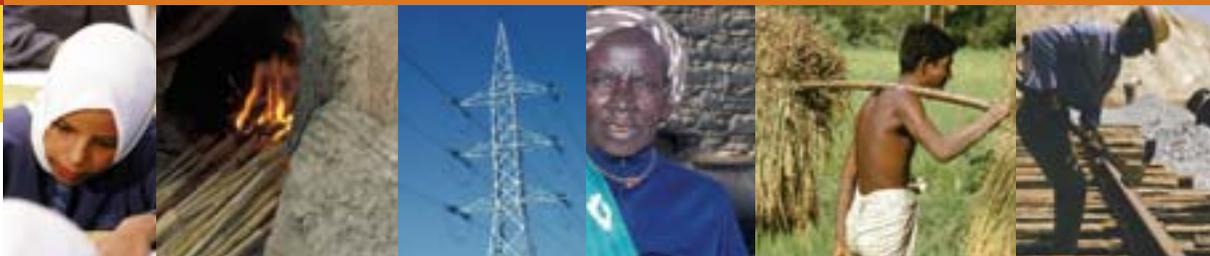


# ESMAP ANNUAL REPORT 2005



## ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAM



Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

# ENERGY

Copyright 2006  
The International Bank for Reconstruction and Development  
The World Bank Group  
ESMAP  
1818 H Street, N.W.  
Washington, DC 20433  
USA

First printing, June 2006

The findings, interpretations, and conclusions expressed in this report are entirely those of the authors and should not be attributed in any manner to the World Bank Group, to its affiliated organizations, or to members of its Board of Executive Directors or the countries they represent. The World Bank Group does not guarantee the accuracy of the data included in this publication and accepts no responsibility whatsoever for any consequence of their use. The boundaries, colors, denominations, and other information shown on any map in this volume do not imply on the part of the World Bank Group any judgment on the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this publication is copyrighted. Requests for permission to reproduce portions of it should be sent to the Office of the Publisher to the address in the copyright notice above. The World Bank Group and ESMAP encourage dissemination of their work and will normally give permission promptly and, when production is for noncommercial purposes, without asking a fee.

To obtain copies of this report, you may write directly to ESMAP at the address shown on the back of this report or by sending an electronic message to [esmap@worldbank.org](mailto:esmap@worldbank.org).

Photo Credits  
All photos from World Bank Group Photo Library and Marjorie Araya

Design  
Studio Grafik  
Editorial Support  
Grammarians, Inc.  
Production Coordination  
Marjorie K. Araya  
Printing  
District Creative, Inc

# CONTENTS

Preface .....	1
<b>Addressing Emerging Global Energy Challenges</b> .....	<b>3</b>
Responding to Energy Market Disruptions .....	3
Responding to the MDG Challenge .....	4
Responding to Climate Change Vulnerability .....	4
New Themes and New Implementation Models:	
The 2005–2007 Business Plan .....	5
<b>I. ESMAP at a Glance</b> .....	<b>7</b>
ESMAP’s Mission Statement .....	7
How ESMAP Pursues Its Mission .....	7
How ESMAP Delivers Services .....	7
<b>II. ESMAP 2005 Statistical Digest</b> .....	<b>9</b>
<b>III. The ESMAP Portfolio 2005</b> .....	<b>13</b>
Energy Security .....	13
Renewable Energy .....	19
Energy Poverty .....	24
Market Efficiency and Governance .....	31
Activities outside the Thematic Programs .....	35
<b>IV. Governance and Management</b> .....	<b>39</b>
The Consultative Group .....	39
The Technical Advisory Group (TAG) .....	39
The ESMAP Unit .....	39
Knowledge Dissemination, Products, and Services .....	42
<b>V. ESMAP 2005 Financial Review</b> .....	<b>45</b>
Contributions Received .....	45
Core and Thematic Funding .....	45
Project Funding .....	46
Disbursements .....	47
<b>ESMAP in the World 2005</b> .....	<b>48</b>
<b>Annex 1: Proceedings: Annual Meeting of the Joint Consultative Group for</b> <b>Energy Trust–Funded Programs, March 17–18, 2005,</b> <b>Washington, D.C.</b> .....	<b>50</b>
<b>Annex 2: Completed, Approved, and Ongoing Activities in 2005</b> .....	<b>60</b>
<b>Annex 3: Publications and Knowledge Dissemination Activities</b> .....	<b>68</b>
<b>Annex 4: List of Abbreviations and Acronyms</b> .....	<b>74</b>

# CONTENTS continued

## Figures

Figure 1a and 1b: Impact of High Oil Prices on GDP and Poverty.....	3
Figure 2.1: Historic ESMAP Portfolios: Project Numbers and Regional Structures .....	9
Figure 2.2: 2005 ESMAP Block Grants by Thematic Areas .....	10
Figure 2.3: ESMAP 2005 Portfolio— Activities by Thematic Area and Region .....	11
Figure 2.4: Historic ESMAP Activity Distribution by Regions .....	11
Figure 3.1: Crude Oil Prices 2002–2005 .....	13
Figure 5.1: ESMAP Receipts by Source.....	46

## Tables

Table 2.1: ESMAP Portfolio CY 2005 .....	9
Table 2.2: Decentralized Work Program Windows: 2005 Projects by Bank Teams.....	10
Table 3.1: Percentage Change in GDP Caused by a US\$10 a Barrel Rise in Oil Prices (grouped by income levels) .....	14
Table 4.1: Donors and Members of the Consultative Group, TAG and ESMAP Team .....	41
Table 5.1: ESMAP Receipts 2005.....	45
Table 5.2: Core and Thematic ESMAP Donor Contributions 2003–2005 .....	46
Table 5.3: Receipts by Type of Funding in 2004.....	46
Table 5.4: ESMAP Disbursements and Expenditures, 2003–2005 .....	47

## Boxes

Box 3.1: Policies to Cope with Higher Oil Prices.....	15
Box 3.2: UNF/ESMAP Three Country Energy Efficiency Project .....	18
Box 3.3: ESMAP Supports the Launch of the Forum of Africa Energy Ministers .....	19
Box 3.4: The Renewable Energy Toolkit.....	22
Box 3.5: Potential for Biofuels for Transport in Developing Countries .....	24
Box 3.6: Energy Guidelines for Living Standards Measurement Studies .....	26
Box 3.7: Assessing Demand and Electricity Benefits in Rural Peru .....	27
Box 3.7a: Linking Energy Poverty Issues in the PRSP to Debt Relief .....	29
Financing in Cameroon	
Box 3.8: Implementation of Small-Scale Energy Enterprise Program .....	30
Box 3.9: Determinants of Success for Private Participation in Power.....	33
Box 3.10: Strategies to Address Power Projects under Stress .....	34
Box 3.11: Yemen Energy and Gender Inequality .....	37



Mr. Jamal Saghir

# PREFACE

This year, the Energy Sector Management Assistance Program (ESMAP) began implementing its 2005-2007 Business Plan entitled Securing Energy Services for Poverty Reduction and Economic Growth. The core objective of the plan is to improve access to affordable, reliable, and environmentally sustainable energy services for the world's poorest people and countries. This annual report highlights the key achievements and products of ESMAP in 2005.

There are four core work areas in the 2005-2007 Business Plan: Energy Security and Energy Efficiency, Renewable Energy, Energy Poverty, and Market Efficiency and Governance. In the area of Energy Security, ESMAP continued to support rapid analysis of the impact of volatile and higher oil prices on the poor, as well as a variety of energy efficiency projects that have gained renewed importance as a pillar of energy security strategies. During this year, ESMAP launched the Renewable Energy Toolkit, a comprehensive and practical reference designed to bring up-to-date information to practitioners in developing countries, donors and World Bank staff preparing renewable energy projects. The flagship report, *The Potential for Biofuels for Transport in Developing Countries*, is a response to increasing requests from developing countries to assess the feasibility of domestic production of bio-ethanol and bio-diesel. Energy Poverty continues to be a central area of work for ESMAP and in 2005 the flagship publication, *The Urban Household Energy Transition*, shared experience from more than 40 cities worldwide on energy poverty challenges in urban and peri-urban areas. Finally, in the area of Market Efficiency and Governance, ESMAP partnered with private investors to analyze the causes and consequences of power project failures worldwide, leading to a report titled *Designing Strategies and Instruments to Address Power Projects under Stress Situations*.

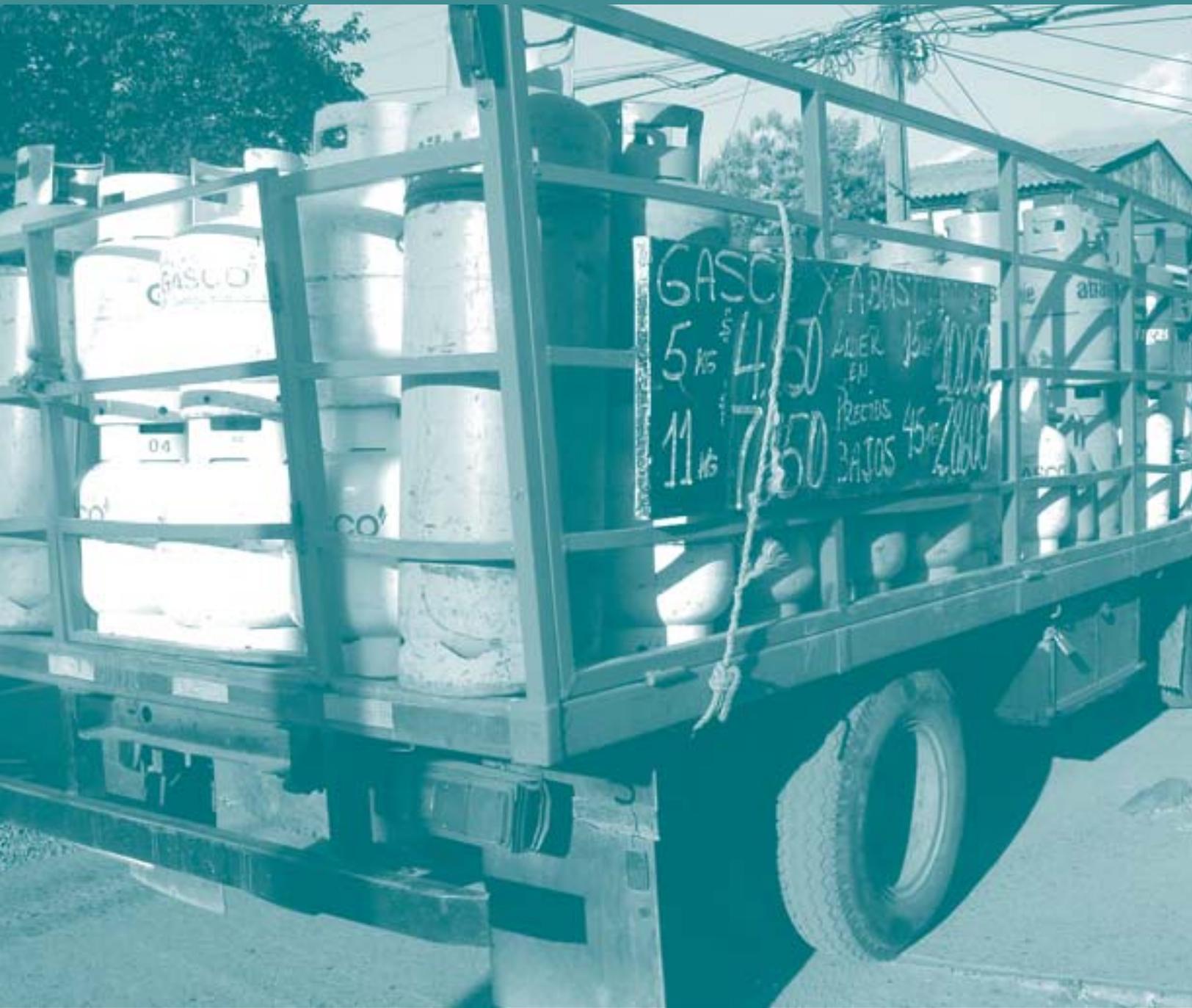
Three new programs were launched this year with the support of ESMAP and financial partners. First, a three-year program to unlock the potential of small and medium enterprises in the provision of energy services to the poor was designed in 13 countries in Africa, Asia and Latin America. Second, ESMAP supported the Global Village

Energy Partnership (GVEP) in its launch of the GAPFund project designed to support GVEP Partners in the implementation of innovative energy solutions for the poor in developing countries. Third, ESMAP, in collaboration with the Water and Sanitation Program (WSP) and the Development Marketplace organized a global competition for innovative solutions to provide energy, water and sanitation services to the poor. More than 2,500 proposals were received from 154 countries.

The ESMAP team is grateful that the implementation of the new Business Plan received increased support by donors. Financial commitments in 2005 were \$14.9 million, up from \$8.5 million in 2004. This allowed ESMAP to increase its portfolio of support activities to \$25.2 million in 2005 from \$20.3 million the year before.

In 2006, energy will continue to gain importance in the development agenda. The World Bank and other agencies are preparing an investment framework for clean energy and development responding to the request in the September 2005 Development Committee Communiqué and in the context of the G8 Gleneagles Communiqué on Climate Change, Clean Energy and Sustainable Development, and the Development Committee. The continued volatility of energy prices requires continued and innovative support to the least developed net oil-importing countries, particularly in the areas of energy efficiency and diversification of energy sources. The increasing level of official development assistance (ODA) presents an opportunity to respond more effectively to the enormous challenge of providing energy access to the poor and achieving the Millennium Development Goals linked to energy services. ESMAP recognizes the potential and is well positioned, in partnership with its funding donors, to provide support to partner countries in responding to these challenges and making a real difference in the lives of poor people.

Mr. Jamal Saghir  
Director  
Energy and Water



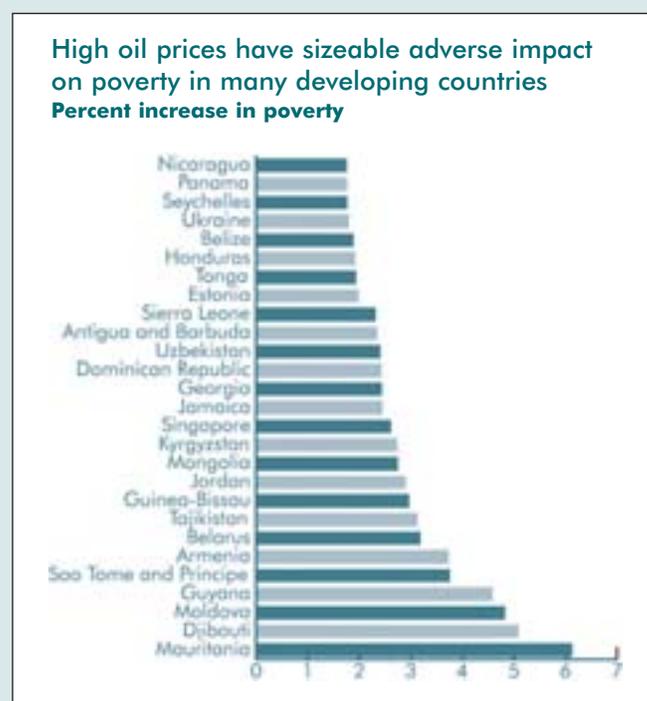
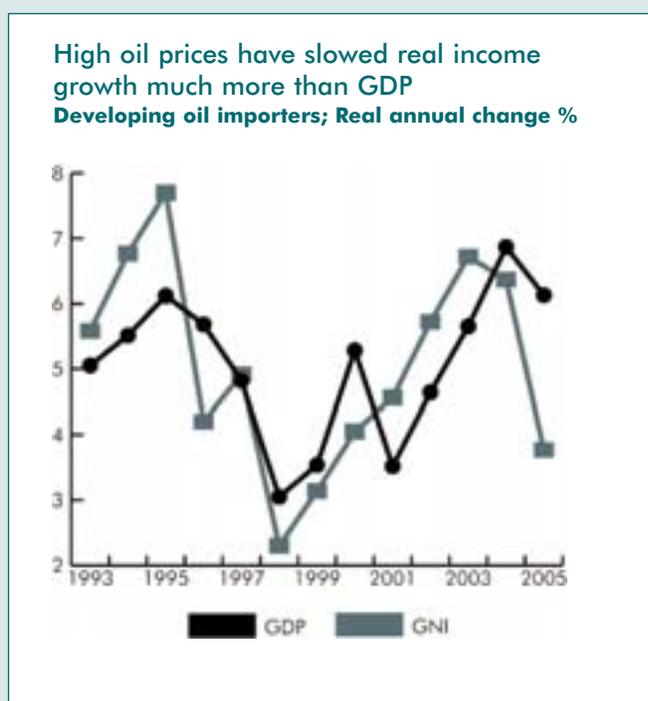
## Addressing Emerging Global Energy Challenges with New Business Models

The year 2005 has been a year of great challenges on the global energy scene. Continued increases in energy prices have exposed developing countries to energy market disruptions, while concerns mount about how climate change will affect sustainable development paths. The lack of progress of the world's poorest populations in reaping the benefits from global growth has drawn increased attention to the critical role of energy in achieving the Millennium Development Goals (MDGs). These ongoing and emerging global challenges underscore the relevance of the Energy Sector Management Assistance Programme's (ESMAP's) portfolio of activities focused on assisting developing countries to advance their energy resources and services to sustain economic growth and reduce poverty. ESMAP is adjusting to these global challenges with new organizational responses, as reflected in its new Business Plan for 2005–2007, entitled *Securing Energy Services for Poverty Reduction and Economic Growth*.

### Responding to Energy Market Disruptions

The world economy in 2005 demonstrated remarkable resilience, despite oil prices topping a record \$60 per barrel. World gross domestic product (GDP) growth was a robust 3.2 percent, although the price surge decelerated GDP growth of net oil importing countries (from 6.4 percent to 3.7 percent) and increased oil import bills to as much as 10 percent of GDP (compared to 5 percent in 2004). The main concern, however, is the impact on real incomes (Figure 1a), and therefore on poverty. The World Bank estimates that the number of people in poverty has risen by as much as 4–6 percent, with nearly 20 countries experiencing increases of more than 2 percent (Figure 1b). Several ESMAP projects have focused on better understanding the impacts of higher oil prices, particularly on low-income countries.

Figure 1a and 1b: Impact of High Oil Prices on GDP and Poverty



Source: S. Herrera *Oil Shock - Financing Growth, and Poverty Implications in Developing Countries* (March 2005)



Awareness of climate change as a development issue was reinforced by the July 2005 G-8 Summit at Gleneagles, Scotland, which called for energy policies that contribute to a low-carbon global economy. Implementing such a transition without jeopardizing economic growth and poverty reduction is a challenge being addressed by the World Bank.

The impact of oil price disruptions on the poor is alarming. The poor are most affected by higher prices—directly, through the increase in prices of kerosene and liquefied petroleum gas (LPG); and indirectly, through increases in consumer goods, electricity, and transport. Some surveys suggest that the poor may suffer twice as much as higher income groups. For the rural poor it may mean foregoing use of modern energy—kerosene for lighting or cooking, diesel for transport—and going back to traditional fuels and pedestrian transport. ESMAP's household surveys work to document best practices for protecting the poor against price and supply shocks which have contributed to efforts in finding policy solutions to short-term and long-term energy vulnerability.

### Responding to the MDG Challenge

ESMAP was one of the first programs to highlight linkages between energy and the Millennium Development Goals (MDGs), and through its 2002–2004 Business Plan, positioned its portfolio of activities to better align with the Goals. Advocacy work, dating back to the 2002 Sustainable Development Summit, helped redefine energy as a core development issue, but progress has been slower in delivering effectively-linked policies and programs.

ESMAP is a strong voice in the continuing dialogue on the role of energy in meeting the MDG challenge. ESMAP participates in the ongoing United Nations (UN) Millennium Project, and contributed to the September 2005 UN Summit, which reiterated the urgency of scaling-up energy intervention policies and programs focused on achieving the MDGs. ESMAP's contributions focused on defining sector policies that take into account the needs of the poor and identifying a range of technical and institutional options for effective energy intervention.

Implementation constraints are daunting, but a pattern of successful interventions is beginning to emerge. The energy poverty action plan in Cameroon, highlighted later in this Report, demonstrates the merits of integrating energy within poverty reduction strategies and linking them to official development assistance (ODA) and other development finance instruments. It also demonstrates the potential of effective on-the-ground collaboration amongst development partners. ESMAP is committed to solving the practical problems of implementation, and has increased efforts to quickly disseminate best practice as it emerges.

### Responding to Climate Change Vulnerability

The February 2005 ratification of the Kyoto Protocol marked the beginning of a new era to address climate change. Climate change comprises yet another challenge to meeting the MDG, as its impacts will likely be greater on developing countries in sensitive geographic and climatic conditions, those whose economies are mostly dependent on natural resources, and those which have the least capacity to adapt. For the rural poor, dependent on biomass for their basic energy needs and reliant on agriculture for their livelihood, increased natural disasters brought on by climate change represent added elements of vulnerability. Climate change may also increase the prevalence of diseases, including malaria and water or food borne diseases.

Awareness of climate change as a development issue was reinforced by the July 2005 G-8 Summit at Gleneagles, Scotland, which called for energy policies that contribute to a low-carbon global economy. Implementing such a transition without jeopardizing economic growth and poverty reduction is a challenge being addressed by the World Bank. In particular, and in response to the G-8's request, the World Bank is leading efforts to design a Clean Energy Investment Framework to be used by all development partners. This design, as well as a new Guidance Note on energy efficiency now being promulgated throughout the Bank, was informed by many years of ESMAP work on clean power generation technologies and energy efficiency. A description of ESMAP's 2005 work on energy efficiency and renewable energy can be found in Chapter 3.

### **New Themes and New Implementation Models: The 2005–2007 Business Plan**

The 2002–2004 Business Plan was anchored on three thematic areas: energy and poverty, emphasizing testing of new implementation approaches; market development, focused on pro-poor policies and market reforms; and energy and environment, especially the environment vulnerabilities of the poor (for example, indoor air pollution in rural areas and outdoor air pollution in urban areas). A first step in preparing the 2005–2007 ESMAP Business Plan was taking stock of results, including achievements and gaps in the portfolio. This review showed significant progress in: cross-sectoral approaches linking energy to other critical sectors (water, education, health, and agriculture); rural electrification; clean energy (renewable energy, energy efficiency, and indoor air pollution); urban air quality; and work on analytical methodologies, including leveraging ESMAP's analytical work through application in Bank policy implementation and investments. Less significant progress was achieved in the areas of energy services for the peri-urban poor, regulatory frameworks for decentralized energy services, design of effective public-private partnerships, and measuring the development impact of providing modern energy services.

ESMAP's 2005–2007 Business Plan builds on the lessons from previous years while taking into account emerging global energy challenges. Thematic areas have been retained to structure the portfolio. Work will continue on *energy poverty*, focused on pursuing ongoing rural energy activities and scaling up efforts developing energy interventions for the peri-urban and urban poor, and *market efficiency and governance*, intended to improve the efficiency of energy markets through effective public-private partnerships and pro-poor market reforms. Two new themes were introduced: *energy security*, in response to the dual challenges of increased price volatility and vulnerability to supply disruptions, and *renewable energy*, as a central strategy in shifting to a low-carbon global economy.

In implementing this new business plan, ESMAP will undertake operational changes that leverage the resources and results of the program through policy changes and investments at the regional level. A substantial part of the program implementation is now being contracted to the regional operational units in the World Bank through structured regional grants organized around the four ESMAP thematic areas. The balance of the resources will be applied for cross-cutting activities that will continue to be managed by ESMAP staff, for example, *cutting-edge analytical work on global issues, knowledge dissemination, and leveraging operational activities*.



The Energy Sector Management Assistance Program (ESMAP) is a global, multi-donor technical assistance program aimed at promoting energy solutions for poverty reduction and economic growth in an environmentally responsible manner. ESMAP recognizes that access to affordable and reliable energy services is indispensable in achieving the Millennium Development Goals.

- ESMAP provides policy advice and helps build consensus on sustainable energy development in developing countries and economies in transition with governments, development partners, and the private sector.
- ESMAP undertakes cutting-edge analytical work on sector issues, contributes to the transfer of knowledge among sector stakeholders, and pioneers implementation and financing mechanisms for the delivery of sustainable energy services.
- ESMAP was established in 1983 and is managed by the Energy and Water Department (EWD) of the World Bank; it is governed by a consultative group of donors which meets annually.

## ESMAP'S Mission Statement

ESMAP promotes the role of energy in poverty reduction and economic growth with redistribution in an environmentally responsible manner. Its work applies to low-income, emerging, and transition economies and directly contributes to achieving the MDGs.

