Energy Assessment, and is a guiding principle of the UNF sustainable energy/climate change initiatives.

To be consistent with the guidance of the Secretary-General's Millennium Report and the UNFCCC, UNF-financed sustainable energy/climate change initiatives are intended to support renewable energy and energy efficiency activities that:

- have climate change benefits;
- promote sustainable development, and demonstrate tangible links between climate change and the promotion of sustainable energy systems;
- have a clear value-added role;
- are consistent with UN mandates and priorities;
- are consistent with national priorities and strategies;
- are sustainable and lead to wider replication;
- play a catalytic role to leverage additional funding;
- increase awareness among a wide audience of the importance of sustainable energy and climate change;
- increase the capacity of local governments, NGOs, entrepreneurs, financial institutions, and other key stakeholders through on-the-ground, project-specific activities;
- engage the private sector and promote public-private partnerships;
- aim for timely and effective delivery of resources;
- emphasize the involvement of local stakeholders; and
- encourage innovative approaches.

⁴ Ibid.

⁵ *World Energy Assessment*. UNDP, UNESDA, and World Energy Council. 2000.

Program Focal Area 1: Develop and Demonstrate Sustainable and Commercial Approaches To Deliver Community-Based Renewable Energy Services

Rationale and Objective

The UNF Renewable Energy Program aims to develop and demonstrate sustainable and commercial approaches to deliver community-based renewable energy services⁶, linked to productive use activities, thereby leading to a broader market acceptance of renewable energy.

Renewable energy systems that are community-based, unconnected to electric grids, and linked to income generating activities are an underfunded area. Most of the funding to date for renewable energy from the Global Environment Facility (GEF) and other agencies has primarily been focused on large-scale grid-connected renewable systems and stand-alone individual solar home systems.

Renewable energy systems have many advantages. They can reduce or avoid GHG emissions from conventional fossil fuel combustion, while meeting the energy needs of the two billion people currently without access to modern energy services in the world in a cost-effective and environmentally friendly manner. The productive use activities from renewable energy can increase the income of the rural poor and stimulate the local economy, while also improving the quality of health and education services, thus promoting sustainable development. Wide-scale replication of community-based renewable energy systems can create a “critical mass of demand” for renewable energy systems, which can further increase production and reduce their costs globally and lead to a broader market acceptance of the technology.

Strategic Areas for UNF Focus:

Many renewable energy applications are already commercial or nearly commercial, and cost-competitive with conventional energy sources. However, they have not yet been deployed on a large scale worldwide due to a number of barriers that are less technical and more financial, institutional, and regulatory.

Traditionally, renewable programs targeting rural communities have been heavily subsidized and involved the provision of renewable energy systems for selected beneficiaries at little or no cost. Such programs have led to little replication and sustainability on the ground. The UNF will focus instead on creating sustainable local enterprises that can deliver reliable energy services, such as heating, lighting, and cooking, based on renewable energy technologies. The UNF Program will demonstrate market-based business delivery models and establish the supporting institutional, financing, and regulatory infrastructure needed to address the key barriers to commercializing technically proven renewable energy applications. This strategic focus aims to

⁶ This includes small-scale wind, solar, micro hydropower, biomass energy, and hybrid systems, to provide electricity services to the rural areas that are not connected to energy grids, as well as deliver cooking, heating, and hot water services.

stimulate widespread replications of these models and leverage additional resources to renewable energy development.

The UNF Renewable Energy Program will support innovative projects that address the following strategic areas⁷:

1. Link access to renewable energy services with productive use and income generating activities. The UNF Program will assist local entrepreneurs and other energy end-users in local communities to identify market opportunities for productive activities from renewable energy services in sectors such as agriculture, micro-enterprises, telecommunications, health, and education. The focus on providing energy for productive activities will assist the rural poor to generate incomes to pay for the energy services received and promote the local economy.
2. Build capacities of locally based entrepreneurs in business management, technical maintenance, and after-sale service skills. A key barrier is the lack of sustainable institutional infrastructure to convert renewable energy applications that are technically proven into commercial businesses at the local community level. To ensure the financial sustainability and broad market replication, rural renewable programs must be operated as businesses. As the costs of most renewable energy technologies have dramatically reduced over the past decade, experience has shown that the delivery of renewable energy services to rural areas can be a commercially viable business⁹. The local entrepreneurs and NGOs should be assisted with training and advisory services in the areas of business delivery models, market opportunities for productive activities from renewable energy services, best practices, and rural enterprise development. They will also be trained in financial management, quality control, marketing, installation, maintenance, and after-sale services. The UNF support will also provide business advisory services to local entrepreneurs to prepare project financing packages for submission to financial institutions, and develop financial intermediaries between the local entrepreneurs and financial institutions.
3. Demonstrate and disseminate sustainable market-based renewable energy business delivery models. Experience to date has identified a number of models or mechanisms to successfully deliver renewable energy services in rural areas. Examples include a sales model and a fee-for-service model¹⁰. The UNF Program will assist the local entrepreneurs and NGOs to

