Annual Report 2002




Energy

Sector

Management

Assistance

Programme

ESMAP

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.

Photo Credits

Photographs used in this report are part of the World Bank Group Photo Library and its sources. However, photographs on pages 36 and 38 are the property of Eleodoro Mayorga-Alba.

Designed by

Original design by Mitchell&Company Graphic Design. This version has been typeset by Circle Graphics.

Editorial support

The Grammarians Inc., Marjorie K. Araya and Kazim Saeed.

Map Design

The World Bank Group Cartography Section designed the ESMAP in the World Map.

Production and Printing

Marjorie K. Araya and Chroma Graphics, Inc.

ESMAP

ACCESS ENERGY POVERTY • ENVIRONMENT • MARKET




ESMAP 2002 HIGHLIGHTS

114 ongoing projects in more than 40 countries

29 projects launched, 30 projects carried to completion and 25 reports published

Two Calls for Proposals launched and new fast track window was introduced

ESMAP's website revamped

Donors' contribution to the Programme totaled US$7.8 million

Record pledges obtained for calendar year 2003 for US$7.3 million

New Donor: The United Nations Foundation (UNF)

Delivery of nearly twenty workshops, seminars and conferences around the globe, as part of ESMAP's knowledge dissemination strategy

ESMAP played a key role in the development of the Global Village Energy Partnership (GVEP), which was officially launched at the World Summit on Sustainable Development in Johannesburg

UNDP

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

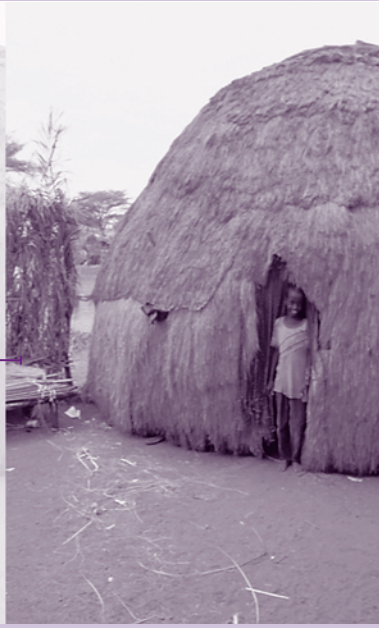
Boxes

Figures

Tables

ESMAP promotes 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 strives to expand the global knowledge base for addressing energy issues.



MISSION STATEMENT

The Energy Sector Management Assistance Programme

The Energy Sector Management Assistance Programme (ESMAP) is a global technical assistance programme sponsored by a group of donors, including The World Bank and the United Nations Development Programme (UNDP), and managed by The World Bank.

ESMAP provides policy advice and other technical assistance to governments, public institutions, and private businesses. It focuses on three strategic areas: the development of energy markets; the promotion of environmentally sustainable energy production and uses; and increased access to reliable, efficient and affordable energy services by un-served or underserved populations.

ESMAP concentrates on energy related issues not yet mainstreamed in the operations of bilateral or multilateral development institutions, and on private sector energy issues. ESMAP is a global knowledge partnership that involves local and international public institutions, NGOs, and businesses in the formulation and implementation of knowledge activities. Through studies, pilot projects, and training, ESMAP strives to expand the global knowledge base for addressing energy issues to the benefit of developing and transition economies.

FOREWORD

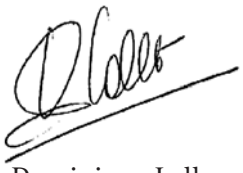
FOREWORD

The Energy Sector Management Assistance Programme (ESMAP) through its work has responded to the calls of those in need of modern energy services to aid in the achievement of internationally agreed Millennium Development Goals (MDGs). How ESMAP contributes to the delivery of modern energy services and the provision of access to energy to those un-served and under-served continued to be the main focus of the Programme in 2002.

As pointed out by President Wolfenshon,[1] "...the critical element in reaching the MDGs is knowledge—global and local...The World Bank as a whole has two faces—we are a lending Bank and a Knowledge Bank..." ESMAP has answered the needs of many through innovative ways of sharing the capital of knowledge stock it generates.