## How ESMAP Pursues Its Mission

ESMAP pursues its mission based on a Business Plan that is updated every three years. The ESMAP Business Plan for 2005-2007 is structured around four thematic areas:

- Energy security
- Renewable energy
- Energy poverty
- Market efficiency and governance.

The core objective of the current business plan remains the same as the two previous ones: promote and secure access to energy for poverty reduction and economic growth. The nexus of linkages that have formed the ESMAP strategy since inception—energy and poverty, environmentally sustainable development, private sector participation, and market efficiency—remain valid. However, the new business plan adds new activities focused on energy security and concentrated on the social dimension of each thematic area, especially the lowest income groups and the gender dimension.

ESMAP's mandate and products have evolved over time to meet the changing needs of its clients. ESMAP has operated in more than 100 countries through more than 600 activities since its inception. The ESMAP program continues to evolve in response to changing conditions and client's needs. Beginning this year, ESMAP operations will undergo a major transformation as project implementation will be partially devolved to the Bank's regional operational organizations via a series of thematic block grants. During the transitional period 2005–2007, ESMAP will continue to directly manage activities that fall outside of the four main thematic areas. These activities include legacy projects, research on new ideas and concepts (for example, gender activities), and cross-cutting work including advanced analytical work on global issues, knowledge dissemination, and leveraging of operational activities.

## How ESMAP Delivers Services

ESMAP-financed activities are led by World Bank Group staff in partnership with international, national, regional, and/or local organizations. International and local consultants are extensively used. Procurement is governed by World Bank guidelines. More information about procurement arrangements and consultancy opportunities is available on the ESMAP Web site.



ESMAP funded 174 projects in calendar year 2005, an increase of 14 percent over the 153 projects funded the previous year. ESMAP's portfolio of projects under implementation decreased slightly (from 96 to 90) while increasing in value (from US\$20.3 million to US\$25.17 million).

During 2005, 30 new activities worth more than US\$10.45 million were launched. This represented a small decrease in the number of new activities, but a sharp increase in value from 2004 (in 2004, 39 activities were launched with a value of US\$4.8 million). Another 32 activities worth US\$6.3 million closed during the period. The net result was a slight decrease in the number of projects under implementation, along with a significant increase in the total value of the portfolio. Table 2.1 provides statistics for the portfolio as of 2005, while Figure 2.1 provides a historic trend of ESMAP activities.

**Table 2.1: ESMAP Portfolio CY 2005**

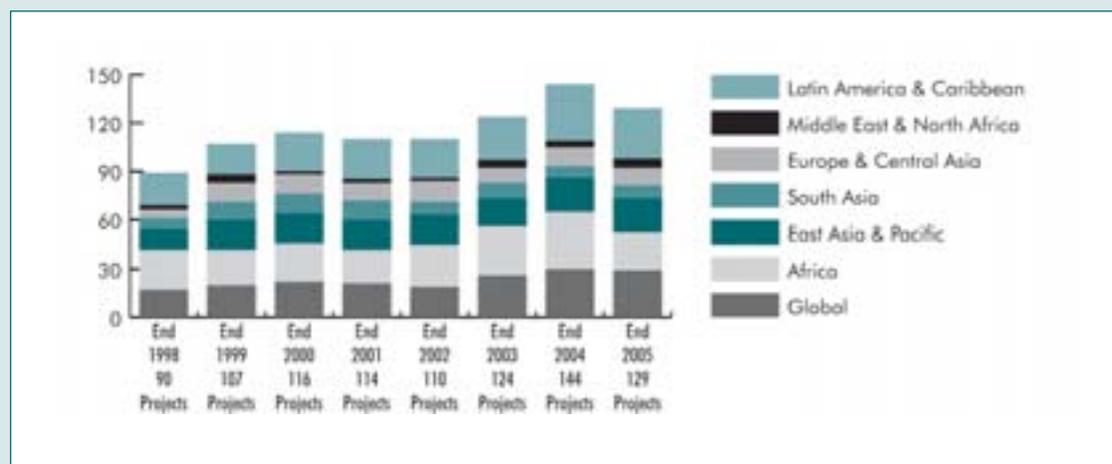
Portfolio as of January 1, 2005	Number	Value (US\$ million)
		144
Projects completed, with publications in process	48	12.4
<b>Projects under implementation</b>	96	20.3
New projects launched/funded during 2005	30	\$10.45*
Block grants**	7	5.28
Projects closed and published during 2005	(45)	(\$8.85)
Financially closed	(32)	(\$6.29)
To be financially closed	(13)	(\$2.56)
Portfolio as of Dec. 31, 2005	129	\$34.29
Projects completed, with publications in process	39	\$9.12
<b>Projects under implementation as of 12/31/05</b>	90	\$25.17

Source: ESMAP project database and regional block grant agreements, 2005.

Note: \* This figure includes two programs. One is the small and medium enterprises (SME) (Decentralized Energy Services for International Development Association [IDA] Countries) program worth US\$1.15 million and the other is the Global Village Energy Partnership (GVEP) program worth US\$1.6 million. Each of these programs is counted as a single project and each has many subprojects.

\*\* Each block grant also is counted as a single project and there are many subprojects detailed in Table 2.2.

**Figure 2.1: Historic ESMAP Portfolios: Project Numbers and Regional Structures**



Source: ESMAP database.

Factors affecting the dramatic growth and rearrangement of the 2005 portfolio included:

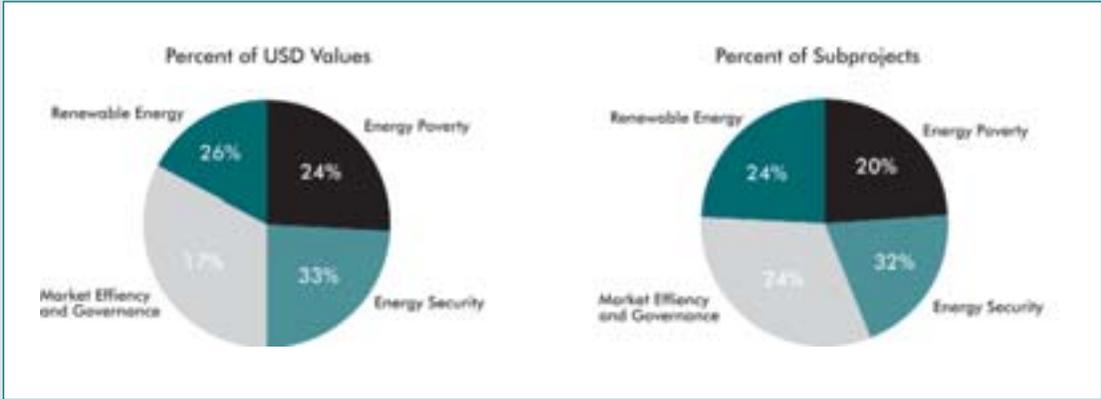
- Increased donor contributions: ESMAP received a significant increase in donor contributions in 2005—US\$14.9 million, a 57 percent increase from US\$8.5 million in calendar year (CY) 2004. With this increased donor support ESMAP was able to support 30 new activities with a total financial allocation of US\$10.45 million in 2005.
- Regional block agreements: The ESMAP portfolio reflects a major change in project selection method, as described in ESMAP’s 2005–2007 Business Plan. Instead of a call-for-proposal, ESMAP contracted with the Bank’s energy teams to serve these clients’ needs more directly and better align with their priorities. Under these contracts, ESMAP supports seven block grant projects with a funding value of US\$5.28 million as of Dec. 31, 2005 (Table 2.2). The thematic, regional, and sector information of subprojects is presented in Table 2.2 and Figure 2.2.

**Table 2.2: Decentralized Work Program Program Windows: 2005 Projects by Bank Teams**

	Subprojects	Values (US\$ millions)
Oil & Petroleum (COPCO)	14	0.88
Latin America & Caribbean (LAC)	16	0.72
South Asia (SAR)	8	0.60
Africa (AFR)	15	1.00
East Asia & Pacific (EAP)	27	0.95
Eastern Europe & Central Asia (ECA)	2	0.47
Middle East & North Africa (MENA)	9	0.67
Total	91	5.28

Source: ESMAP project database and regional block grant agreements, 2005.  
 For the thematic areas, energy poverty has the largest share, accounting for 38 percent of the total 2005 ESMAP activities in portfolio (Figure 2.3). Market efficiency and governance, as well as energy security, have the second and third largest share.

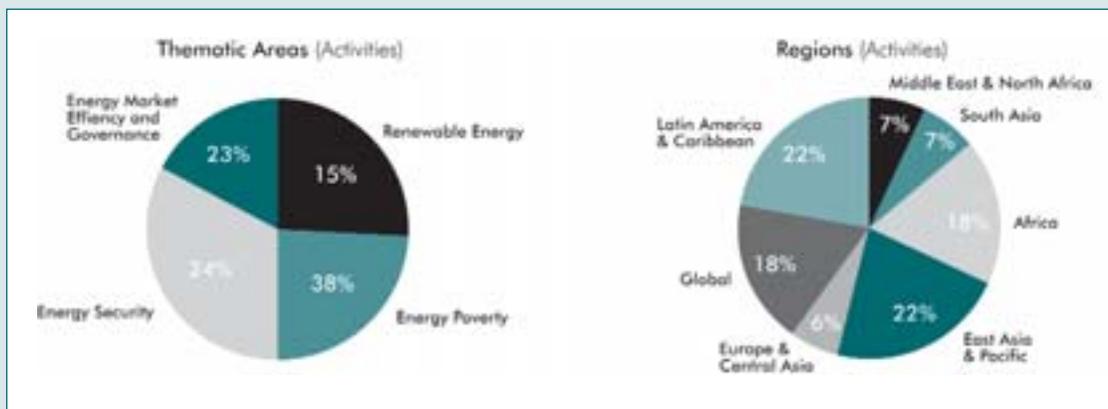
**Figure 2.2: 2005 ESMAP Block Grants by Thematic Areas**



Source: Regional block grant agreements, 2005.

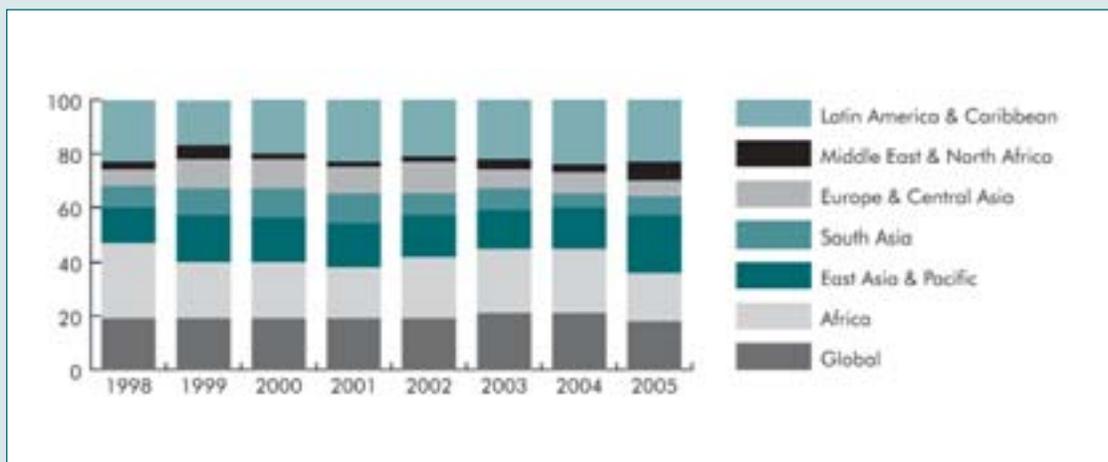
With regards to the geographical breakdown of the portfolio (Figure 2.3), ESMAP activities are distributed relatively evenly between East Asia, Africa, Latin America and Caribbean, and the global. Projects in these regions account for 80 percent of the total ESMAP on-going subprojects in 2005. Also in 2005, East Asia for the first time exceeded Africa and has become one of the two largest beneficiary regions of ESMAP activities in 2005 after Latin America and the Caribbean. Activities in East Europe have continued to decline (Figure 2.4).

**Figure 2.3: ESMAP 2005 Portfolio—Activities by Thematic Area and Region**



Source: Regional block grant agreements, 2005. [Q: add legend to figure 2.3 with spellouts of abbreviations]

**Figure 2.4: Historic ESMAP Activity Distribution by Regions**



Source: ESMAP project database and regional block grant agreements, 2005.



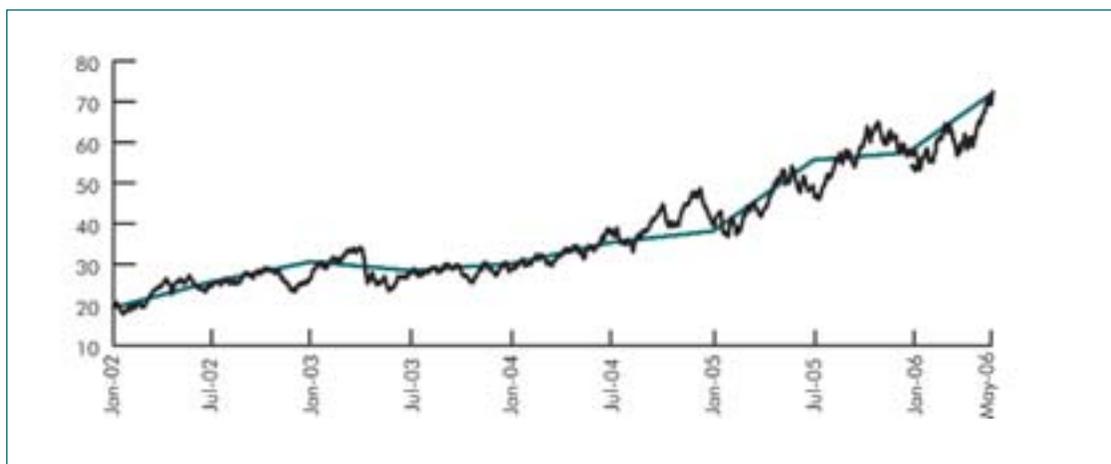
# III. THE ESMAP PORTFOLIO 2005

ESMAP's 2005 portfolio included a myriad of activities spanning the four thematic areas (energy security, renewable energy, energy poverty, and market efficiency and governance) plus two ongoing special topic areas (gender equity in energy development and energy-environment). ESMAP supported analytic research; operational project support; technical assistance; report preparation; development and implementation of strategic global partnerships; country-level and regional capacity building; policy and legislative development; and many other activities. This section provides detailed descriptions of the ESMAP activities and results during 2005.

## Energy Security

Oil prices have more than doubled since last year's annual report, and have quadrupled in just four years (Figure 3.1). These rapid increases, together with increased frequency of supply disruptions, have made energy security a priority for policy makers in both developing and industrialized countries. In the short run, high and volatile prices are a risk to economic growth and directly and indirectly impact poor people. A longer-term concern is the global economy's ability to obtain the high-quality and reasonably priced energy supplies necessary to sustain growth, eradicate poverty, and ensure quality of life.

Figure 3.1: Crude Oil Prices 2002–2005



Source: Datastream, World Bank.

ESMAP has adopted a fairly simple definition to guide portfolio development in this new area: energy security is *the ability to balance the supply and demand for reliable, sustainable, and affordable energy supplies and services*. This definition has macroeconomic relevance, relating to a given country's ability to optimize its energy supply portfolio (production or trade), manage vulnerability to energy market disruptions, and address balance of payment and fiscal issues associated with absorbing market disruptions while protecting the poor. For the long-term, countries must also be able to attract investments into the development of their domestic energy resources and services, improve balance of payment by increasing energy exports or reducing energy imports, and minimize vulnerability to supply disruptions and environmental degradation from energy production and use. These objectives of reliability, environmental sustainability, and affordability are all critical elements of a country's energy security policy.

ESMAP's work on energy security will assist developing countries in designing short-term and long-term strategies and policies that secure energy supplies and services, sustain growth, reduce poverty, and achieve the Millennium Development Goal. ESMAP's 2005 efforts built on the work initiated in 2004, and were organized according to the following issues and areas of need:

- The impact of oil price volatility, particularly on the poorest countries and on the poor;
- Policy options and mitigation measures to help developing countries respond to recent price shocks;
- Developing energy efficiency as a “win-win” option for sustainable energy security; and
- Developing operational strategies, including replicable country strategies, for coping with price and supply disruptions, developing more diverse and less vulnerable energy supply portfolios, and optimizing the contributions of specific sub-sectors and resources, particularly gas.

Taking into account activities initiated in previous years, the 2005 portfolio of activities under the energy security thematic area included 29 projects, with total ESMAP allocations of US\$7.8 million, of which 60 percent were for energy efficiency.

With respect to *the impact of oil price volatility on the poorest countries and on the poor*, ESMAP undertook two studies. The first study, “The Impact of Higher Oil Prices on Low Income Countries and on the Poor” (ESMAP Report 299/05), documented the significant macroeconomic impact of sustained high prices (Table 3.1 below). A second study, “The Vulnerability of African Countries to Oil Price Shocks: Major Factors and Policy Options” (ESMAP Report 308/05), documented the significant GDP loss to net oil importing countries of the 2003–2005 oil price increases.

**Table 3.1: Percentage Change in GDP Caused by a US\$10 a Barrel Rise in Oil Prices (grouped by income levels)**

Per capita income (1999–2001 US\$)	% change in GDP
Net Oil Importers	
< 300 (18 countries)	-1.47
> 300 and < 900 (22)	-0.76
> 900 and < 9000 (36)	-0.56
> 9000 (21)	-0.44
Net Oil Exporters	
< 900 (10)	+5.21
> 900 and < 9000 (17)	+4.16
> 9000 (7)	+1.50

ESMAP undertook follow-up work to begin developing *policy options and mitigation measures to respond to price shocks*. The first phase of this work focused on the short-term response, and the findings are summarized in Box 3.1. The second phase, reviewing longer-term policy options, is under way with a full report to be published in 2006.

*Developing energy efficiency as a “win-win” option* in both the supply and use of energy is often the most cost effective and lowest-risk approach to increasing effective energy supply. Energy efficiency also contributes to economic competitiveness and delivers significant environmental benefits (for example, reduced greenhouse gas emissions and local air pollution). Energy efficiency is an

attractive option to enhance energy security in both developing and industrialized nations and, by reducing energy costs through better management and improved technologies, can also contribute to the MDGs by providing better quality and more affordable energy services to households, enterprises, schools, health clinics, and transport.

### Box 3.1: Policies to Cope with Higher Oil Prices

The world oil price doubled between January 2004 and August 2005. Especially hard hit were countries providing subsidized domestic fuel prices. This study assesses possible policy options to mitigate the adverse impact of higher oil prices—price-based, quantity-based, supply cost reduction, energy diversification, social safety-net schemes, and winning public buy-in for subsidy phase-down—and reviews government responses in the last two years in the light of these policy options.

A number of governments, including some reformist economies, have responded by re-introducing price controls. Some did so on the incorrect assumption that the price rise of early 2004 would be short-lived. The cost of price controls has run as high as \$9 billion a year. A number of governments financed price subsidies out of the national budget. Some oil producers squeezed the margins of oil companies by means of export taxes, price controls, and political pressure, essentially forcing upstream operations to cross-subsidize downstream. Some governments mandated energy conservation measures for government agencies.

Government budget						
Country	China	Egypt	India	Indonesia	Malaysia	Morocco
Billion US	\$1.2	7.2	0.8	9.9	1.4	0.4
Year	2005	FY06	FY06	2005	2004	2004
Oil companies (example costs)						
Country	Argentina	Brazil	India	Nigeria		
Billion US\$	0.2	0.84	8.9	0.1		
Time period	Jan 03-Apr 04	Jan-Jul 05	FY06	Jul 2005		
Oil stabilization fund						
Country	Chile	Thailand				
Billion US\$	0.2	2.2				
Source	Copper fund	Bonds and bank loans				
Tax reductions, exemptions						
Many Countries						

A number of governments introduced social programs specifically to offset higher fuel prices, while several opted to provide cash transfer to the poor. Others implemented compensation schemes in sectors outside of oil, such as education, health, and transport. Whether higher fuel prices and subsidy phase-out were accepted by the public depended on implementation. Important success factors include the timing of the price increase; the nature of public information campaigns; the credibility of any compensation schemes; and the perceived legitimacy, popularity, and credibility of the government. Those with a poor track record of social service delivery have encountered greater opposition than those who are seen to have a credible program to help the vulnerable.

Contributed by Masami Kojima, Lead Energy Specialist, COCPO. The World Bank Group.



ESMAP has been engaged in energy efficiency work since inception, although primarily as a means to address global climate change and local air pollution. However, continued increases in the level and volatility of oil prices, and pressure on governments to design new policies enhancing energy security, has elevated interest in energy efficiency. Accordingly, energy efficiency is identified as a prominent sub-theme of the 2005–2007 Business Plan, consistent with the broad-based commitments made at the 2004 Bonn Conference on Renewable Energies and Energy Efficiency and the G-8 commitments made at the 2005 Gleneagles Summit.<sup>1</sup>

During FY05, ESMAP had an active portfolio of 16 projects on energy efficiency, with total commitments of US\$4.7 million, focused on generating knowledge and experience in regard to energy efficiency programs.

A primer on demand side management (DSM) is being prepared under the project “Win-Win DSM Options in Developing Countries” (ESMAP Activity P090271). It looks at strengths and weaknesses of utility DSM programs in the past—both World Bank Group (WBG) funded programs in Kenya, Thailand, Vietnam, and Brazil and also non-Bank DSM programs such as in Tunisia, India, Hungary, and Dominican Republic, with the objective of identifying workable models of sustainable programs and financing structures. The project “Demand Side Management in a Restructured Utility in China” (ESMAP Activity P082790, ESMAP Formal Report 314/05) has had a major impact in helping to mitigate power shortages. DSM in the power industry has now been formally made a priority of the government, to be followed both by utilities and the consumers. Further work on pricing policies is being undertaken to promote energy efficiency.

Several knowledge dissemination activities were carried out, in particular the *Regional Workshop on Energy Efficiency in Casablanca*, with participants from five Mediterranean basin countries (Algeria, Egypt, Lebanon, Morocco, and Tunisia), as well as Cameroon, Malaysia, and Senegal. The workshop provided opportunities to explore effective partnerships between the public sector (central and municipal governments, energy efficiency agencies) and the private sector, such as the Association of Industries from the Izdihar Industrial Zone of Casablanca. As a result of these efforts, improvements have taken place in the implementation of the Global Environment Facility (GEF) funded project to improve energy efficiency in industries in Morocco. Cameroon has subsequently approached the European Union (EU) for an assistance program on energy efficiency.

Most countries with high energy intensities, and high potential for energy efficiency improvements, also have strong public sector institutions and an emerging and technically competent private sector. However, perceived risks associated with energy efficiency projects and lack of an enabling policy and regulatory environment continue to constrain energy efficiency market growth. Various activities under

<sup>1</sup> The WBG committed to a target of at least 20 percent average growth annually in both renewable energy and energy efficiency lending over the next five years. In partial response to the Gleneagles Summit, the World Bank has undertaken the design of an “investment Framework for Clean Energy and Sustainable Development.”

During FY05, ESMAP had an active portfolio of 16 projects on energy efficiency, with total commitments of US\$4.7 million

ESMAP have addressed these barriers and developed replicable solutions. The ongoing effort entitled “Developing Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China, and India” (ESMAP Activity P073016), jointly implemented by World Bank staff and the United Nations Environment Programme (UNEP), has set out to win over prospective domestic financial institutions, particularly local banks, to substantially increase the level of financing for energy efficiency projects (see Box 3.2).

*Developing operational strategies for coping with supply and price disruptions and diversifying the energy supply portfolio* are the last sub-thematic activities supporting ESMAP’s energy security objectives. An “Implementation Strategy for China’s Energy Security Objectives” (ESMAP Activity P093919) was prepared in 2005, the result of a collaborative effort between the Chinese authorities (Development Research Center of the State Council of China), the World Bank, and ESMAP. The report reviews China’s options in meeting its energy demand growth over the next 15 years and argues for more coordinated policies, stronger sector management institutions, and more focus on results. Sustainability of energy supply and use is at the core of the discussion, so that China can achieve its stated objectives of reducing the energy intensity of its economy, making greater use of domestic resources, safeguarding the environment, and lessening its vulnerability to major market disruptions.

As regards *diversifying the energy supply portfolio*, ESMAP undertook significant work to assist countries in developing their gas strategies (Colombia, Turkey) as a means to enhance their overall energy supply security. In Peru, the project “Extending the Use of Domestic Gas Resources to Inland Provinces” (ESMAP Activity P087433) looked at options for optimizing the use of domestic resources to bring modern energy to smaller cities. The outcome of this work constituted the basis for three concessions for gas transport and distribution bid out by the government. The “Southern Gas Integration” project (ESMAP Activity P097369) covering seven Latin America countries has already helped develop the “Agreement for the Development of the Southern Gas Pipeline Network,” which will facilitate physical integration of the South American natural gas network and ensure free transit of natural gas.