⁷ Innovative project activities that support the objective and outcomes of the UNF Renewable Program but address market barriers outside these strategic areas described below will be considered on a case-by-case basis.

⁸ Anil Cabraal, Mac Cosgrove-Davies, and Loretta Schaeffer. *Best Practice for Photovoltaic Household Electrification Programs: Lessons from Experiences in Selected Countries*. World Bank. 1996.

⁹ Anil Cabraal, Mac Cosgrove-Davies, and Loretta Schaeffer. *Best Practice for Photovoltaic Household Electrification Programs: Lessons from Experiences in Selected Countries*. World Bank. 1996.

¹⁰ With a sales model, private dealers sell renewable energy systems to rural households. The system is owned and maintained by the households, which are responsible for servicing the debt. Sales model examples include cash sales, consumer credit by suppliers, consumer credit by finance institutions, consumer credit by micro-finance organization, and sales by non-energy public service network. With a service model, an energy service company provides electricity to rural households for a fee that is either fixed or based on consumption. The system is owned and maintained by the energy service company. Service model examples include regulated concession by utilities, regulated concession by private firms competitively selected, micro-enterprises, and community NGO delivery. See E. Martinot, R. Ramankutty, and F. Rittner. *Thematic Review of the GEF Solar PV Portfolio*, June 2000.

identify and develop appropriate business delivery models specific to the local conditions. Other innovative business delivery models will also be encouraged.

4. *Build capacity of local institutions to support and stimulate the local enterprises delivering renewable energy services.* It is important to establish the infrastructure within local institutions that can assist in creating and nurturing viable energy enterprises to deliver reliable and affordable renewable energy services. These institutions will provide enterprise development services and start-up financing to local entrepreneurs, which will enable the entrepreneurs to take their early stage ideas and experiences and prepare them for later stage investors, implementation, and growth.
5. *Develop innovative financing mechanisms and build capacities of local financial institutions.* Many renewable energy systems have a high up-front cost, which is a major financing obstacle. Evidence suggests that people are usually willing and able to pay for higher quality energy services¹¹, but rural consumers or entrepreneurs often do not have access to financing, because of lack of collateral, poor creditworthiness as measured by conventional bank indicators, or the unavailability of long-term loans¹². Therefore, innovative and flexible financing mechanisms and access to credit are crucial factors to increase the affordability of renewable systems, overcome the high initial cost barrier, and ensure the financial sustainability of renewable energy services.

The initial cost barrier can be overcome through long-term credit via local dealers or financial institutions, micro-credit, leasing, fee-for-services, and early stage capital in the form of equity investment or debt financing. Loan guarantees, supplier credits, and programs to build capacity of local financial institutions to provide small-scale loans for rural households and small enterprises¹³ can also overcome this barrier and help increase the affordability of rural renewable systems.

6. *Build capacities of governments to improve rural renewable energy policies.* The experience and lessons learned from on-the-ground activities described above will be disseminated to policy-makers for large-scale replication and policy implementation. The UNF Program will provide technical assistance to governments to strengthen existing policies, regulations, and programs as well as formulate new ones. These efforts would likely lead to creation of favorable policy frameworks and investment climates to attract private sector investment in renewable energy systems and stimulate a broad market acceptance. It will also provide government officials with training in renewable energy technologies, the potential benefits of the technology, and their life-cycle costs. This would then lead to an increase in the government's rural electrification funding towards renewable energy. With government

¹¹ World Bank. *Rural Energy and Development Paper: Improving Energy Suppliers for Two Billion People*. 1997.

¹² Eric Martinot and Omar McDoom. *Promoting Energy Efficiency and Renewable Energy: GEF Climate Change Projects and Impacts*. June, 2000.