ESMAP functions as a global partnership bringing together many stakeholders to achieve poverty reduction through the provision of modern energy services to the poor.

I invite you to learn about ESMAP's achievements in the year 2002.



Dominique Lallement

ESMAP Programme Manager

[1] 2002 World Bank Institute Annual Report. http://www-wds.worldbank.org/servlet/WDS_IBank_Servlet?pcont=details&eid=000094946_02101704183071

ACKNOWLEDGEMENTS

Many professionals of the World Bank Group including staff from ESMAP and its task managers wrote this report.

There are many within the Bank Group and outside who have contributed time and substance. They include Kulsum Ahmed, Marjorie K. Araya, Amarquaye Armar, Varadarajan Atur, Yewande Awe, Douglas Barnes, Alvaro Covarrubias, Philippe Durand, Charles Feinstein, Gerald Foley, Katharine Gratwick, Sarath Guttikunda, Ede Jorge Ijjasz-Vasquez, Todd Johnson, Masami Kojima, Dominique Lallement, Kseniya Lvovsky, Eleodoro Mayorga-Alba, Anke Meyer, Josefina Regino-Suarez, Kilian Reiche, Chantal Reliquet, Kazim Saeed, Anjali Shanker, Robert Taylor, Ernesto Terrado, Grace Yeneza, and Xiaodong Wang.

LIST OF ABBREVIATIONS AND ACRONYMS

AFRREI	Africa Rural and Renewable Energy Initiative
ADB	Asian Development Bank
AFR	Sub-Saharan Africa Region
AFREPEN	African Energy Policy Research Network
ALGAS	Asia Least-cost Greenhouse Gas Abatement Strategy
ALRI	Acute Lower Respiratory Infection
AP	Andhra Pradesh (India)
ARPEL	Asistencia Recíproca Petrolera Empresarial Latinoamericana
ASTAE	Asia Alternative Energy Program
BNPP	Bank-Netherlands Partnership Program
CAI-SSA	Clean Air Initiative in Sub-Saharan Africa
CEE	Central and Eastern Europe
CG	Consultative Group
CIDOB	Confederation of Indigenous Peoples of Bolivia
CIDA	Canadian International Development Agency
CNG	Compressed Natural Gas
COICA	Coordinadora de Organizaciones Indígenas de la Cuenca Amazónica
CONFENIAE	Confederation for Indigenous Peoples of the Amazonian Region
CPTS	Centro de Promoción de Tecnologías Sostenibles
CRESP	China Renewable Energy Scale-up Program
DANIDA	Danish International Development Assistance
DFI	Development Finance Institution
DFID	Department for International Development, UK
E7	Organization of nine leading electric utilities from G7 countries
EAP	East Asia and Pacific Region
ECA	Europe and Central Asia Region
EDF	European Development Fund
EER	Energy and Environment Review
ENDA	Environment and Development Action
EPE	Energy, Population and Environment Program
ESCO	Energy Supply Company
ESMAP	Energy Sector Management Assistance Programme
ETFP	Energy Trust Funded Programs
FFEM	Fonds Français pour l'Environnement Mondial
FREE	Romanian Energy Efficiency Fund
FSU	Former Soviet Union
FUNDA-PRO	La Fundación para la Producción
GDP	Gross Domestic Product
GEF	Global Environment Facility
GVEP	Global Village Energy Partnership
IADB	Inter-American Development Bank
IAP	Indoor Air Pollution
ICT	Information and Communication Technologies
IFC	International Finance Corporation
ILO	International Labour Organization
IPCT	Indigenous Peoples' Communical Territories
IPEICA	International Petroleum Industry Conservation Association
IZDIHAR	Association des Opérateurs Economiques de la Zone Industrielle de Sidi Bernoussi Zenata
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)