During 2005, ESMAP also worked to encourage formulation of regional energy strategies in response to energy security and other issues. ESMAP supported the launch of the Forum of Energy Ministers in Africa Energy Ministers (FEMA), which represents an important voice on African energy issues (see Box 3.3).

ESMAP will continue to scale-up its program on energy security in 2006. The focus of analytical work will be on long-term strategies to lessen the vulnerability of the poor and of poor countries to market disruptions, including building capacity for energy sector strategic planning. The energy efficiency and supply portfolio diversification challenge will be to assist practitioners in designing and implementing larger scale programs that both improve the countries’ overall energy intensity and contribute to a shift toward a low-carbon economy that doesn’t jeopardize economic growth and poverty reduction.



### Box 3.2: UNF/ESMAP Three Country Energy Efficiency Project

“Developing Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China, and India” is a project supported by ESMAP, the United Nations Foundation (UNF), and the United Kingdom’s Department for International Development UK (DFID)/Asia Alternative Energy Program (ASTAE), and is jointly implemented by the World Bank and UNEP. The project was conceived as a framework to help generate new ideas and has become a forum for ongoing knowledge exchange between bankers and energy efficiency practitioners within and between the three participating countries (Brazil, China, and India). In 2005, efforts to develop new energy efficiency loan programs for small and medium-sized enterprises (SMEs) continued, a new, pilot energy efficiency loan guarantee scheme by the Brazilian Development Bank (BNDES) was developed for 2006 implementation, and a new energy efficiency World Bank loan concept was developed for China.

Knowledge exchange under the project umbrella takes place via informal “core groups” of energy efficiency (EE) practitioners and financial sector representatives in each country. Early on in the project, meetings of these groups seemed like two completely different worlds, with energy efficiency experts expressing their frustrations in obtaining loan financing for technically proven, financially attractive projects and commercial bank representatives explaining the driving force of customer creditworthiness and their limited interest in project finance loan structures for small projects.

The China core group persevered in trying to develop several energy efficiency loans through banks represented in the core group, until the government signaled that it would be willing to consider some form of World Bank lending to support relatively large energy efficiency projects in industry. The China core group then moved on to develop specific concepts based on the contacts and increasing mutual understanding developed during the previous two years. Proposals were written, argued, and revised.

The new loan package includes about US\$200 million in International Bank for Reconstruction and Development (IBRD) funds, to be on-lent to Chinese banks to support new programs of commercially based energy efficiency loans. Differing from most previous EE on-lending projects, the project developed by the China core group will develop sustainable energy efficiency lending businesses in these and other Chinese banks. The banks are fully in charge of project identification, appraisal, credit review, term development, risk management, and loan approvals. Technical assistance will be provided with GEF support. The associated GEF project has already been approved by the GEF for pipeline entry, and both the government and the Bank expect this project to be included in early 2006 in the official IBRD lending program, aiming for calendar year 2007 loan approval.

Further details on this and many other activities and lessons learned from the Three Country EE Project will be available by the summer of 2006, in a series of major final project reports on lessons learned in energy efficiency investment financing and recommendations going forward.

Contributed by Robert P. Taylor, Lead Energy Specialist (EASEG) and Jeremy Levin, Consultant (SASES). The World Bank Group.

### Box 3.3: ESMAP Supports the Launch of the Forum of Africa Energy Ministers

The Forum of Energy Ministers of Africa (FEMA) began with an initiative by the Minister of Energy and Minerals Development of Uganda to use the occasion of the World Bank's Spring 2005 Meeting as an opportunity to convene a forum of her colleagues to discuss African energy issues. The World Bank and ESMAP provided logistical and financial support for this informal forum, with the objective of:

- Defining a coordinated position on energy issues
- Sharing experience and knowledge
- Developing a common approach for discussions with development partners
- Raising the profile of energy on the development agenda
- Mobilizing financial resources for national and regional energy projects.

At a follow-up meeting held in Kampala, African energy ministers and senior officials from 17 net-oil importing countries agreed to formally constitute FEMA. The participants agreed upon the need for scaling-up development of energy supplies and services to support the economic growth of the continent and achieve the MDGs. The ministers also exchanged views on the effects of increased oil prices on African countries with scarce foreign exchange reserves. They stressed the need to diversify their energy supply base, particularly indigenous hydropower potential, geothermal resources, and other renewable energy sources. Other themes included environmental responsibility; creating transparent legal and regulatory frameworks; keeping monopolies to a minimum; training on science and technology; harmonizing fiscal and regulatory measures; controlling atomic/nuclear substances to avoid terrorism; and taking advantage of regional opportunities to rationalize investments, create economies of scale and attract investors; and make greater use of risk mitigation instruments.

Contributed by Dominique Lallement, Energy Adviser, ESMAP. The World Bank Group.

### Renewable Energy

The 2004 Bonn Conference confirmed the commitments of global leaders from governments, industry, the private sector, financial institutions, nongovernmental organizations (NGOs), and multilateral organizations to scale up the development of renewable energy resources.<sup>2</sup> The rationale for investing in renewable energy toward meeting the MDGs—from economic, social, environmental, and energy security perspectives—was further highlighted as part of the G-8 debate on climate change at Gleneagles. For many developing countries, the development of their renewable energy resources is seen as a means to provide a wider range of energy solutions to meet the needs of their economies, of their enterprises, and of populations whose current access to modern energy services is limited.

<sup>2</sup> The WBG committed to a target of at least 20 percent average growth annually in both renewable energy and energy efficiency lending over the next five years.

The ESMAP program has been instrumental for many years in promoting renewable energy by providing countries with technical assistance on policy analysis, developing sub-sector strategies, and exploring innovative solutions for overcoming barriers and developing renewable energy markets. The 2005–2007 Business Plan retains renewable energy as one of four core thematic areas.

In 2005, ESMAP had a portfolio of 16 projects with US\$2.3 million of commitments that focused on four main areas:

- Policies and regulatory frameworks for renewable energy development
- Knowledge sharing and management
- Investment strategies and opportunities for renewable energy
- Strategies for assessing and utilizing indigenous renewable energy sources

One important lesson drawn from previous activities is the need to fully integrate renewable energy resources within national institutional policy and regulatory frameworks, including sector, supply portfolio, and electric resource planning. The fragmentation of responsibilities amongst institutions responsible for fossil fuels, power, and renewable energy often leads to conflicting policies and directives preventing the integrated development of all resources. Many of these issues were taken up during the Bonn Conference, with the concept of a “global policy network” emerging as a way to bring stakeholders together to address policies and measures for scaling-up renewable energy, including capacity building, conditions for technology transfer, research and development, and financing. The World Bank together with ESMAP agreed to investigate the potential for such a network, and the results, “Renewable Energy and Energy Efficiency Financing and Policy Network: Options Study and Proceedings of the International Forum” (ESMAP Activity P087930, ESMAP Formal Report 303/05), presented at Energy Week 2005, were that the several partnerships already launched, including REN21,<sup>3</sup> were sufficient to provide both knowledge exchange and policy harmonization. The report also stressed that more political commitment at the country level was needed to accelerate renewable energy development and set in place the necessary policies for stimulating market development.

Another follow-up to the Bonn Conference was collaboration between ESMAP, the Government of Mexico, the Global Environment Facility (GEF), the World Bank, and the Global Wind Energy Council (GWEC) to plan the Grid-Connected Renewable Energy Policy Forum for February 2006. The forum will facilitate increased use of on-grid renewable energy in the developing world by providing a platform for policy makers, regulators, investors, financiers, industry, and utilities to share experiences, exchange information, and trade lessons learned in grid-connected renewable energy policy formulation and adoption. Country representatives and other participants will have the opportunity to discuss on-going and planned activities and explore opportunities for collaboration.

Additional work is under way on regulatory issues for off-grid power development. The body of knowledge on off-grid electrification is still limited, although an increasing number of countries have set up rural energy funds or are designing concessions that include the possibility of off-grid solutions. ESMAP’s work in Latin America has benefited the implementation of rural electrification projects in Bolivia, where transparency in the terms and conditions for bidding out concessions resulted in many more service delivery providers stepping forward than was anticipated. These results were presented at an ESMAP Knowledge Exchange Event in December 2005 (see Annex 3).

---

<sup>3</sup> REN21: Renewable Energy Network for the 21st Century was established after the Bonn Conference to facilitate coordination amongst partnerships and pursue the agenda set out in the conclusions to the Bonn Conference.



The flagship renewable energy activity in 2005 was the “Renewable Energy Toolkit Needs Assessment” (ESMAP Activity P085219, ESMAP Technical Report 077/05). The toolkit is operationally oriented and designed to assist staff by providing specific guidance, case studies, lessons learned, and sample documents on various design features of renewable energy projects (see Box 3.4). It builds on past experience to make available rapidly scalable technology configurations and business models based on more than a decade of project and planning experience. The grid-connected and stand-alone modules were presented at Energy Week 2005. This current work underscores the fact that renewable energy systems, especially hydropower and geothermal, can be the least cost option for grid-connected power in locations where renewable energy resources are plentiful and the energy demand is high. For off-grid applications, mini-grid and stand-alone renewable energy systems can be a cost-effective alternative to grid-based rural electrification, which is often too costly for sparsely populated and remote areas. The toolkit Web site will be available online by March 2006.

### Box 3.4: The Renewable Energy Toolkit

#### What Can REToolKit Do for You?

REToolKit provides necessary tools to assist World Bank task managers and country counterparts in improving their design and implementation of renewable energy (RE) projects.

REToolKit builds upon the best practices and lessons learned that have emerged from past and ongoing renewable energy projects supported by the WBG and others. It is operationally oriented to address needs at each stage in the project cycle.

REToolKit helps task managers to:

- Identify RE projects that might be appropriate and feasible
- Determine the country policies that might best support project development;
- Identify business models that promote local project implementation;
- Evaluate financing mechanisms for the projects; and
- Ensure that the best available technical standards and supporting documents are utilized in the design and implementation of the project.

#### What Does REToolKit Contain?

REToolKit contains five modules:

Three RE system types (grid-connected, mini-grid, and stand-alone), guidance on key aspects of project design and implementation, policy and regulatory options, sustainable business models and financing mechanisms, and technology issues.

- RE rationale: supporting materials to convince decision makers of the importance of renewable energy, such as economic viability and cost-effectiveness.
- Project cycle: steps and tools needed at each stage of project cycle, for example, working with GEF and carbon finance.
- REToolKit also provides specific tools:
  - Case studies, with analysis of success factors and lessons learned
  - Terms of Reference (TORs)
  - Sample documents, such as project appraisal documents, power purchase agreements, and survey questionnaires
  - Economic and financial analysis methodology
  - Technical specifications
  - Presentations on case studies and lessons learned
  - A list of resource people including task managers and peer reviewers
  - Links to related Web sites.

Contributed by Xiaodong Wang, Energy Specialist, AFTEG. The World Bank Group

Work continued in 2005 under the ESMAP/ASTAE-assisted “Scoping Study for Voluntary Green Electricity Schemes in Beijing and Shanghai” (ESMAP Activity P082869), undertaken in conjunction with the Shanghai municipal government. This project has provided essential inputs to developing a green electricity program (Shanghai Jade Electricity) that will pass through the incremental cost of electricity generated using renewable energy to consumers interested in green electricity products and willing to pay extra for power produced in part from renewable energy. The Shanghai municipal government has approved the Green Electricity Scheme, and fifteen large customers have already signed up to purchase more than 6.5 gigawatt hours of green electricity. New customers will join the program once 21 megawatts of additional wind power capacity, currently under construction, are operating.



ESMAP has for many years provided advisory and analytical assistance to establishing regulatory frameworks for rural electrification in Argentina, Bolivia, Mexico, Nicaragua, Peru, and elsewhere. This assistance has helped put into place coherent regulatory frameworks for off-grid electrification, including tariff setting, quality of service, delivery service obligations, and technical standards. In April 2005, the Nicaraguan National Assembly passed a new renewable energy legislation that applies many of the recommendations made over the course of a two-year ESMAP study, “Development of a Policy and Strategy for the Promotion of Renewable Energy Resources in Nicaragua” (ESMAP Activity P078519, ESMAP Formal Report 316/06). The recommendations include leveling the economic playing field for renewable energy, using sources of intermittent renewable energy at ceiling prices that can be reduced through competition, and recognizing the benefits of energy source diversification. Another ESMAP activity on “TA for Long-Term Program for Renewable Energy Development in Mexico” (ESMAP Activity P073535, ESMAP Technical Report 093/06) has provided important policy support for the preparation of the new renewable energy law that passed the Mexican Chamber of Deputies in December 2005, and is expected to pass the Senate in early 2006. The activity has also led directly to the development of a US\$25 million Mexico GEF large-scale energy development project.

ESMAP participated in several regional workshops on renewable energy, and cooperated with UNEP in the organization of an October 2005 Sustainable Energy Finance Initiative (SEFI) round-table on financing renewable energy and energy efficiency. ESMAP also cooperated with the UN Department of Economic and Social Affairs (UN-DESA) and the Chinese Government on the landmark *Symposium on Hydropower and Sustainable Development* (ESMAP Activity P092366, ESMAP Workshop Proceedings Series 001/05). The timing of the symposium was in line with the Chinese government’s determination to scale up hydropower development and engage in a constructive dialogue on associated environmental and social issues.

Several 2005 projects looked into the feasibility of new renewable energy technologies and the economic conditions for tapping local renewable energy resources. Two studies analyzed the potential for landfill gas utilization in Sub-Saharan Africa (ESMAP Activity P083164, ESMAP Technical Report 074/05) and in Latin America (ESMAP Activity P077801), and using wind and hydro resources for “Green Independent Power Producers (IPPs)” in the Philippines (ESMAP Activity P094547). ESMAP also issued a major review of bioenergy entitled “Advancing Bioenergy for Sustainable Development” (ESMAP Activity P070797, ESMAP Formal Report 300/05), which provides policy makers and project developers guidance on the multiple dimensions of bioenergy project design and implementation. Similarly, the ESMAP study on “Renewable Energy Systems in Peruvian Amazon Region” (ESMAP Activity P089204) fills a knowledge gap of economic analysis, regulatory framework, and institutional arrangements for diesel/renewable hybrid mini-grids that would be valuable for design of future mini-grid projects in Peru.

“Potential for Biofuels in Developing Countries” (ESMAP Activity P088231, ESMAP Formal Report 312/05) is a flagship study undertaken to respond to increasing requests from developing countries to help assess the feasibility of domestic production of biofuels for transport, particularly bioethanol and biodiesel, in the near to medium term (see Box 3.5).

### Box 3.5: Potential for Biofuels for Transport in Developing Countries

This October 2005 study responded to requests to help developing countries assess the potential of biofuels—specifically bioethanol and biodiesel—as potential transport fuels in the near and medium term. The report reviews the international experience with biofuels and draws lessons for developing countries that have begun or are considering biofuel programs. The report outlines some of the conditions under which a biofuel industry may be sustainable in the long term without government support. Where long-term government support is likely to be needed, the report considers possible justifications for government interventions: poorly priced externalities, energy diversification, and rural development. Agricultural production costs are a critical parameter for determining the economics of biofuels.

As such, conditions that enable low-cost production—favorable climate, fertile soil, plentiful water, good transport infrastructure, good agricultural research and extension, presence of a functioning credit market—are important. Managerial skills, including technical management, are needed across the supply chain, from optimizing seed selection and harvest timing to processing plant operations. The report recommends removing barriers to biofuel trade as an important step in promoting expansion of biofuels, by enabling the most efficient and least-cost producers to expand their market share. In the short run, ethanol from sugarcane holds the best chance of becoming commercially viable. The world price of oil is likely to have to rise even higher for biodiesel to become commercially viable. In the long run, one of the most promising areas is manufacture of ethanol from abundant and low-cost cellulose.

Contributed by Masami Kojima, Lead Energy Specialist, COCPO. The World Bank Group.

ESMAP will continue to expand its renewable energy portfolio in 2006 and beyond. Requests from the regional block grants are significant as more countries are committing to diversifying their energy supply portfolio, scaling-up access to modern energy, and supporting the shift toward a low-carbon global economy. The ability of renewable energy and energy efficiency to contribute to all three of these goals makes them commercially attractive options for energy sector development.

### Energy Poverty

In the past 25 years, the world has extended access to electricity and modern fuels to more than 1 billion people. But big gaps in access remain. Four out of five people without access to electricity live in rural areas of the developing world, mainly in South Asia and Sub-Saharan Africa. One-third of the world’s population in rural and poor urban areas still rely on traditional methods of biomass collection and use to meet their basic cooking and heating needs. While today most of the people without access live in rural areas, over the next three decades almost 95 percent of the population growth is expected to occur in urban areas. This means that huge gaps in access may emerge

in the developing world's cities. Substantially reducing the number of people without access to electricity and providing better quality cooking and heating fuels will therefore require targeting efforts to the urban as well as the rural poor.

The goals of ESMAP's energy access program are to provide high quality analytical work on energy access, promote an increase in the quality and number of the World Bank's access-related projects, and disseminate project knowledge and experience to the international development community through ESMAP's various knowledge management series. In 2005, the program focused on six sub-thematic areas:

- Assessing the development impact of energy access and implications for the MDGs.
- Improving the Bank's performance in extending access to electricity, including monitoring and evaluation systems.
- Addressing the household energy nexus, including indoor air pollution and improved access to efficient and safe energy for cooking and heating.
- Finding and promoting financing mechanisms for rural energy services.
- Meeting the energy needs of the peri-urban poor.
- The role of small- and medium- enterprises in providing energy access and services

The highlight of the 2005 *development impact of energy access* work was the publication of two flagship products, along with numerous high quality reports. The flagship products included two books on household energy. The first, *The Urban Household Energy Transition* (ESMAP Report 309/05) was jointly published by ESMAP and Resources for the Future, and provides a readable summary of household energy issues for urban areas in developing countries. The second, *Environmental Health and Traditional Fuel Use in Guatemala* (ESMAP Activity P074232, ESMAP Formal Report 284/04), was published jointly by ESMAP and the World Bank through the Directions in Development series of the World Bank. It examines the problems and possible solutions to the prolonged exposure of the biomass-reliant poor to the smoke produced by indoor cooking with inefficient, unvented stoves.



### Box 3.6: Energy Guidelines for Living Standards Measurement Studies

Adequate and affordable supplies of electricity and modern fuels must be available to households if they are to have a good living standard. Recognizing the role that energy services play in poverty reduction, governments everywhere wish to implement policies and investments that will accelerate the transition from use of traditional fuels to modern fuels and electricity. As a consequence, policy makers increasingly seek empirical evidence of the relationship between investments made in energy infrastructure, the energy policies they implement, and welfare improvements at the household level.

One common instrument used in the preparation of the World Bank's poverty reduction strategies is the Living Standards Measurement Studies (LSMS). Unfortunately, at present the data on household energy use collected through LSMS surveys is insufficient for extensive energy policy analysis. The purpose of the guidelines financed by ESMAP is to offer advice on how an LSMS or other multitopic household survey can be modified to improve its usefulness for the energy sector.

As a result of this ESMAP study, there are already plans under way to have LSMS surveys make use of these guidelines. Summing up, LSMS surveys containing better information on household energy use will provide important insights into the role energy services play in household welfare and the policies that would be most effective in accelerating the household transition to use of modern fuels.

Source: O'Sullivan, Kyran and Douglas F. Barnes 2006. Energy Modules for Multi-topic Household Surveys: Guidelines for LSMS Survey Designers. World Bank Technical Paper (forthcoming). Washington, D.C.: The World Bank.

Other work on the linkage of energy to development included the study "Energy Modules for Multitopic Household Surveys" (ESMAP Activity P099105), which led to a paper published as part of the Living Standards Measurement Studies. These studies are used in many poverty reduction strategies, and lodging a module on energy access is significant (Box 3.6). Another noteworthy operational support project was an analysis of the impact of energy on development in Yemen, "*Yemen: Household Energy Supply and Use in Yemen, Volume I: Main Report and Volume II: Annexes*" (ESMAP Activity P080572, ESMAP Formal Report 315/05). This work will be continued in 2006 via follow-on analytical work in Peru, Vietnam, and other countries.

ESMAP work on environmental health in 2005 was highlighted by the publication of the flagship product for Guatemala. This work was complimented by an excellent paper, "The Impact of Improved Stoves on Indoor Air Quality in Ulaanbaatar, Mongolia." This analytical paper has had a significant impact on the Government of Mongolia's energy policies (Box 3.7). Work in Bangladesh is examining whether improved housing ventilations systems can lead to a reduction in indoor air pollution under the activity "Improving Indoor Air Quality for Poor Families: Proposal for a Controlled Experiment in Bangladesh" (ESMAP Activity P094768), while work continues in China on indoor air pollution under the activity "Sustainable and Efficient Energy Use to Alleviate Indoor Air Pollution in Poor Rural China" (ESMAP Activity P080290).

The Bank has been very active in projects involving *extending access to electricity*, especially rural electrification. Electricity is the main energy indicator that will be monitored under IDA 14, and thus the performance of the Bank's energy operations will be based on this issue. To raise awareness

### Box 3.7: Assessing Demand and Electricity Benefits in Rural

During 2005, ESMAP supported a survey of electricity use in rural Peru to assist in the developing of a rural electrification strategy for the government of Peru. The project assisted the government in developing a national survey and providing national figures on electricity consumption. The government of Peru financed the costs of the survey from their national budget, with ESMAP providing support and technical assistance.

The project was stimulated by the government of Peru's interest in changing how subsidies are provided to rural electrification. The project will assist local distribution companies in reaching poor populations with well-targeted and effective subsidies, thus relieving them of the financial hardship of high upfront capital costs to extend access to the poor. The main objective of the Peru project is to provide investments in subprojects to supply electricity services to about 160,000 currently unserved rural households, businesses, and public facilities, such as schools and health clinics (serving about 800,000 people), supported by central government subsidies, and using both conventional and extension and renewable energy sources.

The survey helped develop a subsidy policy that takes into account the affordability and willingness to pay for electricity by Peru's lowest-income populations.

Contributed by Susan Bogach, Senior Energy Economist, LCSFE. The World Bank Group.





on progress and challenges in providing rural energy access, ESMAP in 2005 published a discussion version of a compendium report entitled *Meeting the Challenges of Rural Electrification in Developing Countries*. After extensive peer reviews, this work will be published as a flagship publication in 2006 (ESMAP Activity P066021). A significant training activity around best practice in rural electrification is anticipated in 2006, both for those in the international development and developing country communities. ESMAP has been actively supporting a rural electrification project in Peru, including assessing regional demand for electricity (ESMAP Activity P093486). This project has significant cofinancing from the government of Peru, leveraging the ESMAP contribution and showing the high priority given the project. In the Africa region, workshops on low-cost technical standards for rural electrification have resulted in extensive cooperation among countries under the activity “Mainstreaming Low-Cost Innovations in Electricity Distribution Networks in Africa” (P088069). Rural electrification and development continues to be a very important part of ESMAP’s work on energy access.

An important part of the *household energy nexus* for rural people and the urban poor is the use of collected wood or biomass residues for cooking. For them, the upward shift to modern cooking fuels such as LPG or electricity is either unavailable or too expensive. Urban poor people depend on commercial wood or charcoal for cooking and often pay high prices, depending on the resource conditions surrounding urban markets. While modern fuels theoretically may be available to them, thin markets and, in some countries, limited imports or high taxes, make these choices impractical. There are several projects that ESMAP has financed to deal with this issue. One under implementation is the “Haiti Scoping Study for Household Energy Strategy” (ESMAP Activity P092032), which was requested in the aftermath of the devastating, flooding mudslides partially caused by deforestation. In addition, there were several analytical pieces covered under sector reform and the poor, including a recently completed but not yet published flagship paper, “Power and Poverty: Lessons from Energy Sector Reforms in Eastern Europe” (ESMAP Activity P096051).

Addressing the *energy needs of the peri-urban poor* was the topic of an autumn 2005 workshop in Brazil under the activity “Alleviating Urban Energy Poverty in Latin America,” (ESMAP Activity P086537) along with a report on energy and equity in one Brazilian urban slum, entitled “Brazil: How Do the Peri-Urban Poor Meet Their Energy Needs: A Case Study of Caju Shantytown, Rio de Janeiro” (ESMAP Technical Report 094/06). Many utilities around the world have set up successful programs to deal with the problems of providing electricity or energy services to urban slums. As best practice emerges, ESMAP will seek to capture and disseminate the results. However, it is not enough to concentrate exclusively on electricity. There also is a need to address the cooking and heating needs of the urban poor, as they often spend a significant amount of their income on energy. ESMAP will begin efforts to comprehensively examine the energy access needs of the growing peri-urban poor population in the coming year.