¹³ Anil Cabraal, Mac Cosgrove-Davies, and Loretta Schaeffer. op. cit. and UNF/UNFIP/UNEP. *African Rural Energy Enterprise Development Initiative (AREED)*. November 1999.

funding to subsidize the poorest of the poor, a wide range of income groups in the rural areas will be able to receive renewable energy services¹⁴.

7. *Engage the private sector and build long-term public-private partnerships.* Over the past decade, net private sector flows to developing countries have grown rapidly to more than \$250 billion in 1997, while official development assistance (ODA) declined to about \$50 billion¹⁵. In developing countries, investment in the energy sector is estimated to be \$100 billion annually, much of it privately financed¹⁶. Such private sector involvement in UNF-financed projects is essential to mobilize additional project resources and ensure the sustainability of projects. This is consistent with the UNF's guiding principles of leveraging its limited resources and developing partnership. UNF-financed projects will seek opportunities to stimulate private sector involvement in various ways. These include: 1) removing market barriers to the creation of, entry into, or transformation of renewable energy and energy efficiency markets; 2) funding transaction costs; 3) building local financial and institutional infrastructure at the local level; 4) providing small amounts of early-stage capital, as an equity investment or debt financing, through a financial institution/NGO; 5) increasing access to consumer credit; and 6) facilitating mass procurement programs¹⁷. UNF support, for example, can help create successful local early-stage energy enterprises and establish financial and institutional infrastructures, to reduce the transaction costs and accelerate the timing for international renewable companies to enter new markets¹⁸. Thus, a small amount of UNF funding can leverage large investments from the private sector.
8. *Build partnerships and leverage additional financing from other funding sources.* Potential funding partners may include, but are not limited to, multilateral development banks (e.g. the World Bank, Inter-American Development Bank and Asian Development Bank), Global Environment Facility, other foundations (e.g. Shell Foundation, Energy Foundation, and W. Alton Jones Foundation), bilateral donors (e.g. the Dutch government, GTZ, and G-8¹⁹), host governments, and the private sector. UNF support, for example, can help build a global coalition and partnership among the top renewable and telecommunication industries, senior government decision-makers, UN agencies, and major donors. This partnership can then create a critical mass of demand and interests in large-scale private sector investments in the renewable energy area. UNF initiatives should complement renewable energy and energy efficiency activities in these organizations.

Outcomes:

¹⁴ Although the commercial operation of the private sector can provide affordable renewable energy services to a large number of rural consumers, the poorest of the poor are still unlikely to be able to pay for renewable energy services without government subsidies.

¹⁵ World Bank. *Private Capital Flows to Developing Countries: the Road to Financial Integration*. 1997.

¹⁶ Global Environment Facility. *Engage the Private Sector in GEF Activities*. 1999.

¹⁷ Detailed modalities to engage the private sector in UNF initiatives will be further identified at a later stage.

¹⁸ The local early-stage enterprises established under the UNF-funded projects, for example, could be acquired by Shell International Renewables Ltd. at a later stage. The local infrastructures put in place could also help companies like Shell when they enter into a new market. Thus, they can soon start their renewable energy business in a new market, and the small-scale early-stage local enterprises will evolve into larger scale commercial companies.

¹⁹ At the Okinawa G-8 Summit, world leaders endorsed the idea of international action to promote renewable applications, especially off-grid renewable energy in rural areas of developing countries.

The expected outcomes for the UNF Renewable Energy Program include:

- Successful stories and tangible replicable models that demonstrate the financial and technical sustainability of community-based renewable energy systems, as well as improved quality-of-life and higher incomes in rural communities;
- A widespread diffusion of renewable energy systems resulting from replications of sustainable, market-based, off-grid renewable energy services;
- Reduced greenhouse gas emissions from large-scale deployment of renewable energy systems as a substitute for fossil fuel combustion;
- Improved local entrepreneurial capacity to initiate and sustain rural businesses in the renewable energy sector;
- Increased financing from national and regional financial institutions to develop rural renewable energy systems;
- Improved local capacity to develop and support renewable energy entrepreneurs and to link them to outside financing opportunities; and
- Additional resources leveraged for renewable energy.