KITE	Kumasi Institute of Technology and Environment
kW	Kilowatt
kWh	Kilowatt-hour
LCR	Latin America and the Caribbean Region
LG	Leaded Gasoline
LPG	Liquefied Petroleum Gas
M&T	Monitoring and Targeting
MDGs	Millennium Development Goals
MNA	Middle East and North Africa Region
NBP	National Biomass Program
NEPAD	New Economic Partnership for Africa
NFFO	Non-Fossil Fuel Obligation
NGOs	Non-Governmental Organizations
NOVACON	Novo Conceito em Servico Publico
NREL	National Renewable Energy Laboratory (United States of America)
NTF-PSI	Norwegian Trust Fund for Private Sector and Infrastructure
ODA	Office of Development Assistance
OED	Operations Evaluation Department, The World Bank
OLADE	Organización Latinoamerica de Energía
PERZA	Proyecto de Electrificación Rural en Zonas Aisladas (Off-Grid Rural Electrification Project)
PV	Photovoltaic
REACH	Renewable Energy, Energy Efficiency and Climate Change
REAP	Renewable Energy Action Plan
RIC	Rural Information Center
RPTES	Regional Program for the Traditional Energy Sector
SAR	South Asia Region
SANEATINS	A joint Venture Water Utility for the state of Tocatins in Brazil
SHS	Solar Home System
SMEs	Small Medium Enterprises
TAG	Technical Advisory Group of ESMAP
TCA	Two Control Zone
TFESSD	Trust Fund for Environmentally and Socially Sustainable Development
ULG	Unleaded Gasoline
UN	United Nations
UNF	United Nations Foundation
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
US	United States of America
USAID	United States Agency for International Development
WBG	The World Bank Group
WEHAB	Water, Energy, Health, Agriculture, and Biodiversity
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

2002

DONORS AND MEMBERS OF THE CONSULTATIVE GROUP, TECHNICAL ADVISORY GROUP, AND ESMAP TEAM IN 2002

CONSULTATIVE GROUP

BELGIUM
General Administration for Development Cooperation

CANADA
Canadian International Development Agency

DENMARK
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

SWITZERLAND
State Secretariat for Economic Affairs

THE NETHERLANDS
Ministry of Foreign Affairs, Climate, Energy and Environment Technology Division (DML/KM)

UNITED KINGDOM
Department for International Development

UNITED NATIONS FOUNDATION

CO-SPONSORING ORGANIZATIONS

THE WORLD BANK GROUP

UNITED NATIONS DEVELOPMENT PROGRAMME

CHAIR OF THE CONSULTATIVE GROUP

Nemat Talat Shafik[2]
Jamal Saghir

MEMBERS AT LARGE OF THE CONSULTATIVE GROUP

Rufino Bomasang, Philippines
Ketane Sithole, Botswana

TECHNICAL ADVISORY GROUP

Alfredo Mirkin
Andrew Barnett
Jan Moen
Jyoti Parikh[3]
Youba Sokona

ESMAP MANAGEMENT AND ADMINISTRATIVE TEAM

Dominique Lallement, ESMAP Manager
Marjorie K. Araya
Maureen Cuffley
Laurent Durix
Nyra Guice
Katharine Gratwick
Ghislaine Kieffer
Josefina Regino-Suarez
Kazim Saeed
Xiaodong Wang[4]