Another major area of ESMAP energy access and poverty work has focused on *small- and medium-sized energy providers*. Activities supported include developing private sector power distributor business models based on small- and medium-

### Box 3.7a: Linking Energy Poverty Issues in the PRSP to Debt Relief Financing in Cameroon

Cameroon issued its first Poverty Reduction Strategy (PRSP) in April 2003. The document identified the development of basic infrastructure and natural resources while protecting the environment as one of seven key strategic priorities. Building on these general priorities, ESMAP, in partnership with GVEP and United Nations Development Programme (UNDP) provided support to Cameroon for the development of a full National Energy and Poverty Reduction Action Plan (PANERP). The plan focused on access to energy for poverty under a multisector approach linking in quantitative and budgetary terms, the objectives of social sectors (education and health) and agriculture to access to energy in rural areas. The action plan is comprehensive, and includes extension of the electrification program to rural areas, the development of renewable energy resources (solar, wind, and hydropower), and the development of a gas network in the ecologically fragile northern provinces.

The action plan was developed through extensive consultation with local populations in all regions of Cameroon. The PANERP was approved by the government and discussed publicly in a national workshop in December 2005. Building on its support by the regions and from the energy using social sectors, the PANERP has been incorporated in the revised PRSP as a national priority. It was also selected by the government as one of the triggers for the heavily indebted poor countries (HIPC) completion. The financing of the measures for access to energy in the PRSP, estimated to \$120 million over 10 years, is being secured through a combination of donor funds (Inter-American Development Bank [IDB], FEM, Asian Development Bank [ADB], ESMAP, EU), reaching already almost \$30 million, in addition to debt relief counterpart funds within the framework of the HIPC Initiative allocated to poverty reduction programs. The financing of the program also includes contributions from the associated social and agriculture sectors under their respective development programs, which have been coordinated with the PANERP. In parallel, the reinforcement of local institutions for accelerating access to energy for poverty reduction is supported through a World Bank Poverty Reduction Support Credit (PRSC) project under preparation. Part of the HIPC resources have been used as “intelligent subsidies” for the electrification of some villages by local private entrepreneurs.

The PANERP model has been retained by the Community of Central Africa Economic and Monetary Union, CEMAC, which includes Cameroon, Chad, Gabon, Congo Brazzaville, Equatorial Guinea, and Central African Republic, in an EU supported program for integrating access to energy in the poverty reduction strategy for the countries of the Central Africa region.

Contributed by Dominique Lallement, A. Covindassamy, and E. Noubissie. The World Bank Group.

sized enterprises, solar PV business models, and small-scale diesel generator-based power distribution (Box 3.8). In addition, the program is supporting small-scale renewable energy, including micro- and mini-hydro, various biomass and biogas programs, and improved cook-stove programs. The goal of this work is to develop successful small- and medium-sized businesses engaged in the delivery of energy services, with eventual coverage of as many as 12 countries. In Cambodia, under the activity “Decentralized Energy Services for IDA Countries—Cambodia” (ESMAP Activity P095219), training programs are being implemented for entrepreneurs and technical staff of small-scale power generation enterprises, and studies are being conducted to evaluate the potential for biomass to provide electric power and cooking fuel. In Cameroon, under the activity

### Box 3.8: Implementation of Small-Scale Energy Enterprise Program

Despite large investments over many years, energy service coverage and access in rural and peri-urban areas, particularly in Africa and Asia, remain very low. Large utilities delay extending their services to these areas for many years, sometimes decades, based on past performance in serving far-flung, poor communities. There is emerging evidence that small- and medium-sized energy providers are an alternative to large utilities in delivering energy services to underserved populations, through the development of isolated systems or grid connected extensions. The problems faced by such small energy providers are numerous, including institutional and regulatory arrangements, high cost of delivering services to small rural consumers, limited access to financing, and limited technical and managerial knowledge

With this in mind, ESMAP, with funding from the Department for International Development (DFID), initiated a program to foster access to energy services for underserved populations through the agency of small and medium sized enterprises (SMEs). This program was initiated in 2005 and is focused on increasing the number of people served by energy SMEs. The program supports a wide range of activities, including understanding the needs of underserved populations, the barriers to the entry of SMEs in the energy business, and the need to streamline regulatory frameworks. The project will also provide technical assistance and facilitate the development of various finance mechanisms for the SMEs, from the government or from local financing institutions. This would include the identification and design of pilot projects and ways to identify opportunities to scale-up successful business models along with impact monitoring and evaluation.

The program will cover 13 countries in Africa, Asia, and South America. It was launched in Cambodia, Kenya, Bangladesh, and Cameroon in 2005, where country-specific energy SME programs have been initiated in close coordination with other country-specific SME and rural energy programs developed by governments, donors, and the World Bank. Although the project intends to facilitate the coordination by the government of various local programs targeting energy access in isolated areas, its implementation is carried out not only through government organizations, but also through NGOs and local communities for its pilot projects component.

Intended outcomes include a measurable increase in the number and size of small- and medium-sized businesses providing energy services, and an increase in the number of communities, businesses, and households with electricity or other forms of energy. ESMAP will continue to support this and other projects in this promising area of development assistance.

Contributed by Ananda Covindassamy, Adviser, ESMAP. The World Bank Group.

“Decentralized Energy Services” (ESMAP Activity P096365), training programs are being developed for new and potential energy company managers, the preparation of a diagnostics on the institutional and regulatory framework for small and medium enterprises in the power sector, and the development of mechanisms to mobilize financing for this sector.

ESMAP has been involved with the Global Village Energy Partnership (GVEP) for many years. This voluntary public-private-development partnership is focused on energy access issues at the grass-roots level. Several GVEP projects made progress during 2005. One major project involves the

“Energy Poverty Country Action Plan” for the country of Cameroon (ESMAP Activity P089327), which successfully completed the preparation of its energy-poverty reduction action plan (see Box 3.7a). One of the significant undertakings of the year under this partnership is the GVEP Action Programs Fund (GAPFund, ESMAP Activity P098322). The GAPFund has been set up as a grant program to facilitate country actions that are an integral part of the GVEP mandate. The GAPFund became operational during the fall of 2005 and will continue to be implemented for a period of 18 months.

With the implementation of the 2005–2007 ESMAP Business Plan have come significant accomplishments in promoting the energy access agenda. ESMAP has published several flagship products, devolved analytical work to the regional operating units, and promoted energy access and poverty awareness and results through knowledge dissemination. In 2006, ESMAP’s access agenda will be enhanced by two major new publications—one on rural electrification in developing countries and another on power sector reform and the poor in Eastern Europe.

### Market Efficiency and Governance

The goal of ESMAP’s energy market efficiency and governance program is to identify and develop market and sector reform trajectories leading to energy markets that are both more competitive and contribute to poverty reduction. The current program focuses on:

- Developing environments supportive of efficient and stable energy markets and promoting private investors’ involvement in the energy sector and the poverty reduction agenda.
- Improving policy and regulatory institutions, particularly for energy sector revenue management.
- Building public-private partnerships (PPPs) for the engagement of small energy developers and service providers (SMEs) in the energy sector.

Sector reform and development of regulatory frameworks over the past decade have been mostly aimed at attracting private investment and developing large, integrated energy infrastructure projects. Largely overlooked were projects providing energy access to isolated rural locales and peri-urban energy, as well as the potential of local entrepreneurship. Sector reforms rarely focused on poverty reduction and the provision of affordable energy to the poor. In 2005, ESMAP paid particular attention to the poverty dimension of sector reforms. At the same time, ESMAP sharpened its focus on small, private enterprises as alternatives to large utilities as energy providers, and on the potential contribution of local entrepreneurship to provide energy services, particularly in under-served areas. An additional concern is that recent upward trends in international energy prices may exacerbate the challenges of good governance in net-energy-exporting countries experiencing a surge in energy revenues. ESMAP played a pioneering role in promoting good governance for petroleum product management in the 1990s, and this agenda has become even more sensitive in 2005.

ESMAP pursued several regional- and national-level activities to help *develop environments supportive of efficient and stable energy markets and promote private investors’ involvement in the energy sector and the poverty reduction agenda*. ESMAP continued its support to the regional interconnection, which contributes to stabilizing energy markets and lowering electricity costs through system optimization. ESMAP disseminated experience on power systems integration collected from earlier work, drew conclusions from earlier experiences with power systems interconnections, and supported the harmonization of environmental standards in regional systems

interconnection through two projects: “Development of Power Generation in South East Europe—Implications for Investment in Environmental Protection” (ESMAP Activity P088103) and “Greater Mekong Subregion (GMS) Power Trade Strategy” (ESMAP Activity P085314). The GMS effort culminated with the 2005 signing by Cambodia of an inter-governmental agreement on regional power trade. Several new initiatives for power market regional integration were launched in 2005 and supported by ESMAP, including “TA for Establishing a Water-Energy Consortium in Central Asia” (ESMAP Activity P091937) and “Regional Energy Trade” (South and Central Asia) (ESMAP Activity P090588). ESMAP’s support played an important role for structuring the institutional arrangements through sharing World Bank group experience in other regions and catalyzing political consensus building process around such projects. Yet all regional integration projects progress slowly: the Greater Mekong project and the South Eastern Europe project were implemented over three years, and the Central Asia and South Asia projects are also on a slow implementation path.

At the country level, ESMAP sought to draw conclusions from a decade of energy sector reforms regarding the effect of reform on poverty reduction. An ESMAP study entitled “The Evolution of Enterprise Reform in Africa: From State-Owned Enterprises to Private Participation in Infrastructure...and Back” (ESMAP Activity P094313, ESMAP Technical Report 084/05), analyzes the transition of many African state-owned infrastructure enterprises (SOEs) to privately owned companies. Since poor SOE performance was the main impetus for reform, the report concludes that a successful reform process might concentrate firstly on commercialization, followed by a second phase introducing private participation in infrastructure (Box 3.9). Beyond the Africa region, ESMAP supported a study, “Assessing the Impacts of Global Sector Reform on the Poor” (ESMAP Activity P073751), to check the validity of the conclusion of the Africa study in other regions. This study is expected to be completed in 2006.

A challenge for many developing countries, except for most Asian countries, is the decrease in foreign direct investment (FDI) in energy, from nearly 40 percent of sector investment ten years ago to less than 10 percent today. ESMAP supported several projects to determine the underlying causes of this diminution of private sector participation in the power sector and develop instruments to restore private sector appetite for the energy sector.

The study “Designing Strategies and Instruments to Address Power Projects Stress Situations” (ESMAP Activity P092758), developed in partnership with private sector investors, analyzed the causes and consequences of power project failures worldwide and identified candidate workout instruments for projects that are under stress (see Box 3.10). Another study, “Governance Standards and Code of Conduct” (ESMAP Activity P091639), examined the minimum reform platform needed for successful private investment, and proposed risk management approaches to advance the moment in the reform process when FDI can be envisaged. In broader terms, actions to be taken by Latin American governments in increasing the attractiveness of power sector investment was examined in the regional study “Options to Revitalize Investment and Private Participation in Power Distribution in Latin America and the Caribbean” (ESMAP Activity P093135).

Another threat to sector reforms and FDI is the risk of power shortages resulting from weaknesses in market structure. The work on practical measures to help minimize the economic and social consequences of power shortages led to the publication of the study “Implementing Power Rationing in a Sensible Way: Lessons Learned and International Best Practices” (ESMAP Activity P081789, ESMAP Formal Report 305/05). This work examined best practices in handling power

### Box 3.9: Determinants of Success for Private Participation in Power

A growing concern that the impact of the private participation in infrastructure (PPI) model in the power sector has been less positive than expected led the World Bank's Africa Region to review PPI progress in Africa, with a view to possibly revising the strategy for improving infrastructure service delivery. More than 10 in-depth thematic and case studies were undertaken to provide the analytic underpinning for discussions at an all-Africa stakeholder conference. The June 2005 conference was a forum for stakeholders from across Sub-Saharan Africa (SSA) to voice their views, concerns, and suggestions on PPI, along side presentation and discussion of recent research on PPI in SSA. The analytic work, including the ESMAP-funded studies, was made available to the conference participants and posted on the conference Web site. The conference was attended by more than 230 representatives of government, regulators, utilities, domestic and international private sector, civil society, donor community, parliament, and the press. The contribution of ESMAP-funded research to this million-dollar-plus research and dissemination program was critical.

Three studies funded by ESMAP anchored the research effort. The first provided the key historical perspective, reviewing experience of the various approaches to infrastructure service delivery in SSA that have been tried over the past three decades, and which resulted in the adoption by many of the PPI model. The second study assessed the experience of power sector regulation in SSA, considering goals for regulation at the outset of the PPI era; regulatory options that have been tried in SSA, and the extent to which these efforts have been successful at improving the delivery of electricity supply services; identification of factors that have influenced the success or failure of various forms of regulation; and new thinking about future directions. The third study examined the experience in Sub-Saharan Africa regarding the relationships between contract structures and successful outcomes for PPI in terms of entry, enterprise performance, and the sustainability of the public-private relationship. While there is rich literature in some of these areas in other regions of the world, very little analytical work had previously examined experience in SSA. An important and ground-breaking feature of these studies is the focus on sub-Saharan Africa (SSA).

Source: Wendy Hughes, Senior Energy Specialist, and Philippe Benoit, Lead Specialist, AFTEG. The World Bank Group.

crises, reviewing case studies in Chile, China, California, the Dominican Republic, Japan, and Brazil. The study highlights the case of Brazil as one of the best international practices; Brazil developed a flexible quota system with open market price signals. Lessons learned from the analysis of several case studies tell us that blackouts are the worst way to deal with electricity shortages and should be considered the last resort, while alternative allocation mechanisms based on market signals can be successfully developed.

ESMAP's efforts in support of *improving policy and regulatory institutions, particularly for energy sector revenue management*, continued to focus on revenue management in countries that are net hydrocarbon exporters. In 2005, ESMAP undertook a study to provide to clients a comprehensive synthesis on best international practices in petroleum revenue management. The study, "Resource Funds: A Comparative Study" (ESMAP Activity P087289), reviews and compares alternative

approaches in revenue management and proposes guiding principles for clients and donors for petroleum revenue management. For the benefit of countries with established revenue management mechanisms, ESMAP supported a case study of the effectiveness and critical element of a revenue management system in Nigeria. The study, “Nigeria—Petroleum Revenue Transparency Audits” (ESMAP Activity P087579), identified the positive and replicable features of Nigeria’s revenue management systems, while highlighting weaknesses and pitfalls to be avoided by new energy exporting countries. In addition, ESMAP provided technical assistance for the design of transparent regulatory frameworks for extractive industries, including oil, through the study “Vietnam—Policy Dialogue Seminar and New Mining Code” (ESMAP Activity P072947). These projects all suggest that work in the area of extractive industries’ revenue management ought to be integrated in an active dialogue between the country and all major donors, as a demonstration of government commitment to transparency and good governance.

### **Box 3.10: Strategies to Address Power Projects under Stress**

This study reviewed the causes and consequences of distress for power projects with private sector participation in developing countries. Six major investors in power projects and the International Finance Corporation (IFC) participated in the study.

Information was gathered through the PPI database and from a world survey that produced a list of 63 power projects under stress in 18 countries. The survey revealed that power sector projects under stress are in fact rare, with only 4 percent of the total power projects being or having been affected by stress situations. From the projects under stress, 21 percent were ultimately worked out, suggesting that workout measures do play an important role in addressing distress situations.

South Asia had the highest percentage of stressed projects at 28 percent (including Pakistan, 23 percent), and Sub-Saharan Africa (SSA) was next with a 12 percent despite having the least amount of power sector FDI. Latin America and the Caribbean followed with 6 percent. Eastern Europe and Central Asia region has relatively low stress percentages with a probability of 3 percent. And the East Asia and the Pacific region is the least risky region with a stress probability of only 1 percent.

The survey revealed the principle causes of distress include sociopolitical concerns with private sector involvement in the sector, resistance to sector reforms, macroeconomic instability, post-privatization regulatory and pricing disputes, project structural problems, and investors’ poor performance.

The report concludes that power project workouts must address macroeconomic instability through financial engineering instruments and risk reallocation and proposes approaches for organizing project workout. Workouts need to address the issue of ensuring fair and sustainable adjustment of electricity prices, particularly under macroeconomic instability. Finally, the workout will need to be accompanied by the preparation of a new business plan demonstrating the commercial viability of the restructured project.

Source: Ananda Covindassamy, Daizo Oda, and Yabei Zhang. “Analysis of Power Projects with Private Participation under Stress,” ESMAP Report 311/05. The World Bank

## Activities outside the Thematic Programs

This section presents a summary of activities that cut across the gender and environment themes. While these can be merged into the four thematic areas presented earlier in this chapter, their importance merits a separate presentation.

The 2005–2007 ESMAP Business Plan recognizes *gender equity in the development of energy services* in developing countries as a key challenge, in line with the Millennium Development Goals (MDGs) on gender equity. There is broad recognition that women often constitute the poorest of the poor, and that they suffer the most from modern energy deprivation, both as suppliers of primary energy (for example, collecting and transporting fuel-wood) and as the primary consumers of traditional fuels in insalubrious conditions. Together with young children, women bear the brunt of disease and premature mortality induced by indoor air pollution. However, women are also remarkable assets for the development of the energy sector, throughout the supply and demand chain. ESMAP's work during 2005 focused on the empowerment of women to actively contribute to the pace and flow of energy supply and use transitions in developing countries.

In Ghana, ESMAP worked with Kite, a local NGO, to replicate the approach reported on in “Bangladesh: Opportunities for Women in Renewable Energy Technology Utilization Phase I” (ESMAP Activity P065453, ESMAP Technical Report 055/04), in which women-owned micro-enterprises were created that assembled lamps and managed a village grid. The objective was to create an enterprise or several small enterprises that could bring better quality energy services to villagers. The study concluded, however, that the socioeconomic factors preponderant in Ghana would not allow for replicating the Bangladeshi approach without first undertaking major capacity building. While the village leaders were keen to see a new type of activity and create employment for young women, there was a reluctance to move away from traditional activities, such as sewing or smoking fish. The study provides excellent insights on the cost of energy services in these poor communities, and a good methodology for undertaking stakeholder analysis that should be useful for other projects.

In 2005, ESMAP extended to Poland the earlier work on gender in mining done in Papua New Guinea. The objective of the “Women in Mining (WIM)” project (ESMAP Activity P092599) was to help women overcome problems related to restructuring of the hard coal sector in Poland and provide strategies empowering women to find new employment opportunities and to have a stronger voice in community-related decision making. Workshops were conducted to provide women leaders with the knowledge and the skills required for working in local communities. Program outcomes included a comprehensive system of assistance specifically for women threatened with social and professional exclusion resulting from the mining restructuring process. About nine social assistance programs were prepared by the workshop participants, some of which have attracted implementation funding, and a Citizen Self-Support Manual was prepared.



As a follow-up to the Women in Mining (WIM) program, the Silesian Centre of Information for Women was opened in September 2005. It offers free legal, psychological, and job counseling and operates in the three communities most affected by mining restructuring: Silesia-Zabrze, Dabrowa Gornicza, and Katowice. In addition to counseling, the centre cooperates with police and offers help to victims of home violence in Silesia. One hundred percent of the funds needed for activities of the centre have been already secured. The WIM initiative in Silesia is now recognized as having contributed substantially to developing and integrating civil society in the region.

In an effort to mainstream gender analysis in energy work, ESMAP has collaborated with other departments of the World Bank, in particular those responsible for carrying out poverty impact assessments and household surveys. The outcome of the work done in Yemen is summarized in Box 3.11.

Another ongoing and important study area not falling within the structure of the four thematic areas is *the environment*. The Clean Air Initiative in Latin America and Caribbean (CAI-LAC), under the ESMAP Activity on “Developing Regional Clean Air Networks” (ESMAP Activity P073145), was launched to establish a comprehensive approach and stakeholder-shared vision for addressing air quality problems in cities. The objective of the CAI-LAC is to improve air quality in cities to protect the health of inhabitants and to mitigate global pollution, all through partnerships involving government agencies, private sector companies and industry associations, NGOs, academic institutions, foundations, international development agencies, and individuals. The initiative has expanded to Sub-Saharan Africa (CAI-SSA) and Asia (CAI-Asia) and is increasingly becoming a global network through which lessons learned in the implementation of air quality policies and management options are shared. ESMAP has been instrumental in supporting the activities of the CAI by financing studies and providing technical assistance. One of the areas where the CAI and ESMAP have been most successful is in helping disseminate information and working toward implementation on the ground.

Under the ESMAP activity “Source Apportionment of Fine Particulates in Developing Countries” (ESMAP Activity P078804), pollution source apportionment methodologies and results from studies conducted in the last three years for 20 case study cities from Africa, Asia, and Latin America have been reviewed. This study currently includes an update on sampling techniques, receptor models, methodologies, and limitations; a chapter on recommendations and better practices—including a table of source apportionment methods and expected outputs; and a chapter on lessons learned,



with five examples using various techniques. Lessons from the case studies were used to prepare and conduct a three-phase particulate matter (PM) source apportionment activity in Hyderabad, India, in collaboration with Andhra Pradesh Pollution Control Board, the U.S. Environmental Protection Agency (US-EPA), and the National Renewable Energy Laboratory (NREL). This program included a two-day training event attended by 40 staff members from the pollution control boards of Andhra Pradesh state, followed by a 21-day air quality sample collection activity from three stations selected under the first phase.

Also underway in 2005 was an effort to reduce diesel pollution in cities by retrofitting vehicles to burn biofuels. This project includes emission testing as well as checking and improving test laboratory performance. The activity “Diesel Pollution Reduction Strategies for Cities” is an integral part of the Clean Air Initiative for Asia (CAI-Asia) and the Thailand Country Development Partnership on the Environment and is co-financed by ESMAP and Trust Fund for Environmentally and Socially Sustainable Development (TFESSD). The activity enjoys broad stakeholder support (local and international) and strong linkages to ongoing urban transport dialogue and programs, as well as to environment dialogue and programs (ESMAP Activity P086036).

### Box 3.11: Yemen Energy and Gender Inequality

This study explores the social dimensions of energy poverty and demonstrates that energy constraints are an integral part of the poverty story, affecting gender inequality, nutrition, health, education, and income. A detailed household energy survey and a participatory rapid appraisal (PRA) were conducted to examine what energy policy changes would, if they were implemented, contribute to poverty reduction. The PRA was designed to document how the poor use energy and to understand their coping strategies in the face of unreliable energy supply. It focused on two key issues: (i) attitudes, behaviors, and coping strategies linked to energy consumption of households, and (ii) the availability and uses of energy sources by institutions serving the community, such as health centers, schools, local government, businesses, and so forth.

Given that women are key users and providers of household energy, the research especially explored the gender dynamics associated with energy access, use, and constraints. The research methods included separate focus group discussions with men and women, further divided into three different socioeconomic groups (poor, average, and well-off households). Key informant interviews with equal numbers of men and women were also conducted.

The study found that there are significant gender differentiated costs, attitudes, and practices for each type of energy consumed by the household. Women and girls are the sole providers of wood fuel, which not only has significant health risks associated with its collection, but as respondents consistently pointed out, it contributes to low school enrollment for girls. Based on the observations of the PRA team, the health impact of indoor smoke due to wood use primarily falls on women and children, especially girls since they are in the kitchen cooking. Many women throughout the research areas pointed out that the lack of public lighting is a significant constraint to female physical mobility. There are also gender differentiated attitudes toward LPG: purchasing LPG is contrasted with female labor whose opportunity cost may be undervalued by men since they are responsible for paying and transporting it.

Contributed by Meskerem Bhrane, Social Development Specialist, MNSRE. The World Bank Group.



ESMAP is located in the Energy and Water Department (EWD) of the World Bank Group Infrastructure Vice Presidency. ESMAP reports to the director of EWD and is overseen by the Energy and Mining Sector Board. ESMAP is governed by a Consultative Group (CG) made up of representatives of contributing donors, which is chaired by the World Bank Vice President, Infrastructure. The CG is common to all energy trust-funded programs (ETFPs) managed by the World Bank. A Technical Advisory Group (TAG) of three international experts selected by the CG provides independent advice to the CG. A program unit manages day-to-day ESMAP activities in accordance with the strategy and principles laid out in the ESMAP business plan approved by the CG.