Measurable Indicators

The indicators that can be monitored and evaluated over time²⁰ to measure the success of the UNF Renewable Energy Program include:

- The number of renewable energy systems installed, or installed capacity of renewable systems;
- The number of people served with electric power services from renewable energy;
- The number of successful renewable energy businesses (dealers/service firms) created;
- The number of productive use activities stimulated from renewable energy services;
- The number of renewable energy intermediary institutions created;
- The availability of consumer credit to develop and purchase renewable energy services;
- The availability of financing for local entrepreneurs/NGOs to develop and deliver renewable energy services;
- The amount of diesel consumption reduced or avoided;
- The amount of greenhouse gases reduced or avoided; and
- The amount of additional funding leveraged or catalyzed from other sources.

Program Focal Area 2: Improve Energy Efficiency in the Industrial Residential , and Commercial Sectors Through Market-Oriented Policies and Programs

Rationale and Objective

²⁰ Since most of the UNF interventions will focus on measures that lead to sustainability and replication after project completion, it is essential to continue to monitor and evaluate the outcomes beyond the program's lifetime.

²¹ Since most of the UNF interventions will focus on measures that lead to sustainability and replication after project completion, it is essential to continue to monitor and evaluate the outcomes beyond the program's lifetime.

The UNF Energy Efficiency Program aims to promote applications and products that increase energy efficiency in the industrial, residential, and commercial sectors through market-oriented policies and programs. The goal is to create a wide diffusion and application of energy efficiency measures. This approach addresses the key market barriers to energy conservation, and provides both "technology push" and "demand pull" measures to stimulate a broad market deployment of energy efficiency measures.

Promoting energy efficiency is one of the most cost-effective measures and offers significant opportunities to reduce greenhouse gas emissions. The industrial, residential, and commercial sectors contribute to more than 75% of energy-related CO₂ emissions in developing countries²², and the energy use in these sectors is projected to grow rapidly in the future. In developing countries, many opportunities exist to improve energy efficiency by 10-30% (or more) using low-cost, commercial technologies with short payback period. At the same time, energy efficiency technologies can also bring local sustainable development benefits, such as reduced need for new power plants, reduced local air pollution, and increased product competitiveness in the market.

To date, the existing energy efficiency efforts have often focused on demonstrating specific technologies. UNF support will instead assist the establishment of energy conservation policies and programs that are cross-cutting and market-oriented, and focus on the industrial sector and appliances in the residential and commercial sectors. The UNF believes this is one of the most cost-effective measures to increase energy efficiency and thereby, reduce GHG emissions.

Strategic Areas for UNF Focus

From the perspective of mitigating climate change, the application of commercially viable energy efficiency measures has, to date, been slower than desirable. This is because of a number of financial, institutional and regulatory barriers. The UNF Energy Efficiency Program will address these market barriers and promote sustainable, market-based mechanisms. The UNF is looking for innovative projects that address the following strategic areas²³:

1. Promote market mechanisms to increase energy efficiency in the industrial sector. In developing countries, the industrial sector accounts for more than 50% of energy consumption, and offers significant potential to improve energy efficiency and reduce greenhouse gas emissions²⁴. The UNF targets both new and retrofit energy efficiency projects for energy-intensive industrial processes (e.g. iron and steel, cement, and chemical

²² L. Price, E. Worrell, and M. Khrushch. *Sector Trends and Driving Forces of Global Energy Use and Greenhouse Gas Emissions: Focus on Buildings and Industry*. Berkeley, CA: Lawrence Berkeley National Laboratory. 1999.

²³ Innovative project activities that support the objective and outcomes of the UNF Energy Efficiency Program but address market barriers outside the strategic areas of focus described below will be considered on a case-by-case basis.

²⁴ If the best available technology is implemented in the steel industry in China, India, and Brazil, for example, CO₂ reductions of 50%, 46%, and 26% respectively over the current emissions levels could be achieved.

industries) and energy-intensive industrial equipment (e.g. industrial boilers and motors). Specifically, the UNF Energy Efficiency Program will

- provide technical assistance to design government policies and programs that encourage energy efficiency in the industrial sector²⁶;
- demonstrate innovative cross-cutting market mechanisms to improve energy efficiency;
- support institutional mechanisms that provide an interface between government and the private sector to advise policymakers and the industry on market mechanisms to improve energy efficiency;
- provide energy-intensive industries with technical and business advisory services to design, operate, test, market, and service energy efficient processes and equipment; and
- provide training and information to industrial consumers and operators about energy efficiency, fuel savings, and operations.