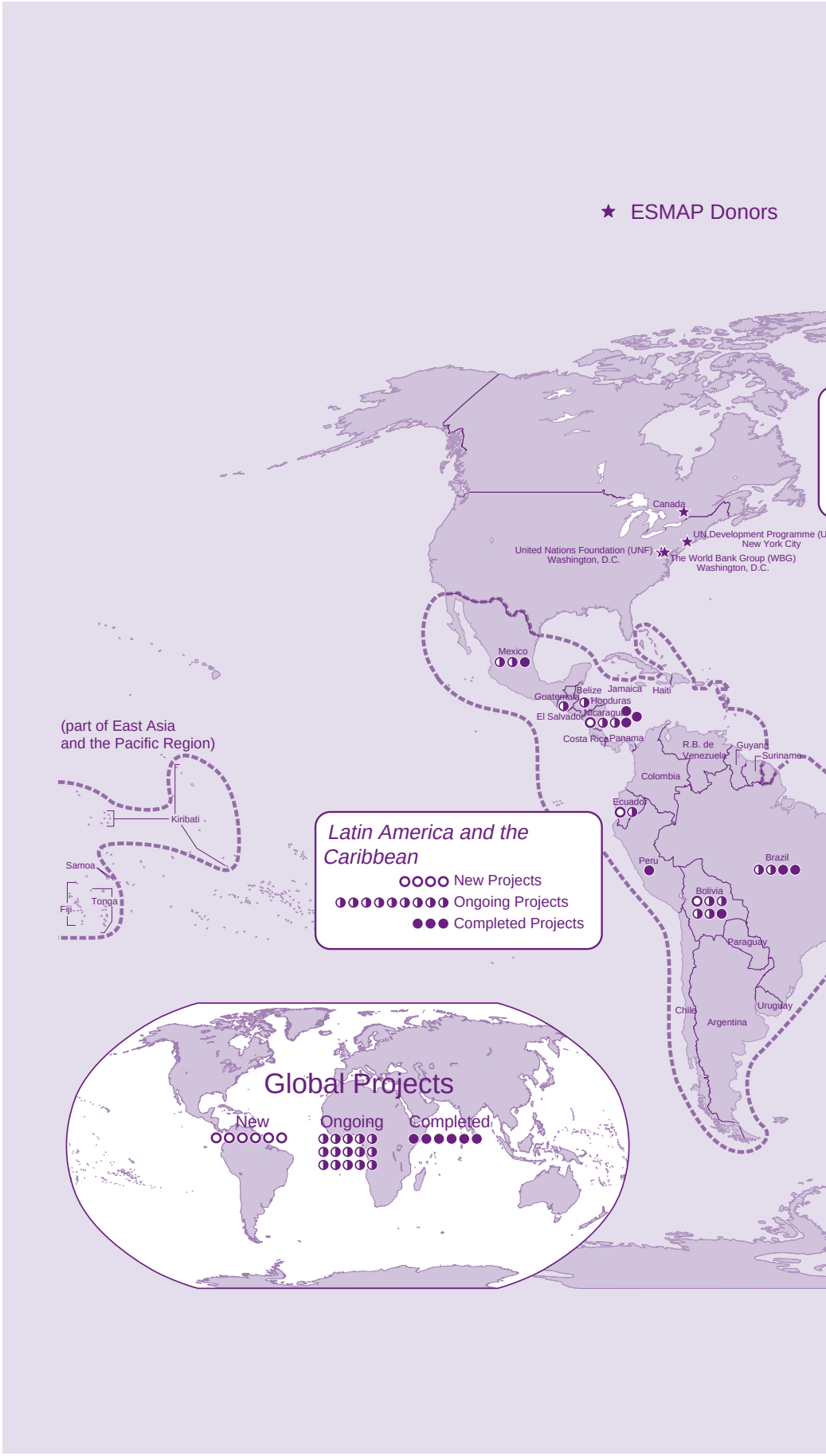
REPRESENTATIVES FROM CO-SPONSORING ORGANIZATIONS

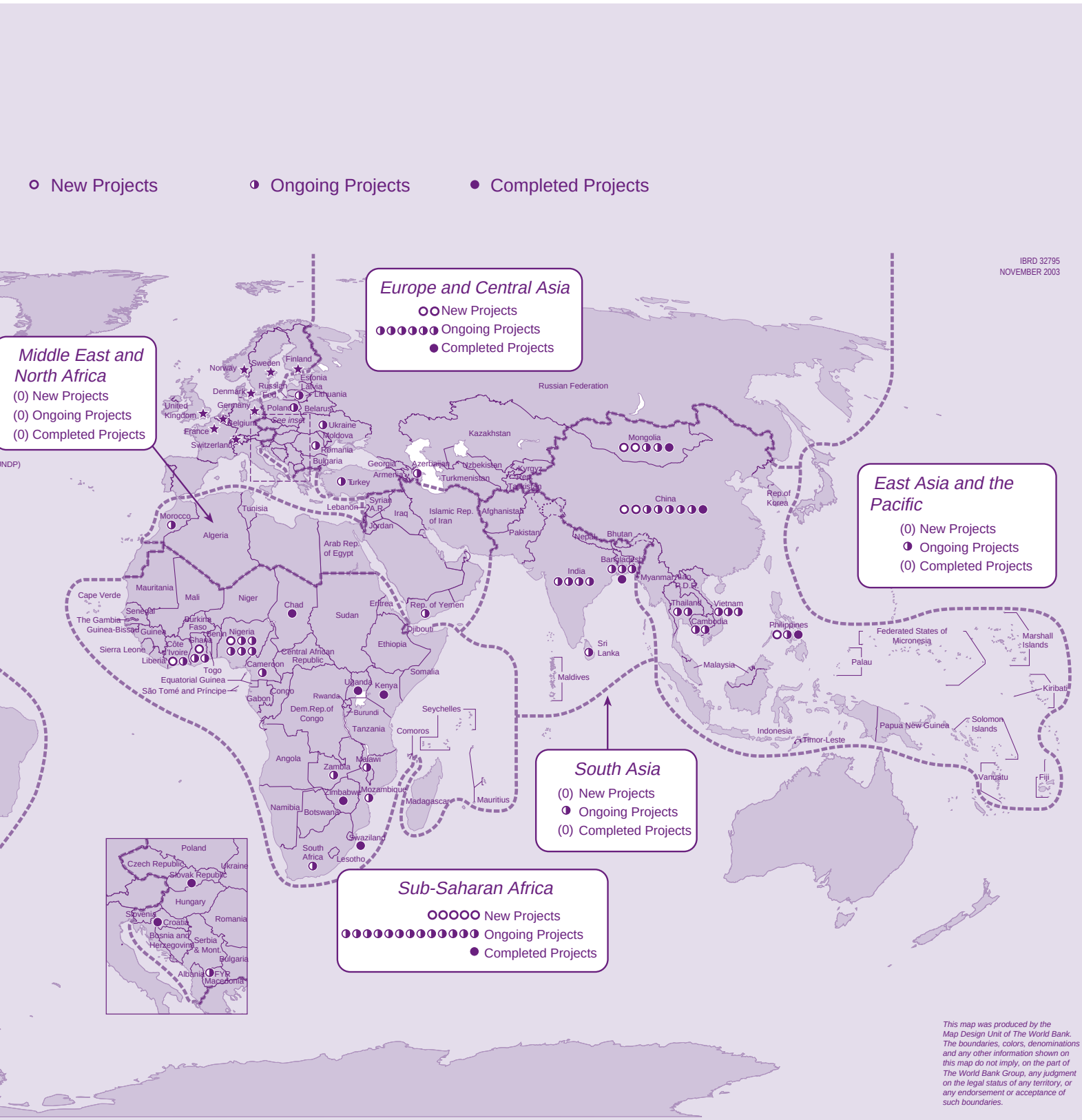
Susan McDade (UNDP)
Minoru Takada (UNDP)
Jamal Saghir (The World Bank Group)

[2] Ms. Shafik delegated responsibility for chairing the Consultative Group meetings to Mr. Jamal Saghir, Chair, Energy and Mining Sector Board, Director, Energy and Water Department, The World Bank Group.
[3] Professor Parikh joined the TAG as of December 2002.
[4] Ms. Wang joined ESMAP in September 2002 as Energy Specialist. During the same period, Mr. Charles Feinstein transferred to the Latin America and the Caribbean Region.