## The Consultative Group

As provided by the ESMAP charter, the membership in the CG is open to all contributing organizations without restrictions (Table 4.1). Contributions can be either for core funding of ESMAP or for noncore thematic funding, where use is restricted to specific themes, activities, or regions. ESMAP remains open to receiving contributions from official donors, international financial institutions, official agencies, or private enterprises. The CG meets annually to review the strategic directions of the ESMAP program, its achievements, and its use of resources and funding requirements. The CG is responsible for:

- Defining ESMAP policies and strategies
- Endorsing the three-year business plan and financing plan
- Reviewing ESMAP performance of the previous year
- Overseeing the TAG.

## The Technical Advisory Group

TAG's mission is to provide an informed, independent opinion to the CG of the ETFPs, which includes ESMAP, about the purpose, strategic direction, and priorities of ETFPs. In particular, TAG provides advice and suggestions to the CG in the following areas:

- Current and emerging global issues in the energy sector that are likely to have an impact on growth and development in low- and middle-income countries;
- Strategy, overall priorities, and their development into practical business plans, taking into account the volume of likely donor funding that can be secured for each trust-funded program in the context of the World Bank's energy business strategy;
- Business plans for each of the Energy Trust Funded Programs (ETFPs) and their contribution to the implementation of the World Bank's energy business strategy;
- Potential impact of each program and a high-level assessment of the actual impacts from implementation, especially on the World Bank's energy business and on the programs and interests of the donors;
- Potential for the program to arrive at innovative approaches and new knowledge for improving energy service delivery in developing countries;
- Any other area, as requested by the chair of the CG; and
- Review of the overall impact of implementing the ETFPs.

## The ESMAP Unit

The ESMAP Unit is responsible for the day-to-day management of the ESMAP program, following the general strategy of its business plan and annual work program approved by the director of EWD and then by the CG.

The unit delegates the implementation of certain tasks to World Bank staff outside of ESMAP and relies on the support of external consultants and expertise to deliver certain activities. Consultants and external services are procured following the Bank guidelines on procurement.

The key responsibilities of the ESMAP Program Unit include:

- Delivering on ESMAP's annual work program and business plan.
- Preparing the annual work program and budget and the ESMAP business plan for review and approval by the CG.
- Reviewing proposals for ESMAP assistance.
- Providing support services to the CG and the TAG.
- Maintaining relationships and ensuring adequate reporting with the donors and contributors.
- Maintaining effective relationships with external stakeholders, including recipient countries, civil society, academia, and the international energy practice.
- Maintaining relationships with the Energy and Mining Sector Board of the Bank and with the Bank energy practice.
- Managing the ESMAP human and financial resources in accordance with sound management principles and the World Bank standard practices.



**Table 4.1: Donors and Members of the Consultative Group, Technical Advisory Group, and ESMAP Team**

<b>CONSULTATIVE GROUP</b>	<b>TECHNICAL ADVISORY GROUP</b>
CANADA Canadian International Development Agency	Andrew Barnett Elizabeth Cecelski Amitav Rath
DENMARK Royal Ministry of Foreign Affairs	
FINLAND Ministry of Foreign Affairs	
FRANCE Ministry of Foreign Affairs	
GERMANY Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung	
NORWAY Royal Ministry of Foreign Affairs	
SWEDEN Swedish International Development Cooperation Agency	
THE NETHERLANDS Ministry of Foreign Affairs, Climate, Energy, and Environment Technology Division (DML/KM)	
THE WORLD BANK GROUP	
UNITED KINGDOM Department for International Development	
UNITED NATIONS DEVELOPMENT PRO- GRAMME	
UNITED NATIONS FOUNDATION	
Chair of the Consultative Group	* Until October 31, 2005
Katharine Sierra	** Acting Manager, as of November 1, 2005
Jamal Saghir, Acting Chair	*** Until June 2005 **** Until August 2005

## Knowledge Dissemination, Products, and Services

In line with the Knowledge Clearing House measure in the 2005-2007 business plan, ESMAP has strengthened its efforts to manage and disseminate knowledge generated not only directly through ESMAP activities, but indirectly via energy practitioners attending and participating in courses, workshops, and other forums. ESMAP has also strengthened its partnership with other global programs in knowledge management and dissemination, especially by means of publications within and outside the World Bank Group.

Also, in light of the revised publication strategy agreed upon in the business plan, ESMAP has already expanded the Knowledge Exchange Series (KES) and is undergoing consultations for the revamping of ESMAP's Web site.

During 2005, ESMAP added four new products to its existing three levels of publications. Previously, ESMAP publication comprised three products —technical reports, formal reports, and specials series reports (including annual reports, business plans, and energy and development reports).<sup>4</sup> These new products include the Flagship Report Series, Enhanced Report Series, Knowledge Exchange Series, and the ESMAP eNEWS electronic media.

### Flagship Report Series

A flagship report is a product for which there is high policy interest and significant demand for advice within the global development community. During 2005, ESMAP published two flagship reports using publications strategies that reflected the cutting-edge nature of work in the energy poverty thematic area:

- *Guatemala: Health Impacts of Traditional Fuel Use* was published in 2004 through External Relations (EXTOP), the World Bank's publishers of the series Directions and Development. ESMAP benefited from EXTOP's dissemination means, including universities and NGOs worldwide.
- *The Urban Household Energy Transition*, a 2005 book jointly published by ESMAP and Resources for the Future Press.

### Enhanced Report Series

During 2005, the ESMAP program sought to repackage several formal reports in a more visually attractive format to enhance ESMAP's professional image as well as the effectiveness of ESMAP's outreach and knowledge transfer efforts. At present, this Enhanced Report Series remains a part of the formal ESMAP report series.

### Knowledge Exchange Series (Four Page Notes)

The Knowledge Exchange Series (KES) was also developed in 2005 for the purpose of informing the public about ongoing research in a timely manner. It is issued by ESMAP to disseminate immediate results of significant work in the energy sector for the benefit of the entire development community. The series, which consists of short topical or "Just in Time" notes, covers topics ranging from energy security, energy-poverty linkages, renewable energy, and market efficiency and governance. The series consists of four-page summaries of work completed and in progress.

<sup>2</sup> ESMAP also produces, but does not publish, its Activity Completion Report (ACR), which serve primarily an administrative and fiduciary purpose.

The initial goal under the business plan is to publish around 10 per year. While they are not limited to just ESMAP activities, they are specifically geared toward topics of interest to the energy and development community. The four-pagers are distributed electronically and via in-house mailing channels to World Bank staff, and posted on ESMAP's Web site. To date, as a result of the analytical work carried out under the energy security and the energy poverty programs, the following have been issued:

- “The Impact of Higher Oil Prices on Low Income Countries and the Poor: Impacts and Policies,” No. 1
- “Transformative Power: Meeting the Challenge of Rural Electrification,” No. 2.

### **ESMAP eNews (Electronic Newsletter)**

An e-mail newsletter was launched in 2005. The ESMAP eNews is a monthly electronic newsletter created for the entire energy community that disseminates recent work, information on ESMAP publications and energy events, partners' requests, and other information relevant to the energy practice. It is estimated that the newsletter reaches more than 3,000 subscribers. Feedback has been overwhelming in that requests for subscriptions arrive weekly, as those who are currently receiving it are spreading the word.

With its new business plan in effect, in 2005 ESMAP undertook continued efforts to promote information exchange in the international energy community. Disseminating the results of ESMAP's broad range of activities prompted new publications and new products that exceeded the targets set out under the current business plan. As of year-end 2005 these included 21 brown bag lunches, 64 publications, 2 four page KES notes, 2 ACRs, 4 special series, 2 workshop proceedings series, 3 articles, 18 formal reports, and 29 technical reports. A detailed list of these events is included in Annex 3.

### **Knowledge Exchange Series (Brown Bag Lunches)**

KES events provide opportunities for ESMAP task managers as well as external energy practitioners and experts to exchange knowledge and experience. As a result of accelerated knowledge generation, calendar year 2005 saw a total 21 KES events, the most since series inception. Some 12 presentations were given worldwide and one January 2005 course was conducted in partnership with the Inter-American Development Bank (IDB) Environmental Division, the Water and Sanitation Program, and the Air Quality Thematic Group on Air Pollution and Environmental Health. Several activities included keynote presentations in various arenas, such as the Annual Landfill Gas Symposium of March 2005, the Africa Energy Forum of June 2005; and a project EXPO on Energy from Landfill Gases was held in July 2005. A technical presentation, on the phase-out of leaded gasoline in Sub-Saharan Africa was held in May of 2005 jointly with the Oil, Gas, Mining, and Chemicals Department of the World Bank Group. Also worth noting is the news article published by a Brazilian newspaper of an interview of one of ESMAP's task managers regarding the ESMAP Activity “Implementing Power Rationing in a Sensitive Way” (Formal Report 305/05). A more comprehensive list is available in Annex 3 and is also available in greater detail on ESMAP's Web site.



## Contributions Received

ESMAP received a total of US\$14.9 million from its donors in CY2005. This marks a 57 percent increase as compared to total contributions of US\$8.5 million in CY2004. This year, 10 donors, in addition to the World Bank, made cash transfers to the program through trust funds. ESMAP's two previous donors, France and Denmark, renewed their contributions to ESMAP. Table 5.1 and Figure 5.1 show actual receipts by individual donor for the period 2003–2005.

## Core and Thematic Funding

Core contributions totaled about US\$1.59 million in 2005 and accounted for only 11 percent of total contributions. The United Kingdom (UK) and Norway provided Core and thematic funding. Sweden provided thematic and project-specific funding and France provided core funding. The World Bank's contribution (which is considered core) was US\$0.5 million in 2005, an amount similar to 2004. The stagnation of core funds, which are essential for a balanced implementation of ESMAP's business plan as agreed by the CG, presents a challenge to ESMAP management.

The main increase in ESMAP funding was with thematic funding in 2005, which was US\$11.8 million. The Netherlands made a contribution of US\$2.9 million, Germany US\$3.4 million, the UK US\$3.1 million, Sweden US\$1.5 million, Denmark US\$0.8 million, and Norway US\$0.17 million.

**Table 5.1: ESMAP Receipts 2005, US\$**

	2003	2004	2005	Pledges for 2006	Total 03-05	Of which Core 03-05	% of Total Receipts 03-05	% of Total Receipts 2005	% of Total Core
						(US\$)			(%)
UNDP	100.0	100.0	100.0	0.0	300.0	0.0	0.9%	0.7%	0.0%
World Bank	535.0	523.8	520.5	450.0	1,579.3	1,476.9	4.8%	3.5%	22%
Canada	277.6	563.8	229.5	0.0	1,070.9	0.0	3.3%	1.5%	0.0%
Germany	892.3	558.0	3,407.5	1,600.0	4,857.8	304.5	14.7%	22.8%	4.5%
Finland	0.0	108.0	0.0	201.0	108.0	108.0	0.3%	0.0%	1.6%
France	0.0	0.0	467.2	475.0	467.2	467.2	1.4%	3.1%	6.9%
Netherlands	3,964.3	2,924.0	2,875.0	3,094.0	9,763.3	0.0	29.6%	19.3%	0.0%
Denmark	0.0	0.0	824.4	1,588.0	824.4	0.0	2.5%	5.5%	0.0%
Norway	1,150.0	700.0	350.0	750.0	2,200.0	1,100.0	6.7%	2.3%	16.4%
Sweden	1,023.2	396.6	1,834.9	750.0	3,254.7	597.0	9.9%	12.3%	8.9%
United Kingdom	1,246.3	2,047.2	4,019.1	3,298.0	7,312.6	2,672.8	22.2%	26.9%	39.7%
United Nations Foundation	300.0	600.0	300.0	0.0	1,200.0	0.0	3.6%	2.0%	0.0%
<b>Total</b>	<b>9,488.7</b>	<b>8,521.4</b>	<b>14,928.1</b>	<b>12,206.0</b>	<b>32,938.2</b>	<b>6,726.4</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Note: World Bank pledge for 2006 is based on projected disbursements.

Figure 5.1: ESMAP Receipts by Source

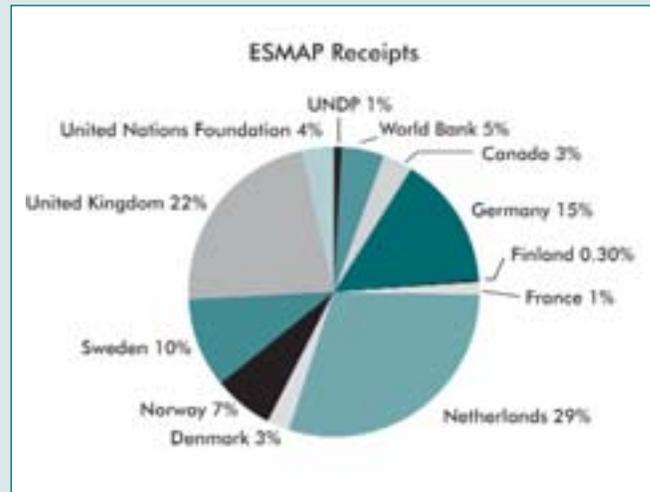


Table 5.2: Core and Thematic ESMAP Donor Contributions 2003–2005

Year	Total Donor Contributions (million US\$)	of which, Core (million US\$)	of which, Core Plus Thematic (million US\$)	Core as % of Total Donor Contributions (%)	Core Plus Thematic as % of Total Donor Contributions (%)
2003	8.85	1.65	7.45	18.8%	84.7%
2004	7.89	1.47	5.58	18.6%	70.7%
2005	14.00	1.59	13.40	11.4%	95.7%
<b>Total</b>	<b>30.70</b>	<b>4.70</b>	<b>26.4</b>	<b>15.3%</b>	<b>86.0%</b>

### Project Funding

Project-specific funding totaled US\$0.8 million in 2005 compared to US\$2.3 million in 2004. These contributions were provided by Canada, Sweden, and United Nations Foundation.

Table 5.3: Receipts by Type of Funding in 2004

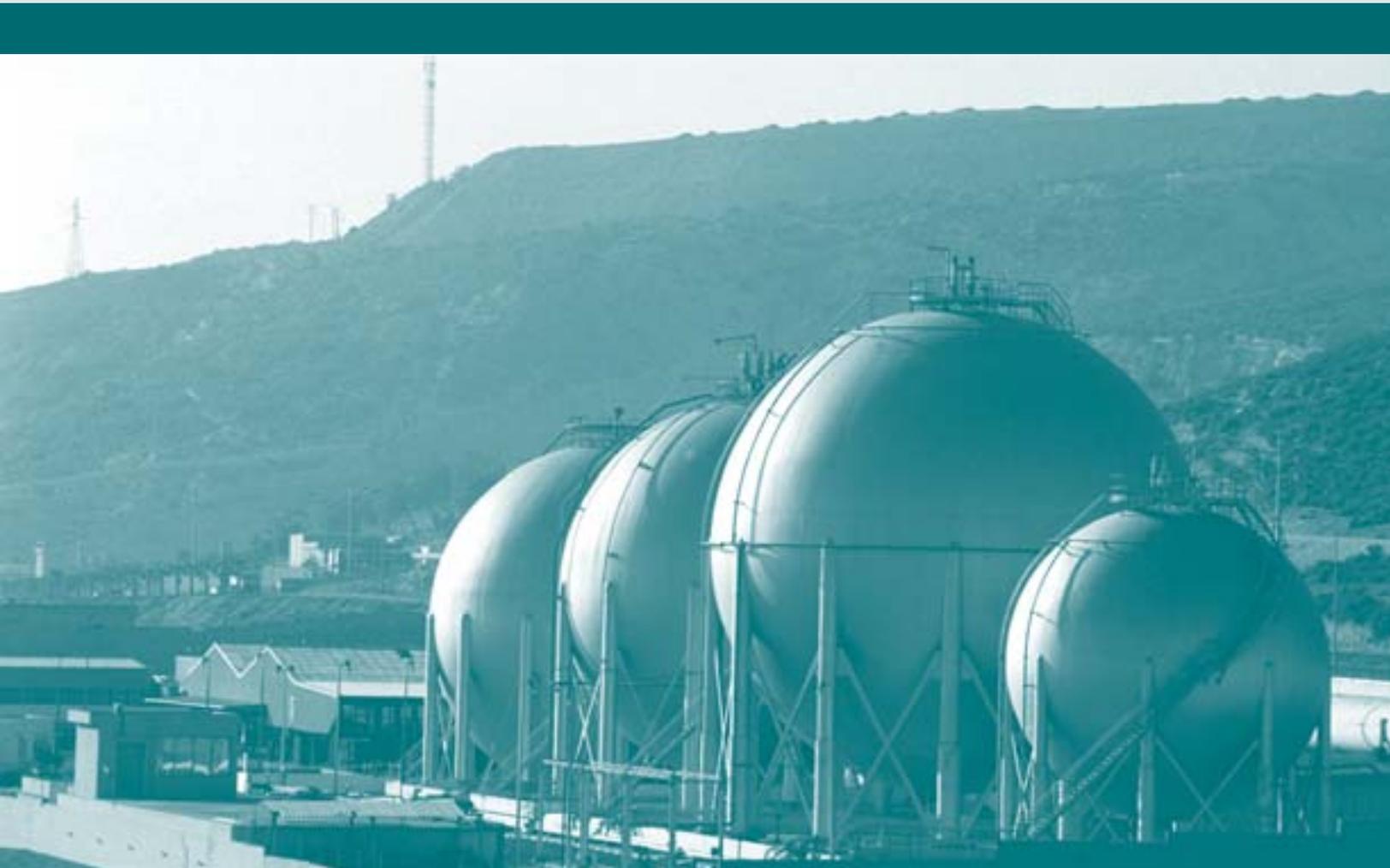
	Amount (millions US\$)
WB Contribution	0.52
UNDP	0.10
Core	1.59
Thematic	11.89
Project	0.80
<b>Total</b>	<b>14.90</b>

**Table 5.4: ESMAP Disbursements and Expenditures, 2003–2005**

	(thousand US\$)		
	2003	2004	2005
Project Costs	6,727	7,886	7,103
Work Program Development <sup>1/</sup>	75	103	62
Program Management	401	597	766
Knowledge Dissemination	165	125	436
Governance	212	252	236
<b>Total</b>	<b>7,580</b>	<b>8,963</b>	<b>8,602</b>
<i>of which Funded by Donors</i>	7045	8,439	8,082
<i>of which Funded from World Bank budget</i>	535	524	520
<sup>1/</sup> Includes Review of Proposals.			

### Disbursements

Table 5.4 shows that disbursements in 2005 totaled US\$8.6 million. Expenditures on work program development (time spent by ESMAP staff to help develop specific ESMAP projects) decreased from US\$0.1million to US\$0.06 million. Program management costs increased from US\$0.6 million in 2004 to US\$0.7 million in 2005. This increase is mainly due to the expansion of staff strength at ESMAP and the increased volume of activities.

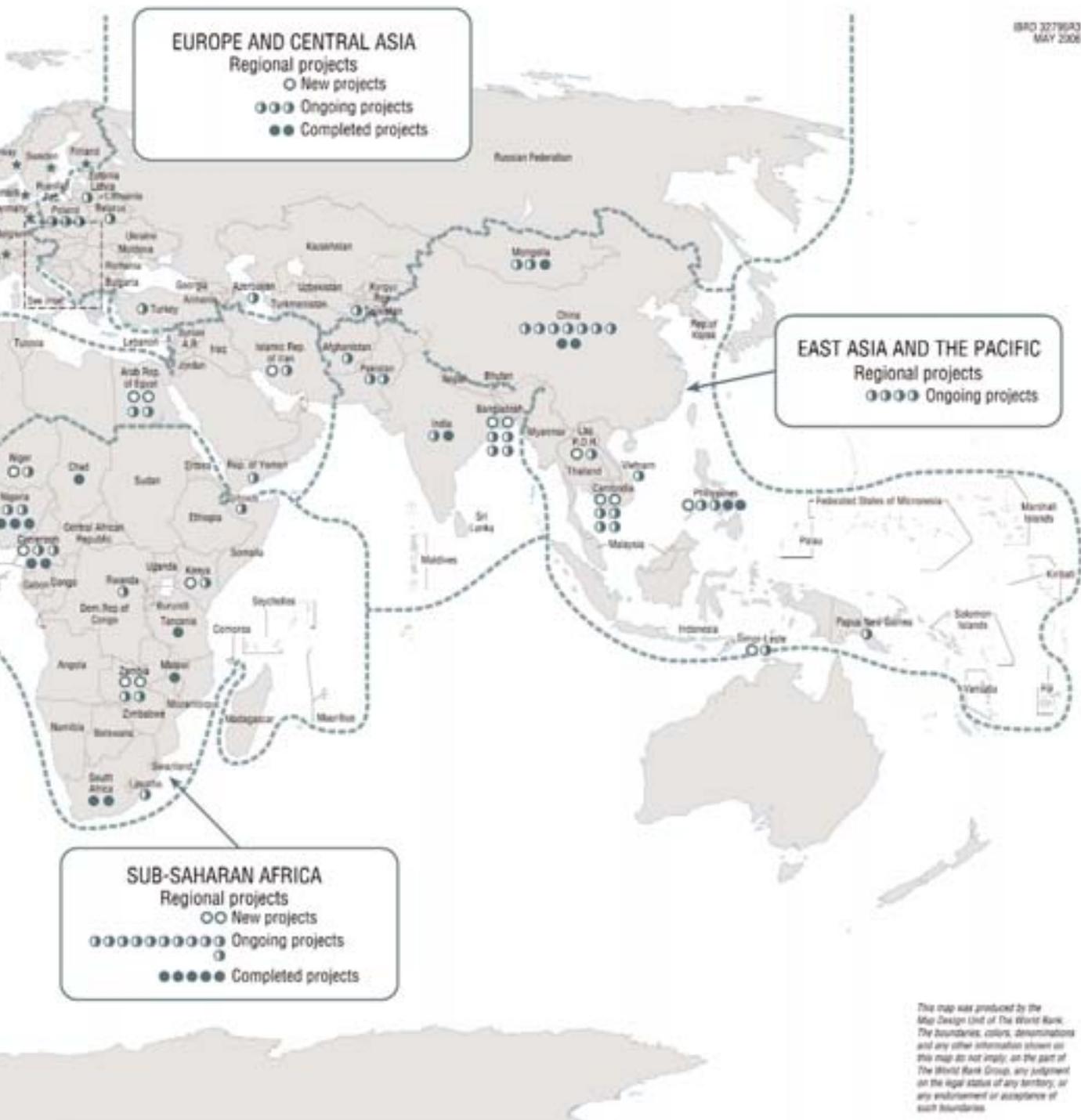




# World, 2005

○ Ongoing Projects

● Completed Projects



## Proceedings from the Joint Consultative Group of the Energy Trust–Funded Programs ESMAP/ASTAE/African Energy Program March 17–18, 2005, Washington, DC

The Consultative Group (CG) for the Energy Trust–Funded Programs (ETFPs) managed by the World Bank met in Washington, DC, on March 17–18, 2005. Mr. Jamal Saghir, the World Bank’s Director for Energy and Water and Chair of the Bank’s Energy and Mining Sector Board, chaired the meeting. This document presents a summary of the meeting’s proceedings.

After welcoming remarks by Ms. Kathy Sierra, the World Bank’s Vice President for Infrastructure and Chair of the CG, Mr. Saghir outlined the agenda of the meeting. As agreed at the 2004 CG meeting, the 2005 CG meeting would be organized into two days. The first day opened to participation of a broad range of energy stakeholders to bring different perspectives and discuss respective commitments toward the United Nations Commission on Sustainable Development (CSD) 14 and 15. The second day was a business meeting limited to active donors to discuss each ETFP’s business plan.

### **Achievements since the World Summit on Sustainable Development and Directions toward CSD 14 & 15: Main Energy Challenges**

#### **Stakeholders Perspectives**

The purpose of the first day was to establish a dialogue between various energy stakeholder groups, and assess how those participating could work together toward the preparation of the CSDs 14 and 15, which will have energy as one of the focal themes.

**Academia:** Mr. Jean-Marie Chevalier, Professor of Economics, University of Paris-Dauphine and Director of Cambridge Energy Research Associates, presented a view from the academia. He started with the challenge that the energy sector has become a more “violent” sector because of corruption and lack of transparency in decision making and transaction flows. He stated

that to fight the battle for our energy future, the equation should include the energy needs of developing countries to achieve their economic development, and not only the environmental impact of increased energy consumption in the world at large. Noting that 20 percent of the world’s population is in industrialized countries but consumes 80 percent of the energy produced and accounts for 80 percent of the pollution, he highlighted that today, significant parts of the developing world underconsume energy, while industrialized countries overconsume. Mr. Chevalier outlined seven key issues for the energy community:

- (1) The measurement of externalities of energy, that is, how to integrate social and environmental costs in energy policies
- (2) Scaling up energy efficiency, particularly in the use of hydrocarbons; energy efficiency should go hand-in-hand with efforts to increase access
- (3) Reducing greenhouse gas emissions through emission trading and global regulation
- (4) Reducing intercontinental pollution, with room for innovation, creativity, and new technologies, to change the energy intensity of the economic development models
- (5) Building up institutions, creating a global compact between public and private institutions to achieve sustainable development and human rights
- (6) Developing new forms of regulation for more transparency and accountability, particularly in connection with oil and gas revenue management
- (7) Strengthening education on the energy challenges for an acceptable and sustainable future.