2. Promote adoption and implementation of appliance energy efficiency standards and labeling²⁷ and mass procurement programs. One of the major regulatory barriers to appliance energy efficiency in many developing countries is a lack of minimum efficiency standards. As a result, manufacturers lack incentives to increase the energy efficiency of their products. The UNF Energy Efficiency Program will:

- build the in-country capacity to develop, adopt, update, and implement mandatory or voluntary efficiency standards for appliances and lighting products;
- introduce international best practices in the design and compliance of efficiency standards from both developed countries and developing countries;
- establish effective strategies to implement such efficiency standards;
- promote the adoption and implementation of mandatory and voluntary efficiency labeling for appliances;
- conduct consumer education programs on energy efficiency labeling to increase consumer information and knowledge about the economic life-cycle benefits of highly-efficient products; and
- promote mass procurement programs to create a critical mass of demand and reduce the commercial risks of manufacturers making energy-efficient products. The UNF Program will provide technical assistance in mass procurement programs that will allow large energy consumers to purchase a large number of energy-efficient products. These consumers include government agencies, apartment building owners and developers, military housing providers, hotels, and other large real estate owners and managers. The Sweden technology procurement program by NUTEK provides a good example²⁸.

3. Develop financial intermediation mechanisms for energy efficiency investments. One of the major market barriers to higher energy efficiency in all sectors is a lack of appropriate

²⁵ If the best available technology is implemented in the steel industry in China, India, and Brazil, for example, CO₂ reductions of 50%, 46%, and 26% respectively over the current emissions levels could be achieved.

²⁶ One example is the use of sector-specific energy efficiency targets. In recent years, many developed countries have adopted a voluntary agreement between the government and industry to set specific energy use or energy efficiency targets in each energy-intensive industrial sector. The governments provide support policies that aid the industrial sectors in achieving their targets. The sector target approach can be modified and adapted to developing countries to reduce energy use and CO₂ emissions in the industrial sector.

²⁷ The appliance efficiency standards can have positive impacts on trade in major appliance-exporting countries.

²⁸ A. Reddy, R. Williams, and T. Johansson. *Energy After Rio: Prospects and Challenges*. UNDP. 1997.

financing mechanisms. Energy efficiency projects are generally small-scale with high transaction costs when conducted individually. Conventional banks consider these projects to be too risky. Many project proponents are unable to offer adequate collateral or security for loans. Furthermore, conventional financial institutions generally lack the experience to make technical and financial evaluations of energy efficiency investments. There is an urgent need to establish innovative financial intermediation mechanisms to address this key barrier.

These mechanisms could include, but are not limited to, training to financial institutions, creating specialized energy efficiency units within financial institutions, establishing intermediary institutions specializing in bundling small-scale projects together and arranging financing, creating a guarantee fund, and/or providing technical and financial assistance to identify and prepare projects. The UNF will consult widely with key country stakeholders to identify and design innovative and appropriate financing mechanisms that suit the context of each host country. These stakeholders include domestic financial institutions, governments, industries, energy service companies (ESCOs), equipment vendors, and electric utilities. Additional resources will be mobilized from multilateral development banks, domestic financial institutions, and the private sector to provide the significant funding required to implement the identified mechanisms.

Similar to the UNF Renewable Energy Program, the UNF Energy Efficiency Program will also engage the private sector and build long-term public-private partnerships promoting energy efficiency. This effort will also build partnerships and leverage additional co-financing from other funding sources²⁹.

Outcomes

The expected outcomes for the UNF Energy Efficiency Program include:

- Successful adoption and implementation of industrial sector efficiency targets and appliance energy efficiency standards;
- Demonstrated replicable market mechanisms to improve energy efficiency;
- Improved energy efficiency in the targeted industrial sectors and appliances;
- Increased market demand for energy efficient applications and products;
- Increased financing for energy efficiency investments;
- Reduced greenhouse gas emissions resulting from increased energy efficiency in the industrial, residential, and commercial sectors; and
- Additional resources leveraged to energy conservation, particularly from the private sector and other donor communities.

Measurable Indicators

The success of the UNF Energy Efficiency Program can be measured by the following indicators, which can be monitored and evaluated over time.

²⁹ UNF support, for example, can help build "South-South" partnerships through exchange of information on experience and lessons learned in the developing countries in promoting energy efficiency measures.