2002

ESMAP IN THE WORLD




New Projects
Ongoing Projects
Completed Projects
IBRD 32795
NOVEMBER 2003
Europe and Central Asia
New Projects
Ongoing Projects
Completed Projects
Middle East and North Africa
(0) New Projects
(0) Ongoing Projects
(0) Completed Projects
East Asia and the Pacific
(0) New Projects
Ongoing Projects
(0) Completed Projects
South Asia
(0) New Projects
Ongoing Projects
(0) Completed Projects
Sub-Saharan Africa
New Projects
Ongoing Projects
Completed Projects
Russian Federation
Kazakhstan
Mongolia
China
Rep.of Korea
Japan
Norway
Sweden
Finland
Estonia
Latvia
Lithuania
Russian Fed.
Denmark
Germany
Poland
Belarus
United Kingdom
France
Belgium
Switzerland
see inset
Ukraine
Moldova
Romania
Bulgaria
Georgia
Armenia
Azerbaijan
Uzbekistan
Kyrgyz Republic
Tajikistan
Turkmenistan
Turkey
Syrian A.R.
Lebanon
Iraq
Jordan
Islamic Rep. of Iran
Afghanistan
Pakistan
Nepal
Bhutan
Bangladesh
India
Myanmar
Lao P.D.R.
Thailand
Vietnam
Cambodia
Philippines
Malaysia
Sri Lanka
Maldives
Indonesia
Timor-Leste
Papua New Guinea
Federated States of Micronesia
Palau
Marshall Islands
Kiribati
Solomon Islands
Vanuatu
Fiji
Morocco
Tunisia
Algeria
Arab Rep. of Egypt
Mauritania
Cape Verde
Mali
Niger
Chad
Sudan
Eritrea
Rep. of Yemen
Djibouti
Senegal
The Gambia
Guinea-Bissau
Guinea
Burkina Faso
Ghana
Togo
Nigeria
Benin
Côte d'Ivoire
Sierra Leone
Liberia
Central African Republic
Cameroon
Equatorial Guinea
São Tomé and Príncipe
Gabon
Congo
Dem.Rep.of Congo
Uganda
Kenya
Rwanda
Burundi
Tanzania
Somalia
Ethiopia
Seychelles
Comoros
Angola
Zambia
Malawi
Zimbabwe
Mozambique
Madagascar
Mauritius
Namibia
Botswana
Swaziland
South Africa
Lesotho
Poland
Czech Republic
Slovak Republic
Ukraine
Hungary
Slovenia
Croatia
Romania
Bosnia and Herzegovina
Serbia & Mont.
Bulgaria
Albania
FYR Macedonia
This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

1

ENERGY AND THE MDGS

The year 2002 was quite extraordinary for ESMAP as well as for all stakeholders involved in energy in developing countries. The preparations for the World Summit on Sustainable Development triggered a lively debate on how to achieve the Millennium Development Goals (MDGs) and on the role of energy for economic growth, poverty reduction, and sustainable development. New thinking emerged on the key role for partnerships as a means to catalyze efforts and knowledge toward the same goal. Public accountability for results was raised to the forefront of the discussions. A call for strengthened commitment on implementation and impact was reiterated. While energy had largely been overshadowed by global environment issues since the Rio Summit, energy surfaced as one of the most significant subjects of discussion at the Johannesburg Summit. Energy services made a comeback as a key priority on the development agenda and as an essential input for achieving economic growth and poverty reduction.

The World Summit unexpectedly took a dominant place in the activities of ESMAP in 2002. This was in a certain way a tribute to the program that offered both the intellectual framework and the coordination mechanisms to address the energy issues that became more and more prominently discussed during the Summit preparations and at the Summit itself. In particular, the work that ESMAP had already initiated in 2001 to define the concept and implementation of the Global Village Energy Partnership inspired a number of development partners to identify it as a potential Type II initiative which could be officially launched at the Summit. This was no small accomplishment. To proceed with implementation and start delivering the first products within six weeks of the Summit was an even greater challenge—a challenge that was met.

IMPLEMENTING ESMAP'S 2002-2004 BUSINESS PLAN: FOCUS ON RESULTS AND IMPACTS

In many ways, the issues discussed around the Summit confirmed the relevance of ESMAP: most of the priority issues had already been integrated into its 2002-2004 Business Plan, which was approved by the donors early on in the year and which is anchored on three strategic axes: energy services for poverty reduction; development of energy markets, including improvements in the governance of the sector's policy-making and implementation stakeholders; and environmental sustainability of energy services, both at the global and at the local level. These themes were echoed in many documents for, and discussions at, the Summit, including the WEHAB (Water, Energy, Health, Agriculture and Biodiversity) paper of the United Nations agencies.