**Private Sector:** In presenting the private sector perspective, Mr. Robert Hart, Chief Executive Officer of Globeleq, stated that the private sector is a central component to the solution for providing energy services to developing countries. The key to attracting the private sector to emerging markets is to make the business

commercially viable and to generate profits. The international financial institutions (IFIs) and donors can play an important role in improving the investment climate and working with investors to understand and mitigate risks. Mr. Hart gave as a good example the partial risk guarantee in Uganda provided by the World Bank, which has made Globeleq's investment possible. He listed three key issues that donors could help address to improve the investment climate: (1) providing training to improve the quality of sector regulation, (2) supporting sector restructuring to make it commercially viable, and (3) further analyzing the issue of the mismatch for private investors between full-cost recovery and serving the poor. He also expressed the view that if investors' rate of return expectations are within the low teens, this should suffice to provide affordable energy services for the poor; this could require financing a social safety net whose cost in relative terms is not so high (about US\$10 billion to provide 50 kilowatt hours/month to all those unserved). Mr. Hart also noted that governments should look for private partners whose core business is energy as they will use resources more wisely than some of the first entrants in emerging markets whose businesses are more diversified.

**Technical Advisory Group:** Mr. Andrew Barnett, Technical Advisory Group (TAG) Moderator, commended the success of Energy Week 2005 and outlined some of the key lessons he learned from Energy Week. He welcomed the return of energy to a top spot on the World Bank Group WBG agenda. He noted that Energy Week presented a number of innovative concepts and projects, such as generation prices benchmarking, renewable energy toolkit, and small power producers' review, and highlighted that learning is an essential public good, and that the Bank is ideally placed to generate the learning. He stressed a number of challenges.

- (1) How environmental policies can support development—there is a need to understand the trade-offs between increased energy use and development, and what incentives can be put in place to encourage people to adopt the most sustainable solutions or to introduce innovations, for example, in portfolio diversification
- (2) Mitigating the impact of high oil prices
- (3) Building up the sustainability of energy resource

options biomass, coal in China, energy efficiency—Mr. Barnett noted that it came out clearly from speakers at Energy Week that nuclear energy is coming back on the agenda

- (4) Designing innovative finance through creative and transparency financial engineering
- (5) Supporting the political processes for reform that will lead to “smart” regulation
- (6) Ensuring community participation in big projects, not only in small-scale ones
- (7) Strengthening the linkages between energy and other sectors, particularly in transport and agriculture in the context of high and volatile hydrocarbon prices.

In a commentary, Mr. Dan Frederiksen, of the Ministry of Foreign Affairs of Denmark, referred to the above challenges and stressed three points:

- (1) The need to clearly engage our clients as development partners
- (2) The importance of getting results on the ground when engaging with the private sector
- (3) The need for climate-friendly energy solutions implies that renewable energy sources must be considered as part of the development effort and require political support, but also that there is a need for improving the efficiency of coal use.

He commended ESMAP's selection of renewable energy as one of its four thematic programs in the new business plan.

**Client countries:** Mr. Saghir informed the meeting that eight energy ministers from Africa had convened at the World Bank to discuss energy issues before Energy Week, to debate amongst themselves the key energy issues on the African continent. Minister Eunice Kazembe, Minister of Energy for Malawi and Minister K.T. Hammond, Deputy Minister of Ghana, attended the CG meeting and spoke on behalf of the group of energy ministers. Minister Eunice Kazembe stated that in Malawi, where the electrification rate is less than 5 percent, access is a top priority for economic and social development. She expressed that African countries need to be engaged more proactively in the debate on how to scale up access. Because the local private

sector in many cases is still very weak, African countries need to consider the hybrid approach of private-public partnerships to deliver energy services, and in certain cases a public sector led approach; what matters is the results and flexibility must be maintained to achieve results. How to best provide energy services and reduce transaction costs requires coordination among donors. Minister Eunice Kazembe also advocated that countries need to be given flexibility to absorb and deploy external financing for the provision of energy services. She called for, on behalf of her colleagues, less conditionality, greater consistency in the policies of development partners, greater alignment with country policies, a reduction in transaction cost (which is consistent with the harmonization and standardization global agenda), and consideration for providing grant facilities to furnish basic services such as water and rural electrification. She questioned what would be the share of electrification in the US\$1 billion allocation for infrastructure under IDA 14. Finally, she underlined the interdependence of Africa with its partners and called for more predictability in aid flows. Minister K.T. Hammond from Ghana emphasized the importance of private-public partnership and regional coordination. He indicated that the rural electrification in Ghana requires US\$200 million and he encouraged donors to invite and cooperate with foreign private investors to fill this gap.

World Bank: In presenting the perspective of the World Bank, Mr. Saghir reviewed the World Bank's achievements and commitments since WSSD. He emphasized that the WBG's lending portfolio for energy has increased substantially in recent years, moving from US\$500 million a year to well over US\$1 billion this year, possibly close to US\$1.5 billion. He stressed that the WBG is already one of the largest financiers of renewable energy (RE) and energy efficiency (EE) in developing countries among the IFIs. Nevertheless, the WBG committed at the Bonn Conference to an average 20 percent annual growth of RE and EE investments over the next five years. The WBG is focusing on the implementation of its commitment while respecting country development priorities, supporting access to modern energy services for development priorities in an environmentally and socially sustainable manner, and engaging government, private, and nongovern-

mental sectors. Mr. Saghir stressed that energy for sustainable development would be a key theme in CSD 14 & 15. The challenge is how to capitalize on the CSD's focus on energy to further the energy agenda. He called for participants' discussion and agreement on how to work together as an energy community to achieve concrete results from CSD 14 & 15.

### Discussions

The discussion focused on two issues:

- What are the key challenges/opportunities for IDA countries in the area of energy?
- What should be the areas of focus for the World Bank and other multilateral agencies?

The consensus emerged that the energy sector focus for an IDA country should be to scale up energy access to meet the demands and that the climate issue should not be the primary focus or driving determinant in selection options. There is a need for more sophistication on which countries to focus the low-carbon agenda, and to focus on end-users—that is, people's needs. There is a need for clarity on trade-offs between energy and environmental impacts, including climate change. Improving access in Africa will not affect climate change. IDA 14 provides opportunity to scale up energy services in the poorer countries and donors have to work together to leverage investments in the area of energy. The challenges are how to match profit and risk to attract private investment, serve the poor, ensure sustainability, and how to take advantage of the grant component of IDA, in particular through the cooperation between the World Bank and other organizations, and through the focused application of the grants, possibly on such elements as training, capacity building, and targeted subsidies.

The comparative advantages of the World Bank and other multilateral agencies are on policy, governance, harmonization, and ensuring complementarity between the various sources of financing. They can help build the private sector's confidence to invest in the energy sector in these countries. The focus should be to bring all partners to work in a coordinated manner at the country level to achieve the Millennium

Development Goals. There was a call for energy sector specialists to dialogue and cooperate with other sectors to increase the effectiveness of energy sector policies and programs. Recognizing the diversity of situations amongst and within countries is essential, as well as understanding the differences in the structure of demand between rural and urban areas, and for different types of applications. Akin to the commitments made at WSSD, measuring the impact of energy programs and services is viewed as a key element of the development partners' commitments.

Looking beyond the CSDs, the participants called for extending the horizon for a continued energy dialogue, even beyond 2015, as the urbanization trends in particular will call for new solutions, possibly based increasingly on decentralized options.

#### **Sharing Stakeholders Achievements and Commitments toward CSD 14 & 15**

In presenting the achievements and commitments of the Global Village Energy Partnership (GVEP) toward CSD 14 & 15, Ms. Judy Siegel summarized the GVEP activities and progress to date. GVEP is developing programs in 20 countries. These country activities aim to reach at least 2,000 communities to extend access to modern energy services for 25 million people. In addition, GVEP has trained more than 200 energy entrepreneurs to date. Ms. Siegel indicated that GVEP would play an active role in CSD 14 & 15 through highlighting partner activities, accomplishments, sharing of lessons learned, and conveying key issues for scaling up energy service to the poor.

Voicing the view of NGOs, Ms. Sheila Oparaocha, Energia Coordinator, emphasized that NGOs seek to be intermediaries between governments, multilaterals, and people on the ground. Because CSD 14 & 15 is an intergovernmental and multistakeholder process, NGOs can play an important role. It was noted that NGOs have promoted a number of activities, such as building a multisector discussion platform, assessing the impact of sector reform on the poor, promoting the gender and energy agenda, and helping prepare the governance for the policy positions.

In presenting the perspective of the Netherlands, Mr. Ton van der Zon, of the Ministry of Foreign Affairs, stated that the Netherlands aim to help providing improved, affordable, and sustainable energy services to 10 million people by 2015. To achieve this target, the Netherlands will work through private-public partnership (PPPs), bilateral, and multilateral cooperation. Mr. van der Zon also reviewed the conclusions of and follow-up to the Energy for Development Conference and confirmed that the Netherlands' main priority will continue to be energy for poverty alleviation.

Mr. Peter Davies, of the Department for International Development (UK DFID), United Kingdom, explained that the UK is strongly committed to the Kyoto Protocol implementation and to achieving a 10 percent reduction in its emission by 2012; reductions beyond 2012 will be much harder to achieve. In the UK, one of the key agenda items is whether to re-expand the nuclear capacity in the overall energy security mix. The UK is also strongly committed to the MDGs, which are the focus of its energy policy for developing countries, with a special interest in Africa, and the MDG+5 Symposium provides an opportunity to put energy into the MDG debate. In the discussion of the relationship between energy access and the environment, Mr. Davies stressed that it is important for CSD to recognize that different regions and different countries need different solutions and relative priorities.

Ms. Susan McDade, of UNDP, tabled that there is a need and an opportunity to ensure that energy is in the political declaration of CSD 15, so that energy is recognized as essential to achieve the MDGs and that political commitment is obtained to achieve results. She highlighted that UNDP's focus is on meeting the needs of the poor, therefore on heating and cooking services, and on providing mechanical power in the rural areas.

Ms. Monique Barbut, of UNEP, reported that UNEP's Energy Strategy, which was drafted in 2004, recognizes the importance of policy design (for example, commitment to sustainable energy implies recognizing a role for clean coal in Africa) and that energy finance implies mobilizing nonconventional financing sources, and diminishing the transaction costs for the private sector.

She also stated UNEP's commitment to REN21, particularly on how to ensure the financing community comprehends the risks of global warming, continuing with the Sustainable Energy Financial Initiative (SEFI), and finally improving our understanding of climate change and development planning. UNEP is sponsoring the Global Network for Sustainable Energy Development (GNSD)—a WSSD-Type II initiative, particularly in the areas of renewable energy and access and energy and environment.

In presenting Germany's achievement and commitments toward CSD 14 and 15, Mr. Manfred Konukiewitz of the German Ministry for Development Cooperation (BMZ) reviewed the major outcomes at the Bonn Renewables 2004 Conference and the subsequent increased ODA commitment. Germany has committed 500 million in special credit facility for the period 2005–2009 for renewable energy and energy efficiency. He also provided an update on the progress of the renewable energy policy network for the 21st century (REN21), which aims to provide a forum for international leadership on renewable energy. Mr. Konukiewitz also informed the meeting of Germany's strong commitment to reaching the goals of the Kyoto Protocol; the debate has led to maintain the position to phase out nuclear energy. However, how to fill the gap in energy supplies, renewables, or clean fossil fuels has not yet been resolved. Germany's development focus is on Asia for energy, on Africa for water, and on the participation of the private sector.

The ensuing discussion focused on how to raise the visibility of energy in the CSD agenda and to press the point that "business as usual" is not acceptable. It was noted that CSD 14 and 15 are not only about energy, but also include themes on atmosphere/air pollution and industrial development. In terms of process, CSD is an opportunity to bring successful experiences and best practice and to scale up the multistakeholder approach. It should be open to all models and focus on implementation. In terms of substance, it was discussed that the developmental contribution of energy should be the priority. The policy dialogue should allow African countries to define by themselves sustainable energy policies. The need for long-term energy planning at the country level and long-term training to build up implementation

capacity was recognized. The participants concluded that a prestigious "energy champion" is needed to drive the energy agenda at CSD 14 and 15.

### **Business Meeting for the Energy Trust-Funded Programs**

#### **Business Planning for the ETFPs**

Mr. Saghir introduced the new TAG members who were appointed after the review of their TORs led by the UK and Sweden, which was agreed upon at the last CG meeting. Mr. Saghir also welcomed the representative of Iceland as a potential member of the CG. He then highlighted the ETFP's achievements since the last CG and stressed that from the Sector Board perspective, ETFPs are resources that permit leveraging the Bank's business and pushing it forward beyond its regular activities. Mr. Saghir indicated that the ETFPs have stepped up their fundraising effort and more than US\$35 million has been confirmed for ESMAP so far.

In presenting donors expectations from the ETFPs, Mr. Peter Davis reviewed the development of global funds and partnerships and indicated donors' reasons for supporting the ETFPs, which include:

- (1) To achieve more together than is possible by individual organization;
- (2) To influence the Bank's lending policies;
- (3) To share knowledge and experience;
- (4) To tap into the Bank's intellectual capacity, and
- (5) To promote innovative work at the country level.

The reason that donors support World Bank energy programs is that the World Bank has the comparative advantage of intellectual capacity for analysis, convening power, reputation for work of the highest quality, and openness to new ideas. He illustrated his points with the UK perspective: in DFID, support to global programs is being questioned; at the same time, the pressure to reduce staff makes global programs attractive as they provide a mechanism to both reduce staff costs and get the work done. Using the metaphor of a running bus, Mr. Davis raised the key questions such as the operation, ownership, direction, approach, and stakeholder relationships of the ETFPs. The following

discussion was centered on these key questions. Donors raised the need to bring ETFPs closer to the demand and promote action on the ground.

In the ensuing discussion, several donors confirmed their view on the complementarity between the global programs and their bilateral activities, and the impact they have had over the years to push critical issues in the development agenda and to bring innovation and new ideas. Several questions were raised more directly addressed to ESMAP than to the regional ETFPs:

- (1) The replicability or adaptability, timeliness, and relevance for action of the results generated by the ESMAP analytical work
- (2) The effectiveness of the results dissemination
- (3) The leveraging and impact on the ground of the various activities
- (4) Whether ESMAP's generating a public good for all or just for the benefit of the World Bank
- (5) Whether donors could be more closely associated with the design or review of certain studies or elements of the work program
- (6) Whether the donors would want to request an independent evaluation of the program.

The Operations and Evaluations Department (OED) of the World Bank recently conducted an independent evaluation of 26 global programs and partnerships with the Bank's involvement, including ESMAP. Mr. Christopher Gerrard, senior evaluation officer, presented the overview of the evaluation with a special focus on ESMAP in the areas of selectivity; value added to the Bank's development objectives; governance, management, and financing; and Bank performance. The evaluation found that there is a risk that the global programs may become largely supply driven and the voices of developing countries may not be sufficiently heard in seeking an international consensus. Partners view developing country participation in ESMAP as weak at the global level, but stronger at the country level. Although evidence varies on their value added to the Bank's development objectives, programs close to the Bank were found adding effective value. Partners view ESMAP as most successful in knowledge generation and dissemination. The evaluation reveals that governance could be made more rigorous in several

programs and effectiveness of governance and management should be addressed in some programs if the Bank's financial support is to continue. On the other hand, partners view governance and management of ESMAP as substantially effective. In terms of Bank performance, the evaluation finds that lack of an overall strategy has hindered priority setting and selectivity, so the Bank needs an overarching strategy for global programs. Partners see the Bank as contributing more to ESMAP at the global level. It was noted that the OED evaluation report is available on the Bank Web site and an in-depth review report on ESMAP will also be available within the next few months.

Ms. Margret Thalwitz, Director Trust Fund Policy, outlined the analysis of the global programs and partnerships (GPPs), which she has undertaken at management's request. She explained how difficult it is to separate the fiduciary responsibility from the content of the programs. Bank management treats GPPs in the same way as other Bank activities in terms of quality, and wants to consider exit strategies, both in terms of financial sustainability and competition with other activities. She put forward the view that there is no such thing as a global public good that does not have a country application, and some countries are both donors and recipients. The ensuing discussion highlighted the question of independent evaluation of the programs linked to the quality of the monitoring, the need to build up the synergies between various global programs, and the issue of alignment with Bank activities, which also depends on how much the World Bank is involved in defining the tasks.

### Report of the Technical Advisory Group

Mr. Andrew Barnett presented the TAG report to the CG. He stated that the TAG report is not an evaluation, but seeks to provide an opportunity for donors to reflect and to offer better coordinated responses. He emphasized the necessity of continuing to support trust-funded programs in the World Bank so that the Bank can continue to innovate. He called for clarification on the balance in trust funds' activities between operational leveraging and generating global knowledge, and for clear, measurable indicators. The role of the CG should be to advise on the balance between activities.

The TAG commended ESMAP's new business plan for providing a simpler framework and a new, more decentralized, and innovation-oriented business model. While supporting the four thematic areas, it suggested that a fifth one may be needed, that is, energy efficiency, which is indispensable to achieve energy security. The TAG emphasized the importance of conducting state-of-the-art analysis of key emerging issues and welcomed the proposed three-year regional programs for policy and operational innovation. The TAG called for greater vigilance on the timeliness in addressing certain issues. In commenting on ASTAE's business plan, the TAG stated its support to ASTAE type operations that aim at covering the extra costs of operational innovation. In particular, the TAG supported ASTAE's move to add access to the unserved to its program and to map outcomes through measurable indicators. The TAG also stated its support to ASTAE's strategic approach to leverage funds from local financial institutions and the wider community. In terms of the Africa Energy Program (AFTEG), the TAG commented that the former trust funds Regional Program on the Traditional Energy Sector (RPTES) on biomass and the Africa Rural and Renewable Energy Initiative (AFRREI) on rural electrification are now fully mainstreamed and aligned with Africa region priorities. The TAG emphasized that developing an energy plan could help provide a framework to deploy new bilateral funding effectively. As the Africa Energy Program (AFTEG) did not present a business plan, but a work program for review, the TAG asked for clarification on its orientations for the future. The TAG identified energy security, efficiency, gender, and decentralized service delivery as the key global energy issues. The TAG noted that this year it focused on the review of the business plans of the ETFPs and plans to focus more on the substance of their programs next year.

The discussion emphasized that the ETFPs should not substitute the World Bank's funding but add value to the World Bank's work. Donors agreed that ESMAP's work should not be technology driven, but development driven with a specific focus on meeting the energy needs of the poor. They recognized, however, that renewable energy is part of the solution for providing energy access to the poor and that the program should be technology sensitive and that it cannot neglect

the environmental impact of energy. Several donors confirmed the value of the ETFPs in generating knowledge, and stated that it should do more in documenting and learning from failures, or, regarding policies, which work, which do not, and why. The majority of the donors were in favor of the extended expert advisory group that ESMAP has proposed.

In terms of the function of the TAG, donors were generally satisfied with the quality of the TAG report and appreciated that the TAG provided an independent view of ETFPs. To help clarify the discussion on the role of the TAG, the World Bank conducted a benchmarking exercise of the TAG function with other global partnerships such as the Water and Sanitation Program, the Cities Alliance, the Information for Development Program, the Output Based Partnership, the CGAP (The Consultative Group to Assist the Poor) funding facility, and the Public-Private Infrastructure Advisory Facility. Most programs have an arrangement comparable to the TAG, but with different functions. The Bank called for the TAG to focus less on the process and more on strategic issues and to provide a more systematic and independent assessment. It was agreed that donors would send the TAG their comments on the work program proposed in the TAG's report within one month. The TAG would then finalize the work program with detailed budget and deliverables for the next year. Donors confirmed that the TAG should remain as three members.

## Overview of the Energy Trust-Funded Programs

### Asia Alternative Energy Program (ASTAE)

Ms. Junhui Wu, Sector Manager of the World Bank for East Asia and the Pacific (EAP) Energy Group, presented the EAP regional context, the World Bank energy strategy in EAP, and progress on ASTAE Business Plan 2004–06. She stated that the energy demand in the EAP region is rising rapidly, but remains still dominated by fossil fuels. The major energy needs are in the areas of improving efficiency, attracting investment, protecting environment, and increasing access. Therefore, the Bank medium-term energy business priorities in EAP are to help client countries manage energy demand growth, improve their energy sector's investment

climate, mitigate the environmental impact, increase access to modern energy services, and leverage regional energy resources through energy trade. ASTAE plays a critical role in implementing these strategic priorities and the Bank's Bonn commitment on renewable energy. ASTAE's goal is to scale up the use of sustainable energy options in Asia to reduce energy poverty and protect the environment. To scale up access, ASTAE's "alternative energy" has been expanded to include nonrenewable options focused on poverty reduction, such as grid extension, off-grid access using diesel, and promotion of modern fuels for cooking and heating. In addition, ASTAE is moving toward a program approach to scale up the impact. For example, China's renewable energy program has been under implementation for 10 years and has systematically examined the technical, policy, financial, and legislative aspects to promote renewable energy in China. ASTAE has also widened its geographical coverage by supporting three more IDA countries: Papua New Guinea, Timor-Leste, and the Solomon Islands. To intensify client contact and accelerate business development, ASTAE adopted a decentralized staffing model by reducing staff to one coordinator at headquarters and adding three field-based staff in priority countries: China, Indonesia, and Vietnam. In terms of outreach, BBC broadcasted a documentary on the work of ASTAE, ESMAP, and Bank partners on providing greater access to modern energy services, and promoting renewable energy and energy efficiency in Asia. The documentary was viewed by 240 million people worldwide.

On the funding issue, Ms. Wu pointed out that ASTAE's three-year funding cycle is too short for policy dialogue and program support. Part of ASTAE's financing needs a minimum five-year cycle. ASTAE anticipates a funding gap of US\$1.9 million for FY06. One proposal is that donors could commit funding partly for the long term and partly for the on-going cycle. Because climate change is a major priority in Asia, Ms. Wu also called for CG's guidance on whether or not ASTAE should include in its program nonrenewable options that reduce climate change, such as clean coal technologies.

In the following discussion, donors appreciated the progress ASTAE has made in developing the Business

Plan 2004–06. It was noted that the coal sector in Asia, especially in China, is a big issue for climate change. However, because of the small size of the program, ASTAE should concentrate on poverty alleviation. Responding to the issue that ASTAE is not active in South Asia, Ms. Wu explained that ASTAE is trying to work more with the South Asia energy team; however, she indicated that ASTAE respects country's energy policy ownership and would not push sector reforms. The donors also raised the need for more emphasis on gender issue and coordination with ESMAP.

### **Energy Sector Management Assistance Program (ESMAP)**

Ms. Dominique Lallement, Manager of ESMAP, gave a review of 2004 activities and presented the new ESMAP business plan for the period 2005–07. Responding to some issues raised at the meeting, she first clarified that the purpose of ESMAP is to help secure energy services for the poor and therefore the developing countries are its clients. ESMAP provides technical assistance, analytical work, knowledge transfer, and support to innovative projects in support of its purpose. The impact of ESMAP's work includes not only publications, but also new or improved sector policies and strategies, new legislation and regulation, improved capacity, and new projects and investments.

Ms. Lallement briefed the CG that the year 2004 was a year of consolidation for ESMAP and of transition toward the new business plan. ESMAP did not have calls -for-proposals because of shortage of funds. It delivered on its commitments from previous calls-for-proposals, on GVEP projects, and launched a few new activities. In 2004, ESMAP focused on securing funding, completing the implementation of 2002–2004 Business Plan, and consulting with clients and partners for the new business plan. In addition, ESMAP piloted the new publication strategy to improve efficiency of the publication process. In terms of timeliness of ESMAP's response to emerging issues, ESMAP has issued one new publication on energy security, held a Knowledge Exchange Event with the Bank staff, and funded the project on energy security issues in China. In addition, ESMAP has funded and managed activities to follow up on the Private Sector Investment

Roundtable, the Bonn Conference, and the Energy for Development Conference.