- The number of new appliance standards adopted and implemented;
- The market share and sales volume of energy-efficient products;
- The volume of lending for energy efficiency projects;
- The cumulative or annual energy savings from increased energy efficiency;
- The amount of greenhouse gases reduced; and
- The amount of additional funding raised.

Program Focal Area 3: Promote the Clean Development Mechanism as a Means to Engage the Private Sector in the Areas of Renewable Energy and Energy Efficiency

The UNF Clean Development Mechanism (CDM) Program aims to promote the CDM, or equivalent market-based mechanisms, as a means to engage the private sector in the areas of renewable energy and energy efficiency, with agreement and approval of host governments.

As an innovative, market-based mechanism of the Kyoto Protocol, the CDM can be used to certify reductions in GHG emissions accruing from sustainable development projects in developing countries for use by developed countries to meet part of their Kyoto commitments³⁰. The CDM offers a potential ‘win-win’ proposition by promoting the investment and transfer of sustainable energy technologies from developed to developing countries. There are, however, a number of outstanding issues related to operation of the CDM, including the determination of baselines, the certification process, and institutional structures.

The potential of CDM can only be realized in the context of a ratified international agreement that establishes a market value for certified reductions in GHG emissions. The UNF intends to further elaborate its strategic focus on the CDM Program, or equivalent market-based mechanisms, following the outcomes of the Sixth Session of the Conference of the Parties (COP 6) of the UNFCCC, which will be resumed in Bonn in July 2001.

At this stage, UNF initiatives will support capacity building activities for both the public and private sectors to demonstrate on-the-ground pilot CDM projects, or equivalent market-based mechanisms, in the areas of renewable energy and energy efficiency. These include the identification, formulation, implementation, and monitoring to certification of pilot CDM projects. Specifically, UNF funding intends to help

- identify pilot CDM project concepts that will meet both sustainable development objectives of the host government and investment interests from the private sector;
- support pre-feasibility studies and the development of selected CDM projects;
- facilitate implementation of selected CDM projects;
- conduct independent monitoring and quantify carbon reductions for these projects; and
- assist in the negotiation of certified reductions in GHG emissions through these projects.

³⁰ Jose Goldemberg, Overview in *Issues and Options: The Clean Development Mechanism*. UNDP, 1998.

Annex I. Program Framework Group Participants

Principal Agency Representatives

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| UNDESA | Jayarao Gururaja, Inter-regional Advisor, Energy and Transport Branch, DSD Kenneth Ruffing, Chief, Socio-Economic Policies, Finance and Technology Branch, DSD (retired) |
| UNDP | Thomas B. Johansson, Director, Energy and Atmosphere Programme, SEED/BPPS |
| UNEP | Mark Radka, Energy Programme Coordinator, Energy & Ozone Action Unit |
| UNIDO | Robert Williams, Officer-in-Charge, Kyoto Protocol Branch, Industrial Support and Environmental Sustainability Division |
| UNCTAD | John Cuddy, Director, Division for International Trade in Goods and Services and Commodities |
| UNESCO | Gisbert Glaser, Assistant Director-General, Natural Sciences Sector ³¹ |
| WMO | Michael Coughlan, Director of the World Climate Program |
| UNFCCC Secretariat | Janos Pasztor, Coordinator, Information, Outreach, and Administrative Services |
| GEF Secretariat | Alan Miller, Senior Environmental Specialist, Climate Change |
| World Bank | Charles Feinstein, Senior Environment Specialist, Environment Department |
| Pew Center for Global Climate Change Enda Tiers Monde Energy Programme | Lisa McNeilly, Director, International Programs ³² Youba Sokona, Deputy Executive Secretary |

Rapporteur

| | |
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| UNFCCC Secretariat | Janos Pasztor, Coordinator, Information, Outreach, and Administrative Services, with the assistance of Hannah Hoffman |
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Ex Officio

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|-------------------|--|
| UNF ³³ | Gary Nakarado, Program Officer Xiaodong Wang, Program Officer |
| UNFIP | Will Kennedy, Program Officer |

³¹ Mr. Glaser has appointed Mr. Tony Marjoram, UNISPAR Program Coordinator, Engineering and Technology Division, to represent him on behalf of UNESCO.

³² Ms. Lisa McNeilly served on the PFG through 4 October 2000.

³³ Gary Nakarado left UNF in January 2000, and Xiaodong Wang joined UNF in May 2000. Both contributed to the development of the UNF climate change program framework.