Energy-poverty reduction

Access to modern energy services is increasingly mentioned in public debates and discourse as a main component of poverty reduction strategies, at par with income growth and employment, and such basic services as health, education, and potable water. During the World Summit, sanitation was recognized also as a basic need and targets were established among the Millennium Development Goals. Energy was not picked up specifically as a Millennium Development Goal, but its significance was definitely recognized. Furthermore, the definition of "modern energy services" was actively debated and it was fully recognized that *mechanical energy,* of the type provided by such solutions as the multi-functional platforms designed in Mali under a UNDP program, offered considerable benefits to the poorest.

The analytical work that ESMAP continued to carry out during the year on understanding the linkages between energy and poverty reduction strengthened the basis for integrating energy into poverty reduction strategies. As agreed at the 2002 ESMAP Consultative Group meeting, this work was pro-actively disseminated in the first of a series of energy-poverty-reduction workshops that took place in late 2002 and early 2003 in which thirteen African countries participated. Strong messages came out of these workshops. First, energy needs to be addressed

more prominently in the national poverty reduction strategies. Second, unless demand for energy services is better understood from the perspective of the various sectors (agriculture, SMEs, education, and health, for example) and stakeholders (households, communities, enterprises), it will be difficult to develop responsive and viable supply options. Third, the link between energy and economic growth through the application of energy services to productive uses is key for success: unless household productivity and incomes are increased, it will be difficult for people to purchase energy services to improve their own quality of life. Therefore, it will be difficult to develop the financial viability of energy services. In this sense, energy can be described as the *hidden multiplier to achieving the Millennium Development Goals*.

Energy Markets

Another key to the potential success of scaling up energy services for income growth and poverty reduction is the continued demand for market development and reform in many cases, as well as securing increased public and private sector financial flows. The year 2002 was marked by major upheavals in the energy markets, which strengthened the call for more assistance in this area from such programs as ESMAP. The crisis in Argentina, which had a major impact on energy and other companies, was only one of the factors contributing to the continued decline in foreign private investments in the sector in developing countries. And yet, it is fully recognized that unless the financial flows and know-how transfers to developing countries are considerably increased, achieving the needed scaling up of energy services will be extremely difficult. How to create the legal and regulatory framework for successful investments, how to build up effective public-private partnerships, are issues that ESMAP has continued to work on, in particular through the transfer of knowledge and experience from successful countries.

The debates in Johannesburg highlighted that much still needs to be done to build a common understanding among stakeholders of the need for, or the impact of, "sector reforms." Payment discipline, or increases in the tariff for energy services, are still often misconstrued as having a necessarily negative impact on the poor, without recognition that better financial flows to energy companies (small or large) also mean better service and expansion of service, including in rural areas. A good example was achieved in Zimbabwe. In order to clarify the debate, ESMAP initiated empirical studies that should help determine the impact of reform. How to create the conditions for re-stimulating investors' interest in energy in developing countries, how to support the operators already active in the sector, how to assist governments in designing adequate incentives (including how to finance subsidies), are all questions that ESMAP proposes to pursue until there is evidence that investments are increasing, domestic financial resources are tapped, and energy services are increasingly available. A particular effort to train national financial intermediaries in energy service financing (in particular, investment and working capital for enterprises, and consumer credit) seems to be needed to capture the liquidities available in domestic markets. ESMAP's potential activities in this area will be coordinated with the Global Village Energy Partnership and the Prototype Carbon Fund, which have similar concerns.

Energy–Environment

The pressure to continue addressing global warming and other global environmental issues, of which the exploitation and use of energy resources is a major contributor, was highlighted during the World Summit. At the same time, however, there was a strong recognition that local environmental issues are equally important, as they affect people's lives more immediately. The call to create a level playing field for renewables and to take advantage of local renewable resources for developing additional services was reiterated. While the debate on targets was capturing the attention of many negotiators, implementers debated how to increase the develop-

ment and use of renewable resources and clean energy, including in countries well-endowed with fossil fuel resources. Again, as the debate also focused on the situation and needs of the poorest, full legitimacy was offered to more innovative programs that attempt to reduce indoor air pollution, train the poor in urban areas in the use of cleaner fuel products, and develop local bio-fuels. Furthermore, the need to associate communities and multiple organizations with the development of clean energy solutions was seen as an imperative. This debate confirmed the direction proposed in the ESMAP business plan, to scale up its activities on indoor air pollution and other clean energy solutions.