The ESMAP 2005–2007 Business Plan proposed a new framework for ESMAP that includes four thematic programs, three operational functions, and a new portfolio management method. The four thematic programs—energy security, renewable energy, energy poverty, and market efficiency and governance—allow ESMAP to be more selective and focused on increasing its monitorable impact. The new operational functions—think tank, knowledge clearing house, and operational leveraging—provide ESMAP a framework to effectively respond to clients’ needs. Accordingly, ESMAP proposed to adopt a new portfolio management method to implement the proposed new operational framework. It includes ESMAP managing directly the bulk of the analytical think-tank activities, mostly with its core staff; contracting with the Bank’s regional teams a three-year regional program for policy and operational innovation; delivering a number of knowledge products with the focus on impact on the ground; and creating a fund to explore new and innovative ideas. The budget for implementing the business plan is estimated between US\$36–40 million over three years, and is already fully funded.

In his commentary, Mr. Simon Koppers, advisor of BMZ, commended the ESMAP team, other World Bank staff, and the TAG for a job well done in evaluating and strengthening ESMAP. He stated his support for ESMAP’s focusing its activities on fewer thematic programs and noted that it is also important to be focused within the four thematic programs. He welcomed the concentration on the social dimension of the strategic areas, including access for the poor, gender, and the focus on the lowest income groups. Regarding the think tank function, Mr. Koppers appreciated that ESMAP should not conduct purely academic work but should seek to “influence the energy agenda of the energy community.” On the knowledge clearing house function, he suggested setting up some sort of “help desk” to fulfill the needs for immediate advice of certain client countries. On the operational leverage function, he appreciated the focus on upstream work to initialize and stimulate routine Bank operations, and supported the widening of downstream work toward project support

for extracting lessons learned from practice. He welcomed ESMAP’s vision that energy access is a multisectoral and cross-cutting issue. Mr. Koppers emphasized that ESMAP could play a key role in creating synergies and encouraging the energy practice to join forces with other sectors.

The following discussion confirmed the donors’ overall support to the new 2005–2007 Business Plan and implementation framework. It was suggested that in addition to its mission statement, ESMAP would need the underlying purpose statement presented at the meeting to make its work more focused. The final version of the business plan to be sent to donors by end of April 2005, should clarify how the program fits within the Bank’s activities and with the other ETFPs, how it manages its objectivity of views rather than its independence from the Bank, and the role of governments and country directors in supporting the activities; it should also have clear, measurable indicators. Donors expressed support for the proposed ESMAP symposium; the first one should be on energy and poverty reduction.

Donors emphasized the need:

- (1) To maintain the focus on access for poverty eradication and on meeting the needs of the poor
- (2) For more efforts in Africa
- (3) For more analytical work on tough issues such as subsidies
- (4) For more learning from experience, including from what does not work.

Some donors suggested that ESMAP could reengage in the preparation of some Country Energy Assessments to address the issue of long-term energy planning. This could fit with the CSD 14 and 15 agenda. ESMAP should also help formalize the multisector approach and develop some indicators of effectiveness of multisector linkages.

## Africa Energy Program (AFTEG)

Mr. Yusupha Crookes, African Energy Sector Manager of the World Bank, presented AFTEG's strategic objective, expected outcomes, constraints, and areas of support and activities. AFTEG's strategic objective is to support its clients to scale up access and ensure a sustainable supply of energy services to their population as part of broader efforts to stimulate growth, reduce poverty, and promote inclusiveness. The expected outcomes include:

- (1) Increased access to electricity
- (2) Improved service quality of electricity
- (3) More efficient resource use
- (4) Enhanced reliability of supply of household fuels, and
- (5) Improved resource mobilization in the sector.

However, poor utility performance, the eroding supply of biomass fuels, limited progress in availability of efficient alternative household fuels, and slow progress in development and trade of vast regional energy resources to lower costs have been the major constraints for achieving the expected outcomes. Therefore, AFTEG's activities have been focused on overcoming those constraints through improving utility performance, learning from sector reforms, enhancing the impacts of energy access, and structuring and integrating the regional market. In terms of operational support, AFTEG's work is increasingly mainstreamed into Africa region operations. In terms of analytical and knowledge management activities, it was noted that ESMAP has an Africa window and that AFTEG business lines are consistent with ESMAP themes.

The ensuing discussions centered around the issue of efficient management of utilities, the need for a multi-sector approach, the importance of integrating energy in the PRSPs, and the challenge of biomass and

renewable energy. The poor performance of utilities relates to the governance issue and sector reform that need prior political acceptance. It was emphasized that PRSPs are critical documents that can help countries build up capacity and develop institutions to manage the energy program. It was recognized that more efforts are needed to ensure that energy is well represented and recognized as a key factor for poverty reduction in PRSPs. It was noted that although access to electricity is the priority, sustainable biomass is also an important issue in the region. In some cases, renewable energy also plays an important role in providing energy services, such as geothermal energy in Kenya.

Agreed follow-up actions:

- TAG: CG members to send the TAG their comments and suggestions for the 2005/06 work program. The TAG team is to submit the final work program proposal to Mr. Saghir by the end of April.
- ESMAP: To finalize the business plan, taking the donors comments by the end of April.
- Africa manager: To present the Africa Strategy at DfiD and in Germany at the first occasion and/or in other countries upon request.
- CG 2006: Keep the timing with Energy Week, and program more time to discuss regional programs. Two full days for the CG is the right length.

## Conclusion

Donors commended the new format of the CG meeting and its scheduling back-to-back with Energy Week. Mr. Saghir thanked donors, TAG members, and other participants for their continued support of the ETFPs, and for the very frank and constructive discussions. The meeting adjourned on March 18, 2005, at 6:00 p.m.

## Completed, Approved, and Ongoing Activities in 2005

### ACTIVITIES COMPLETED

<b>Africa Region (AFR)</b>		
Women's Energy Enterprise: Developing a Model for Mainstreaming Gender into Modern Energy Service Delivery	Ghana	Kofi-Boateng Agyen
Central Africa Energy and Poverty Workshop	Cameroon	Dominique M. Lallement
South Africa Workshop - People's Power Workshop	South Africa	Arun P. Sanghvi
Malawi: Rural Energy Development	Malawi	Mangesh Hoskote
Workshop on Rural Energy and Sustainable Development	Cote d'Ivoire	Koffi Ekouevi
Decentralized Rural Electrification	Cameroon	Douglas French Barnes
Africa Region Energy Strategy for Poverty Reduction and Sustainable Development -- Seed Funding	AFR	Paivi Koljonen
Expanding Rural Access to Infrastructure	Nigeria	Subramaniam V. Iyer
Evaluating Opportunities of Using Wood and Agricultural Residues as Energy in Tanzania Forest Areas	Tanzania	Richard Kaguumba
Formulating Strategies for Cleaner Fuels in South Africa	South Africa	Arun P. Sanghvi
Initiating the Bank's Peri-Urban/Rural and Renewable Energy Activities in Nigeria	Nigeria	Malcolm Cosgrove-Davies
Clean Fuels Africa Project: Phasing Out Leaded Gasoline in SSA Importing Countries	AFR	Eleodoro O. Mayorga Alba
PSIA (Poverty and Social Impact Analysis) on Reforms to the Provision of Ancillary Services by the Mining Sector	Mauritania	Maria C. Correia
Opportunities for International Power Trade in the Nile River Basin I	AFR	Mangesh Hoskote
Regional Electricity Demand Management TA - Phase II	AFR	Xiaodong Wang
Nigeria LPG Market Development and Access Expansion	Nigeria	Mourad Belguedj
Revenue Management Seminar	Chad	Silvana Tordo
Equatorial Guinea: Resource Revenue Management	Equatorial Guinea	Silvana Tordo
Landfill Gas Utilization in Sub-Saharan Africa	AFR	Masaki Takahashi
<b>East Asia and Pacific Region (EAP)</b>		
Capacity Building for National and Provincial Socially and Environmentally Sustainable Management of Coal Resources in China	China	Charles A. Husband
Coal Stove Improvement Program	Mongolia	Douglas French Barnes
Rural Electrification Regulation Framework. Phase I	Philippines	Selina Wai Sheung Shum
Philippines Rural Electricity: Private Participation and Regulatory Reform. Phase II.	Philippines	Selina Wai Sheung Shum
Creating Clean Coal Market: Environmental Monitoring and Enforcement, and Private Participation Capacity Building	China	Masaki Takahashi
<b>East and Central Asia Region (ECA)</b>		
Heat Strategies in Low-income Transition Countries	ECA	Sumter Lee Travers
Energy Efficiency in Urban Water Utilities in Central Asia: The Uzbekistan Case.	Central Asia	Ede Jorge Ijjasz-Vasquez

## ACTIVITIES COMPLETED *continued*

<b>Latin America and Caribbean Region (LCR)</b>		
Central America Gender in Sustainable Energy	LCR	Jean-Claude Balcet
Village Power Partnership for Latin America and the Caribbean (VPP-LAC)	LCR	Dana Rysankova
Brazil - Rural Electrification Strategy	Brazil	Jayme Porto Carreiro
Training Program for Key Group Representatives From Indigenous People Regional Organizations/Rural Energy Development, Phase 2	Bolivia	Eleodoro O. Mayorga Alba
Rural Electrification & Power Reform in Central America	LCR	Douglas French Barnes
Health Impacts of Traditional Fuel Use	Guatemala	Yewande Aramide Awe
Country Programme - Phase II	Bolivia	Philippe J-P. Durand
Energy, Population and Environment	LCR	Eleodoro O. Mayorga Alba
<b>South Asia Region (SAR)</b>		
India - Environmental Policies for the State Power Sector - Rapid Assessment for Karnataka & Rajasthan	India	Mudassar Imran
<b>Global (GLB)</b>		
Mainstreaming Gender into Energy Projects	Global	Waafas Ofosu-Amaah
Women in Mining Voices for Change Conference	Global	John E. Strongman
Global Village Energy Partnership Workshop on Consumer Lending and Microfinance to Expand Access to Energy Services	Global	Dominique M. Lallement
Advancing Modern Biomass Energy Opportunities & Challenges	Global	Boris Enrique Utria
Rationing Energy in a "Rational" Way	Global	Luiz T. A. Maurer
Energy Efficiency Operational Exchange Program	Global	Robert P. Taylor
Petroleum Revenue Management Conference	Global	Charles P. McPherson
Preparation of Solar Lantern Global Technical Performance Specification and PV-GAP Recommended Specifications	Global	R. Anil Cabraal
Governance of National Oil Companies	Global	Charles P. McPherson
Toolkit for Scaling up Rural Energy Access	Global	R. Anil Cabraal

## ACTIVITIES APPROVED

<b>Africa Region (AFR)</b>		
Impact and Determinants of Success of Private Participation in Power in SSA	AFR	Wendy E. Hughes
PSIA (Poverty and Social Impact Analysis) on Reforms to the Provision of Ancillary Services by the Mining Sector	Mauritania	Maria C. Correia
Niger Energy-Poverty Action Plan (GVEP)	Niger	Michel E. Layec
Zambia Energy-Poverty Action Plan (GVEP)	Zambia	Malcolm Cosgrove-Davies
Roundtable with Africa Energy Ministers	AFR	Dominique M. Lallement
Decentralized Energy Services	Zambia	M. Ananda Covindassamy
Decentralized Energy Services	Kenya	M. Ananda Covindassamy
Decentralized Energy Services	Cameroon	M. Ananda Covindassamy

ACTIVITIES APPROVED *continued*

<b>East Asia and Pacific Region (EAP)</b>		
National Rural Electrification Planning	East Timor	Leiping Wang
Green Energy IPP (GRIPP)	Philippines	Sandeep Kohli
Financing for Small Scale Power Supply and decentralized systems	Cambodia	Antonie De Wilde
ESMAP: Decentralized Energy Services for IDA Countries - Cambodia	Cambodia	M. Ananda Covindassamy
ESMAP: Decentralized Energy Services for IDA Countries - Laos	Laos	M. Ananda Covindassamy
<b>East and Central Asia (ECA)</b>		
Power and Poverty: Lessons from Energy Sector PSAs in ECA	ECA	Julian A. Lampietti
<b>Latin America and Caribbean Region (LCR)</b>		
CAI-LAC: Sustainable Transport Workshop	Brazil	Paul Procee
Southern Cone Gas Integration	LCR	Eleodoro O. Mayorga Alba
Honduras: Petroleum Exploration & Mgt.	Honduras	Marc L. Heitner
<b>Middle East and North Africa Region (MENA)</b>		
IR-ENERGY SECTOR	Iran	Anna Bjerde
ESMAP: EG-ECONOMIC COSTS OF GAS IN EGYPT	Egypt	Franz Gerner
EG-DEMAND MANAGEMENT WORKSHOP	Egypt	Eric Groom
<b>South Asia Region (SAR)</b>		
Improving Indoor Air Quality for Poor Families: Proposal for a Controlled Experiment in Bangladesh	Bangladesh	Susmita Dasgupta
ESMAP: Decentralized Energy Services for IDA Countries - Bangladesh	Bangladesh	M. Ananda Covindassamy
<b>Global (GLB)</b>		
Regional Energy Trade	Global	Vladislav Vucetic
GVEP - GAPFund	Global	Douglas French Barnes
Gender and Energy Resource Center	Global	A. Waafas Ofosu-Amaah
SEFI Roundtable - Renewable Energy Conference	Global	Dominique M. Lallement
Corruption issues in the Energy Sector	Global	Ede Jorge Ijjasz-Vasquez
Decentralized Energy Services for IDA Countries	Global	M. Ananda Covindassamy
ESMAP: Decentralized Energy Services for IDA Countries - Global	Global	M. Ananda Covindassamy
Meeting the Energy Needs of the Urban Poor: the case of electrification (Peri-Urban Electrification Workshop)	Global	Dominique M. Lallement
Impact of Energy: MultiSector Surveys	Global	Kyran O'Sullivan
Grid Connected RE Policy Forum	Global	Xiaodong Wang

(Note: The projects approved in WPAs are not included except those in ESMAP's Database)

## ACTIVITIES ONGOING

<b>Africa Region (AFR)</b>		
Power Sector Reform in Africa: Assessing the Impact on the Poor and Influencing Policy Decisions	AFR	M. Ananda Covindassamy
Ghana: Energy Sector Strategy	Ghana	Subramaniam V. Iyer
Expanding SME Outsourcing Opportunities from Utility Sector Reform - A Survey of Eastern and Southern Africa	AFR	Amarquaye Armar
Impact on the Poor of the Electricity Sector Reform in the Kingdom of Lesotho	Lesotho	Gilberto de Barros
Ghana Energy PSIA of Energy Sector Reforms	Ghana	Sarah Keener
Rwanda: Energy Water Assessment Phase I	Rwanda	Malcolm Cosgrove-Davies
Development of a Regional Power Market in West Africa	AFR	Amarquaye Armar
Lagos Strategy for Economic Development and Poverty	Nigeria	Deepali Tewari
Africa Rural and Renewable Energy Initiative (AFRREI)	AFR	Arun P. Sanghvi
Design and Pilot Testing of Capacity Building Product line for SME Utility Service Providers in West Africa	AFR	Amarquaye Armar
Promoting Productive Uses of Electricity in Rural Areas	AFR	Arun P. Sanghvi
Multisectoral Operational Plan to Maximize Poverty Reduction Impact of Rural Electrification in Senegal	Senegal	Christophe de Gouvello
AFTEG Rural and Renewable Energy	AFR	Arun P. Sanghvi
Petroleum Revenue Transparency Audits	Nigeria	Charles P. McPherson
Facility for the follow up of Africa Energy-Poverty Workshops	AFR	Koffi Ekouevi
Mainstreaming Low-Cost Innovations in Electricity Distribution Networks in Africa	AFR	Arun P. Sanghvi
Energy-Poverty Action Plan (GVEP)	Cameroon	Emmanuel Noubissie Ngankam
Niger Energy-Poverty Action Plan (GVEP)	Niger	Michel E. Layec
Zambia Energy-Poverty Action Plan (GVEP)	Zambia	Malcolm Cosgrove-Davies
Roundtable with Africa Energy Ministers (FEMA)	AFR	Dominique M. Lallement
Impact and Determinants of Success of Private Participation in Power in SSA	AFR	Wendy E. Hughes
Decentralized Energy Services	Zambia	M. Ananda Covindassamy
Decentralized Energy Services	Kenya	M. Ananda Covindassamy
Decentralized Energy Services	Cameroon	M. Ananda Covindassamy
<b>East Asia and Pacific Region (EAP)</b>		
Diesel Pollution Reduction Strategies for Cities	EAP	Jitendra J. Shah
Vietnam - Policy Dialogue Seminar and New Mining Code	Vietnam	Charles A. Husband
Power and Poverty: Lessons from Energy Sector PSIA in ECA	ECA	Julian A. Lampietti
Rural Electrification Policy Development and Conceptual Design of Energy Services Delivery Projects to Improve Rural Health and Education Service Delivery	Papua New Guinea	Antonie De Wilde
Scoping Study for Voluntary Green Electricity Schemes in Beijing and Shanghai	China	Noureddine Berrah
Improved Heating Stoves & Health Impact on Low Income Consumers	Mongolia	Douglas French Barnes
Capacity Building for the Electricity Authority of Cambodia	Cambodia	Rebecca C. Sekse
Demand Side Management in a Restructured Industry	China	Jianping Zhao

ACTIVITIES ONGOING *continued*

<b>East Asia and Pacific Region (EAP) <i>continued</i></b>		
Demand Side Management in a Restructured Industry	China	Jianping Zhao
Philippines - Village Power Fund and Incubator for Renewable Energy Enterprises	Philippines	Selina Wai Sheung Shum
Cambodia - Renewable Energy Action Plan	Cambodia	Rebecca C. Seskse
Sustainable and Efficient Energy Use to Alleviate Indoor Air Pollution in Poor Rural China	China	Enis Baris
Development of Pro-poor National Heat Pricing and Billing Policy	China	Robert P. Taylor
Greater Mekong Sub-region Power Trade Strategy Meeting	EAP	Mohinder P. Gulati
Infrastructure Services to the Rural Poor	Mongolia	Salvador Rivera
China: Enabling Universal Access to Electric Power	China	Richard Spencer
Development of East Asia & Pacific Energy Business Strategy	EAP	Junhui Wu
Global Village Energy Partnership (GVEP) Asia Initiative	EAP	Antonie De Wilde
National Rural Electrification Planning	East Timor	Leiping Wang
Green Energy IPP (GRIPP)	Philippines	Sandeep Kohli
Financing for Small Scale Power Supply and decentralized systems	Cambodia	Antonie De Wilde
Implementation strategy for China's energy security objectives	China	Noureddine Berrah
ESMAP: Decentralized Energy Services for IDA Countries - Cambodia	Cambodia	M. Ananda Covindassamy
ESMAP: Decentralized Energy Services for IDA Countries - Laos	Laos	M. Ananda Covindassamy
<b>East and Central Asia Region (ECA)</b>		
Energy Sector Regulation (incl gas proj)	Poland	Rachid Benmessaoud
Azerbaijan - Natural Gas Sector Restructuring and Regulatory Reform	Azerbaijan	Alan F. Townsend
Introducing the Concepts of ESCOs to Belarus	Belarus	Maha J. Armaly
Women in Mining ) Chance for Better Life Workshop	Poland	John E. Strongman
Lithuania - Heating Supply to Small Cities/Towns	Lithuania	Gary Stuggins
Provision of Energy Services to the Poor in Tajikistan	Tajikistan	Raghuveer Y. Sharma
Innovative Energy Efficiency Financing Mechanism	Poland	Peter Johansen
Development of Power Generation in South East Europe. Implications for Investments in Environmental Protection	ECA	David Kennedy
TA for Establishing a Water-Energy Consortium in Central Asia	ECA	Nikolay Nikolov
Power and Poverty: Lessons from Energy Sector PSAs in ECA	ECA	Julian A. Lampietti
<b>Global (GLB)</b>		
Best Practices for Grid Electrification Phase II	Global	Douglas French Barnes
Pioneering New World Bank Approaches in Support of Sustainability in the Extractive Sector	Global	John E. Strongman
Knowledge Transaction: Reducing Energy Costs in Water Supply Operations	Global	Amarquaye Armar
Review of ESMAP's Energy Sector Reform & Market Development Work	Global	Dominique M. Lallement
Potential for Biofuels in Developing Countries	Global	Todd M. Johnson
Designing Strategies and Instruments to address Power Projects Stress Situations	Global	M. Ananda Covindassamy
Issues in Energy Security	Global	Dominique M. Lallement
SEFI Roundtable - Renewable Energy Conference	Global	Dominique M. Lallement
Corruption issues in the Energy Sector	Global	Ede Jorge Ijjasz-Vasquez

## ACTIVITIES ONGOING *continued*

<b>Global (GLB) <i>continued</i></b>		
Developing Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China and India.	Global	Chandrasekar Govindarajalu
Developing Regional Clean Air Networks	Global	Marian S. Delos Angeles
Assessing the Impacts of Energy Sector Reform on the Poor	Global	M. Ananda Covindassamy
Global Village Energy Partnership (GVEP) Secretariat	Global	Dominique M. Lallement
Capacity Building and Policy Assessment in Indoor Air Pollution	Global	Todd M. Johnson
Source Apportionment of Fine Particulates in Developing Countries	Global	Todd M. Johnson
Developing a Sectoral Energy Poverty Index	Global	Arun P. Sanghvi
Guidelines for Designing Energy Modules in Multi-Topic Household Surveys	Global	Kyran O'Sullivan
Resource Funds: A comparative Analysis (Revenue Management Proposal)	Global	Silvana Tordo
Road Map for Scaling up Modern Energy Services and Clean Energy	Global	R. Anil Cabraal
Win-Win: Demand Side Management Options in Developing Countries	Global	Luiz T. A. Maurer
Regional Energy Trade	Global	Vladislav Vucetic
Natural Gas Connection Charges and Conversion Costs and their Impact on Poor Households	Global	Franz Gerner
Roundtable of Power Investors for Working Group 3: Governance Standards/Code of Conduct/Performance Benchmarks for Electric Power PPPs	Global	Amarquaye Armar
GVEP - GAPFund	Global	Douglas French Barnes
Gender and Energy Resource Center	Global	A. Waafas Ofosu-Amaah
Symposium on Hydropower and Sustainable Development	Global	Jianping Zhao
Decentralized Energy Services for IDA Countries	Global	M. Ananda Covindassamy
ESMAP: Decentralized Energy Services for IDA Countries - Global	Global	M. Ananda Covindassamy
Meeting the Energy Needs of the Urban Poor: the case of electrification (Peri-Urban Electrification Workshop)	Global	Dominique M. Lallement
Impact of Energy: MultiSector Surveys	Global	Kyran O'Sullivan
Grid Connected RE Policy Forum	Global	Xiaodong Wang
<b>Latin America and Caribbean Region (LAC)</b>		
National Biomass Programme	Bolivia	Philippe J-P. Durand
Nicaragua - Pilot Commercialization of Improved Cookstoves	Nicaragua	Clemencia Torres
Mexico - TA for Long-Term Program for Renewable Energy Development	Mexico	Charles M. Feinstein
Technical Assistance to Proposed Expansion of Solar-Net Village Program	Honduras	Clemencia Torres
Energy From Landfill Gases for the LCR Region: Best Practice and Social Issues	LCR	Horacio Terraza
OECS Energy Sector Reform and Renewable Energy/Energy Efficiency Options	LCR	Charles M. Feinstein
Good Practice Case Study in Integrating Environment into Gas and Oil Pipeline Projects: Experiences Based on the Bolivia-Brazil Gas Pipeline	Bolivia	Juan D. Quintero
Policy & Strategy for the Promotion of Renewable Energy Resources in Nicaragua	Nicaragua	Clemencia Torres
Stimulating the Market for Family-Hydro for Low-Income Households in Ecuador	Ecuador	Philippe J-P. Durand
Alleviating Urban Energy Poverty in Latin America: The Brazilian Case	Brazil	Dominique M. Lallement
Extending the Use of Gas to Inland Peruvian Provinces	Peru	Eleodoro O. Mayorga Alba

ACTIVITIES ONGOING *continued*

Latin America and Caribbean Region (LAC) <i>continued</i>		
Renewable Energy Systems in Peruvian Amazon Region (RESPAR Project)	Peru	Xiaodong Wang
Options to Revitalize Investment and Private Participation in Power Distribution in the Latin American and Caribbean Region	LCR	Lucio Monari
LCR - Low Income Energy Assistance	LCR	Quentin T. Wodon
Regulatory Issues of Off-Grid Energy Service Delivery as Part of National Rural Electrification Strategies	LCR	Clemencia Torres
Lessons on Offgrid Electricity, Business Development Services and Microcredit (Seed Funding)	Nicaragua	Clemencia Torres
Innovative Financing Mechanism for Energy Efficiency in Mexico	Mexico	Charles M. Feinstein
LCR Subsidy Review Study	LCR	Dana Rysankova
Colombia: Natural Gas: Bases for a Development Strategy of the Sector	Colombia	Clemencia Torres
Village Energy Solutions for Remote Areas of Brazil. Specific Support to the Implementation Strategy of the Universal Access Program and to the National Energy Action Plan (GVEP)	Brazil	Dana Rysankova
TA Preparation of an Oil Supply Strategy	Paraguay	Eleodoro O. Mayorga Alba
Energy Solutions for the Poor Marginalized Communities (in the framework of GVEP follow up)	Bolivia	Dana Rysankova
Honduras: New Approaches for Delivery of Energy Services in Rural Areas (GVEP)	Honduras	Dana Rysankova
Haiti: Scoping Study for Household Energy Strategy	Haiti	Clemencia Torres
Development of regional capabilities in three states of the Republic to foster energy projects for rural areas, focusing on renewable energy (GVEP)	Mexico	Gabriela Elizondo Azuela
Power Sector Strategy	Paraguay	Lucio Monari
Peru Rural Electrification	Peru	Susan V. Bogach
CAI-LAC: Sustainable Transport Workshop	Brazil	Paul Procee
Rural Infrastructure in Chile: Improving Efficiency and Reaching the Poor	LCR	Closed
Southern Cone Gas Integration	LCR	Eleodoro O. Mayorga Alba
Honduras: Petroleum Exploration & Mgt.	Honduras	Marc L. Heitner



## ACTIVITIES ONGOING *continued*

<b>Middle East and North Africa Region (MENA)</b>		
Global Efficiency in Sidi Bernoussi Industrial & Peri-Urban Area	Morocco	Noureddine Bouzaher
Energy Poverty and Access	Yemen	Kyran O'Sullivan
Strategy to Expand Gas Distribution and Utilization in Turkey	Turkey	Ranjit J. Lamech
IR-ENERGY SECTOR	Iran	Anna Bjerde
Regional Workshop At Sidi Bernoussi, Morocco Dissemination of the results of the ESMAP Sidi Bernoussi industrial park study	Morocco	Noureddine Bouzaher
Energy Sector Strategy for Poverty Reduction and Growth	Djibouti	Michael Hamaide
ESMAP: EG-ECONOMIC COSTS OF GAS IN EGYPT	Egypt	Franz Gerner
EG-DEMAND MANAGEMENT WORKSHOP	Egypt	Eric Groom
<b>South Asia Region (SAR)</b>		
Towards Formulating a Rural Energy Strategy	Bangladesh	Douglas French Barnes
Opportunity for Women in Renewable Energy Technology Utilization in Bangladesh (Phase II)	Bangladesh	M. Iqbal
Pakistan - Household Impact Analysis of the Energy Sector Reform	Pakistan	Masami Kojima
Enhancing Access and Rural Electrification - Costs & benefits, and Willingness to Pay	Pakistan	Waqar Haider
Exploring Opportunities for Improving Rural Energy Access	Afghanistan	Mudassar Imran
Commercialization of Improved Stoves	India	Douglas French Barnes
Improving Indoor Air Quality for Poor Families: Proposal for a Controlled Experiment in Bangladesh	Bangladesh	Susmita Dasgupta
ESMAP: Decentralized Energy Services for IDA Countries - Bangladesh	Bangladesh	M. Ananda Covindassamy



## Publications and Knowledge Dissemination Activities

### FORMAL REPORTS

Report Number	Country/Region	Publication Title	Author
298/05	GLB	Energy Poverty Workshop Proceedings of the Multisector Regional AFR Workshops. (CD Only).	ESMAP
299/05	GLB	The Impact of Higher Oil Prices on Low Income Countries and on the Poor	Bacon
300/05	GLB	Advancing Bioenergy for Sustainable Development: Guideline for Policymakers and Investors.	Utria
301/05	GLB	Rural Energy CD.	ESMAP
302/05	LCR	Energy and Poverty Reduction: Proceedings from the Global Village Energy Partnership (GVEP) Workshop Bolivia.	Rysankova/Kieffer
303/05	GLB	Renewable Energy and Energy Efficiency Financing and Policy Network: Options Study and Proceedings of the International Forum.	Cabraal/Siegel
304/05	LCR	Comparative Study on the Distribution of Oil Rents in Bolivia, Colombia, Ecuador and Peru. (Spanish and English).	Mayorga-Alba
305/05	GLB	Implementing Power Rationing in a Sensible Way: Lessons Learned and International Best Practices.	Maurer
306/05	AFR	Power Sector Reform in Africa: Assessing the Impact on Poor People.	Covindassamy
307/05	Tunisia	Rural Electrification in Tunisia: National Commitment, Efficient Implementation and Sound Finances.	Cecelski
308/05	AFR	The Vulnerability of African Countries to Oil Price Shocks: Major Factors and Policy Options. The Case of Oil Importing Countries.	Bacon/Mattar
309/05	GLB	The Urban Household Energy Transition. This is a Joint Report with RFF Press. Limited copies are available. ISBN1-933115-07-6.	Barnes/Krutilla/Hyde
310/05	GLB	Pioneering New Approaches in Support of Sustainable Development in the Extractive Sector: Community Development Toolkit. Also includes CD containing Supporting Reports.	Strongman/Davis
311/05	GLB	Designing Strategies and Instruments to address Power Projects Stress Situations (Joint PPFIAF).	Covindassamy
312/05	GLB	Potential for Biofuels for Transport in Developing Countries.	Johnson/Kojima
313/05	Mongolia	Impact of Improved Stoves on Indoor Air Quality in Ulaanbaatar, Mongolia.	Kaufmann/Cowlin
314/05	China	Demand Side Management in a Restructured Industry: How Regulation and Policy Can Deliver Demand-Side Management Benefits to a Growing Economy and a Changing Power System.	Zhao
315/05	Yemen	Household Energy Supply and Use in Yemen. Volume I: Main Report and Volume II: Annexes.	O'Sullivan

### TECHNICAL REPORTS

Report Number	Country/Region	Publication Title	Author
058/05	GLB	Operating Utility DSM Programs in a Restructuring Electricity Sector	Taylor
065/05	LCR	Energy From Landfill Gases for the LCR Region: Best Practice and Social Issues. (CD Only).	Terraza
066/05	Brazil	Brazil: Background Study for a National Rural Electrification Strategy: Aiming for Universal Access.	Reiche/Barreiro
067/05	AFR	Nile Basin Initiative Shared Vision Program Regional Power Trade Project: Part I: Minutes of the High-Level Power Experts meeting; and Part II: Minutes of the First Meeting of the Nile Basin Ministers Responsible for Electricity.	Hoskote
068/05	Cote d'Ivoire	Workshop on Rural Energy and Sustainable Development (Atelier sur l'énergie rurale pour un développement durable en milieu rural en Cote d'Ivoire. Golf Hotel, Abidjan 30-31 janvier 2002. (FRENCH ONLY).	Ekouevi

## TECHNICAL REPORTS continued

Report Number	Country/Region	Publication Title	Author
069/05	Malawi	Malawi: Rural Energy and Institutional Development.	Hoskote
070/05	GLB	Renewable Energy Potential in Selected Countries Volume I: North Africa, Central Europe and the Former Soviet Union; and Volume II: Latin America.	Barnes
071/05	LCR	Sustainable Charcoal Production in the Chinandega Region.	Floor
072/05	Bolivia	Bolivia Country Program Phase II: Rural Energy and Energy Efficiency. Report on Operational Activities.	Durand
073/05	Nigeria	Initiating the Bank's Peri-Urban/Rural and Renewable Energy Activities in Nigeria.	Mathur/Cosgroves
074/05	AFR	Landfill Gas Capture Opportunity in Sub-Saharan Africa.	Takahashi
075/05	Chad	Revenue Management Seminar. Oslo. June 25-26, 2003. (CD – French Only).	Tordo
076/05	Cambodia	TA For Capacity Building of the Electricity Authority of Cambodia.	Seske
077/05	GLB	Renewable Energy ToolKit Needs Assessment.	Cabraal/Wang
078/05	GLB	Portable Solar Photovoltaic Lanterns: Performance and Certification Specifications and Type Approval.	Cabraal
079/05	Senegal	Alleviating Fuel Adulteration Practices in the Downstream Oil Sector in Senegal.	Mayorga-Alba
080/05	Philippines	Rural Electrification Regulation Framework. (CD Only).	Shum
081/05	GLB	Crude Oil Prices Differentials and Differences in Oil Qualities: A Statistical Analysis.	Bacon/Tordo
082/05	Chile	Desafíos de la Electrificación Rural en Chile.	Sara
083/05	Uzbekistán	Uzbekistán Energy Efficiency in Urban Water Supplies Utilities in Central Asia.	Ijaz-Vasquez
084/05	AFR	The Evolution of Enterprise Reform in Africa: From State-owned Enterprises to Private Participation in Infrastructure—and Back?	Hughes/Nellis
085/05	AFR/MNA	Amélioration de l'Efficacité Energie: Environnement de la Zone Industrielle de Sidi Bernoussi, Casablanca (French Only).	Mendoca/Shanker
086/05	Nicaragua	Pilot Commercialization of Improved Cookstoves in Nicaragua.	Torres/Terrado
087/05	Cameroon	Decentralized Rural Electrification in Cameroon.	Barnes
088/05	Ghana	Ghana: Poverty and Social Impact Analysis of Electricity Tariffs.	Keener
089/05	LCR	Study on Investment and Private Sector Participation in Power Distribution in Latin America and the Caribbean Region.	Monari
090/05	Ecuador	Stimulating the Picohydropower Market for Low-Income Households in Ecuador.	Durand
091/05	Nigeria	Nigeria Expanding Access to Rural Infrastructure Issues and Options for Rural Electrification, Water Supply and Telecommunications.	S. Iyer
092/05	Honduras	Remote Energy Systems and Rural Connectivity: Technical Assistance to the Aldeas Solares Program of Honduras.	Torres/Terrado

## WORKSHOP PROCEEDINGS

Report Number	Country/Region	Publication Title	Author
001/05	China	Symposium on Hydropower and Sustainable Development (CD Only).	Zhao
002/05*	EAP	GVEP Asia Workshop Proceedings.	de Wilde

\*This was jointly published under ESMAP's Workshop Proceedings Series.

## SPECIAL SERIES REPORTS

Report Number	Country/Region	Publication Title	Author
003/05	GLB	Status of ESMAP Portfolio of Projects: As of December 31, 2004.	ESMAP
	GLB	ESMAP Annual Report 2004.	ESMAP
004/05	GLB	Status of ESMAP Portfolio of Projects: As of June 30, 2005.	ESMAP
—	GLB	ESMAP Business Plan 2005-07.	ESMAP

## FOUR PAGER SERIES

Report Number	Country/Region	Publication Title	Author
No. 1	BLB	The Impact of Higher Oil Prices on Low Income Countries and the Poor: Impacts and Policies.	Bacon
No. 2	GLB	Transformative Power: Meeting the Challenge of Rural Electrification.	Barnes

## ACTIVITY COMPLETION REPORTS

Report Number	Country/Region	Publication Title	Author
001/05	Ukraine	Ukraine: Integrated Heat Demonstration (ACR).	Meyer
004/05	AFR	CDM Assist Status Report (ACR).	Hoskote

## JOINT REPORTS

Report Number	Country/Region	Publication Title	Author
309/05*	GLB	The Urban Household Energy Transition.	Barnes/Krutilla/Hyde Co-published with RFF
—	GLB	Energy Services for the Millennium Development Goals.	Modi, McDade, Lallement, and Saghir Co-published with the Millennium Project/UNDP/WBG
310/05*	GLB	Pioneering New Approaches in Support of Sustainable Development in the Extractive Sector: Community Development Toolkit. Also includes CD containing Supporting Reports.	Strongman/Davis. Co-published by ESMAP/ICMM
—	GLB	Distance Learning Course Book: Air Pollution and Environmental Health. The course was held on January 12, 2005.	ESMAP/WBI/ENV/ WSP/ HNP/Air Quality Thematic Group

\*Also listed under ESMAP Formal Reports.

## ARTICLES

Report Number	Country/Region	Publication Title	Author
—	GLB	Renewable Energy at the Energy Sector Management Assistance Program. Renewable Energy, UNESCO, 2005.	Lallement/Wang
—	GLB	Energy as a Linchpin for Poverty Reduction. ESI Africa, Issue # 3, 2005.	Lallement



## Publications and Knowledge Dissemination Activities

### January

ESMAP, WBI, ENV, WSP, HNP and Air Quality Thematic Group jointly presented the course: Air Pollution and Environmental Health. The course was held on January 12, 2005.

ESMAP Activity Presentation: USEPA LMOP 8th Annual Conference. Baltimore, MD, U.S.A. January 10-11, 2005.

### February

ESMAP Knowledge Exchange Series presented: Energy Trade, Recent Developments in Scandinavia and in the European Union. February 15, 2005.

ESMAP and OGMC held a Knowledge Exchange Event on February 15, 2005.

### March

ESMAP Knowledge Exchange Series presented: Moving Towards a Hydrogen Economy: Canadian Industry Perspective for Developed and Developing Countries. March 30, 2005 in Washington, D.C., U.S.A.

ESMAP Knowledge Exchange Series Presented: Energy Security: Impact of Oil Prices. March 8, 2005. The purpose of this event was to inform the audience of the impact of oil prices and considerations for policy work, and also to gather feedback on the further work which could/should be undertaken by ESMAP.

ESMAP Activity Presentation: SWANA 28th. Annual Landfill Gas Symposium. San Diego, CA, US. March 7-10, 2005. Presentation and Key Note were made available.

ESMAP, The Air Quality Thematic Group and the sponsoring Sector Boards (Environment, Energy, Transport and Urban) held a Review Meeting of the Report: Potential of Biofuels for Transport in Developing Countries on March 3, 2005.

### April

News: Renewable Energy Business Seminar. Copenhagen, Denmark. April 28, 2005.

The Challenge of Energy and Poverty Reduction. A presentation by Dominique Lallement and Douglas Barnes. April 20, 2005.

ESMAP Knowledge Exchange Series presented: Environmental Health and Indoor Air Pollution in India on April 20, 2005 in Washington, D.C., U.S.A.

Poland, Newsweek Polska published an article on April 17, 2005 on the impact of the ESMAP funded Activity: Women in Mining.

Nicaraguan National Assembly passed on April 14, 2005 a new Renewable Energy Law as proposed by the Comisión Nacional de Energía (CNE) which derived from recommendations made under the ESMAP Activity: Policy & Strategy for the Promotion of Renewable Energy Resources in Nicaragua.

ESMAP presented "Electricity and Education in Developing Countries," at the Population Association of America Annual Meeting in Philadelphia, April 2005.

ESMAP Knowledge Exchange Series and ESSD Week Presented: Meeting the Energy Needs of the Rural Poor: Opportunities for Synergies between the Rural, Environment, and Energy Practices held on April 1, 2005 in Washington, D.C., U.S.A.

### May

The Energy Sector Management Assistance Program and The Oil, Gas, Mining, and Chemicals Department invite you to a Technical Presentation on: Phase out of Leaded Gasoline in Sub-Saharan Africa: Progress Made and Next Steps. Tuesday, May 17, 2005. Washington, D.C., U.S.A.

ESMAP Knowledge Exchange Series and TFESSD will present the findings of their study Distribution of Oil Rents in Bolivia, Colombia, Ecuador and Peru on May 16, 2005. Washington D.C., U.S.A.

ESMAP presented "Rural Energy Infrastructure" at Rural Infrastructure at the World Bank: ARD Thematic Group BBL. May 2005.

## June

- ESMAP Knowledge Exchange Series Event: Energy Efficiency Project in Russia. June 28, 2005. Washington DC., U.S.A.
- ESMAP Presentation Event: Africa Energy Forum, Barcelona, Spain. June 22-24, 2005. Presentation by Dominique Lallement and Patricia Veevers on Rural Energy Policy.
- ESMAP Activity Event: Women & Mining Conference II. June 19-22, 2005.
- The Challenge of Energy and Poverty Reduction. A presentation by Dominique Lallement and Douglas Barnes. June 20, 2005.

## July

- ESMAP Knowledge Exchange Series Event: Macro-Economic Impact of Oil Revenues on Sub-Saharan Africa: Reserves, Production and Government Revenues held on July 27, 2005. Washington, D.C., USA.
- ESMAP Knowledge Exchange Series Event: Meeting the Challenge of Rural Electrification in Developing Countries: The Experience of Successful Programs held on July 26, 2005. Washington, D.C., U.S.A.
- ESMAP Knowledge Exchange Series Event: ESMAP Study on Power Sector Reform and Poverty in Africa, and a comparison with GNSSED Results. July 25, 2005.
- ESMAP Activity Event: LCR Energy from Landfill Gases: Best Practice and Social Issues. Project Expo in Uruguay, July 7-8, 2005.

## August

- ESMAP Knowledge Exchange Series Event and Environment and Social Development, Urban Transport, and CAI present a joint Discussion on: Walkability Index Development - Giving Walking its Due. Held on August 17, 2005. Washington, D.C.
- ESMAP Knowledge Exchange Series Event: The Vulnerability of Oil Shocks for Net Oil Import Countries in Africa held on August 8, 2005. Washington, D.C., U.S.A.

## September

- ESMAP Knowledge Exchange Series Event: Design and Implementation of Regional Markets. Held on September 27, 2005. Washington, D.C., U.S.A.
- ESMAP Hosted the Slum Electrification Workshop in Salvador Do Bahia, Brazil, September 12-14, 2005.

## October

- ESMAP Activity News: Implementing Power Rationing in a Sensitive Way: Interview to Luiz Maurer, Brazil. October 14, 2005.
- ESMAP Knowledge Exchange Series: The Renewable Energy and Energy Efficiency Partnership: Generating Green Kilowatts and Saving Energy. October 19, 2005. Washington, D.C., U.S.A.
- ESMAP's Presentation: Environmental Matters in Pictures: Health and Energy Infrastructure. October 6, 2005. Washington, D.C., U.S.A.

## November

- ESMAP Knowledge Exchange Event Series: Mitigating the Impact of Air Pollution on Public Health: Case Study of Zaozhuang, a Coal City in Eastern China. Tuesday, November 22. Washington, D.C., U.S.A.
- ESMAP Knowledge Exchange Event Series: "Power Projects under Stress: What Happened and How to Work it Out" Thursday, November 17. Washington, D.C., U.S.A.
- Cameroon presents its Energy-Poverty Action Plan at the GVEP Partners' Assembly.

## December

- ESMAP Knowledge Exchange Series/COCPPO presented: Coping with Higher Oil Prices: Review of Recent International Experience. Held on December 19, 2005. Washington DC (Not for public attendance)
- ESMAP Knowledge Exchange Series of Events: Power Sector Reform: Its impact on Energy Use by the Poor: A Four Country Comparative Study. Held on Wednesday, December 7, 2005. Washington, D.C., U.S.A.
- ESMAP Knowledge Exchange Series of Events: Bolivia and Nicaragua Rural Access Projects. Held on December 5, 2005. Washington, D.C., U.S.A.

## List of Abbreviations and Acronyms

ACR	Activity Completion Report	LG	Leaded gasoline
ADB	Asian Development Bank	LPG	Liquefied petroleum gas
AFRREI	Africa Rural and Renewable Energy Initiative	MDGs	Millennium Development Goals
AFTEG	Africa Energy Program	M&E	Monitoring and evaluation
ASTAE	Asia Alternative Energy Program	MFEDO	Market Facilitating and Enterprise Development Organization
BBL	Brown Bag Lunch	MIGA	Multilateral Investment Guarantee Agency
BMZ	German Ministry for Development Cooperation	NGO	Nongovernmental organization
BNDES	Brazilian Development Bank	NREL	National Renewable Energy Laboratory
CAI	Clean Air Initiative	ODA	Official development assistance
CASs	Country assistance strategies	OED	Operations and Evaluation Department of the World Bank
CEMAC	Community Central Africa Economic and Monetary Union	PANERP	Energy and Poverty Reduction Action Plan
CG	Consultative Group	PPI	Private participation infrastructure
C-GAP	The Consultative Group to Assist the Poor	PPP	Public-private partnership
CSD	Commission on Sustainable Development	PREM	Poverty Reduction and Economic Management
CY	Calendar Year	PRI	Participatory rapid appraisal
DFID	Department for International Development (UK)	PRSC	Poverty Reduction Support Credit
DRI	Debt Relief International	PRSPs	Poverty Reduction Strategy Papers
DSM	Demand Side Management	PV	Photovoltaic
EAP	East Asia and the Pacific	RE	Renewable energy
EE	Energy Efficiency	RPTES	Regional Program for the Traditional Energy Sector
ESCO	Energy Service Company	SAR	South Asia Region
ESMAP	Energy Sector Management Assistance Program	SEFI	Sustainable Energy Finance Initiative
ETFPs	Energy Trust-Funded Programs	SMEs	Small- and medium-sized enterprises
EWD	Energy and Water Department of the World Bank	SOEs	State-owned enterprises
EXTOP	Office of the Publisher	SSA	Sub-Saharan Africa
FDI	Foreign Direct Investment	TAG	Technical Advisory Group of ESMAP
FEMA	Forum of Energy Ministers in Africa	TERI	The Energy and Resources Institute
GAPFund	GVEP Action Programs Fund	TFESSD	Trust Fund for Environmentally and Socially Sustainable Development
GEF	Global Environment Facility	TOR	Terms Of Reference
GMS	Greater Mekong Subregion	UK	United Kingdom
GNSD	Global Network for Sustainable Energy Development	UN	United Nations
GPPs	Global Programs and Partnerships	UN-DESA	UN Department of Economic and Social Affairs
GVEP	Global Village Energy Partnership	UNDP	United Nations Development Programme
GWEC	Global Wind Energy Council	UNEP	United Nations Environment Programme
IADB	Inter-American Development Bank	UNF	United Nations Foundation
IBRD	International Bank for Reconstruction and Development	US	United States of America
ICT	Information and Communication technologies	USAID	United States Agency for International Development
IDA	International Development Association	US-EPA	U.S. Environmental Protection Agency
IFC	International Finance Corporation	WEHAB	Water, Energy, Health, Agriculture, and Biodiversity
IFI	International Financial Institution	WBG	World Bank Group
IPP	Independent Power Producer	WBI	World Bank Institute
KES	Knowledge Exchange Series	WIM	Women in Mining project
LAC	Latin American and Caribbean	WSSD	World Summit on Sustainable Development
LCR	Latin America and the Caribbean Region		

## **ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)**

### **PURPOSE**

The Energy Sector Management Assistance Program (ESMAP) is a global technical assistance partnership administered by the World Bank and sponsored by bi-lateral official donors, since 1983. ESMAP's mission is to promote the role of energy in poverty reduction and economic growth in an environmentally responsible manner. Its work applies to low-income, emerging, and transition economies and contributes to the achievement of internationally agreed development goals. ESMAP interventions are knowledge products including free technical assistance, specific studies, advisory services, pilot projects, knowledge generation and dissemination, trainings, workshops and seminars, conferences and roundtables, and publications. ESMAP work is focused on four key thematic programs: energy security, renewable energy, energy-poverty and market efficiency and governance.

### **GOVERNANCE AND OPERATIONS**

ESMAP is governed by a Consultative Group (the ESMAP CG) composed of representatives of the World Bank, other donors, and development experts from regions which benefit from ESMAP's assistance. The ESMAP CG is chaired by a World Bank Vice President, and advised by a Technical Advisory Group (TAG) of independent energy experts that reviews the Programme's strategic agenda, its work plan, and its achievements. ESMAP relies on a cadre of engineers, energy planners, and economists from the World Bank, and from the energy and development community at large, to conduct its activities.

### **FUNDING**

ESMAP is a knowledge partnership supported by the World Bank and official donors from Belgium, Canada, Denmark, Finland, France, Germany, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom. ESMAP has also enjoyed the support of private donors as well as in-kind support from a number of partners in the energy and development community.

### **FURTHER INFORMATION**

For further information on a copy of the ESMAP Annual Report or copies of project reports, please visit the ESMAP website: [www.esmap.org](http://www.esmap.org). ESMAP can also be reached by email at [esmap@worldbank.org](mailto:esmap@worldbank.org) or by mail at:

### **ESMAP**

c/o Energy and Water Department  
The World Bank Group  
1818 H Street, NW  
Washington, D.C. 20433, U.S.A.  
Tel.: 202.458.2321  
Fax: 202.522.3018



The World Bank  
1818 H Street, NW  
Washington, DC 20433 USA  
Tel 1.202.458.2321  
Fax 1.202.522.3018  
Internet: [www.worldbank.org/esmap](http://www.worldbank.org/esmap)  
Email: [esmap@worldbank.org](mailto:esmap@worldbank.org)