IMPLEMENTING PARTNERSHIPS

The preparations for the World Summit on Sustainable Development crystallized the idea that to get better and faster results, development partners needed to strengthen their cooperation and create synergy among their respective resources and talents. In that context, the Global Village Energy Partnership was identified early on as one of the potential Type II Initiatives which could indeed be launched at the World Summit and would lead to a ten year program to more than double the availability of energy services for sustainable development.

ESMAP had been working on the development of the concept since the Village Power 2000 Conference that it co-sponsored with NREL, UNDP, USAID, and the World Bank Group, as it was requested to take on the interim Technical Secretariat responsibilities. Working with a steering committee of about 15 partners from all over the world and representing the governments of developing and industrialized countries, NGOs, private sector, and multilateral organizations, the final concept for the partnership was defined. The potential services from the partnership were identified through broad-based consultations, and delivery of the services has been initiated.

Bringing such a partnership (which presently includes 150 members) to operation is quite a challenge and an experience in "learning by doing." The impact of the partnership is already seen in half of the countries that participated in energy-poverty reduction workshops where the partnership was featured as a potential resource to implement energy-poverty reduction action plans. In particular, it is empowering national governments and providing the opportunity for a greater array of stakeholders to coordinate their activities, and for new actors to be mobilized: NGOs; organizations such as the African Energy Policy Research Network (AFREPREN), Environment and Development Action (ENDA) and Kumasi Institute of Technology and Environment (KITE) in Africa; and the Gandhi Institute in India, as well as private sector entrepreneurs such as RAPS Consulting Ltd. of South Africa.

The value of such a partnership will nevertheless be fully tested when the trend in energy services delivery is increasing, and when the lives of households and communities are indeed impacted positively from having those services. This will take time, effort, and continued commitment.

FURTHER CHALLENGES

The frontier of the energy agenda is constantly evolving given the dynamics of the global economic scene. However, certain emerging issues identified in the ESMAP business plan are becoming more pressing. There is a need, for example, to respond to the urbanization challenge that may lead to a significant transfer of the energy poor from rural to peri-urban/urban areas: what role will energy play to prevent the risk of impoverishment of the migrating populations?

Issues may also vary depending on the region. In Africa, for example, such strategic issues as the integration of energy markets to rationalize investments, and the development of hydropower and other renewable resources, which will be considered in the framework of NEPAD, may also

require additional support from ESMAP. Other issues, such as the role of mechanical energy to offset the decline in labor force due to the AIDS epidemic, or the role of affordable transport-energy to build the synergy between enclaved rural areas and cities, will need special attention. The support, which ESMAP is to provide to update the World Bank operational strategy in Africa, would help identify and prioritize such issues.

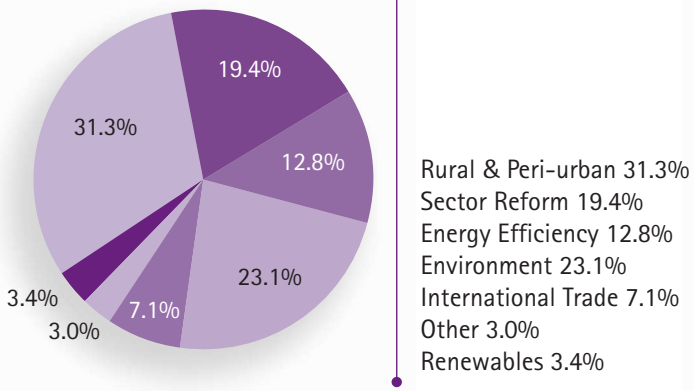
Finally, it is essential that new ways be found to leverage the intellectual capital available in developing countries to develop energy services: universities and research organizations should increasingly contribute to policy formulation, and potential entrepreneurial capacities can be channeled to create new energy enterprises and financial institutions and services.

2

PORTFOLIO OVERVIEW

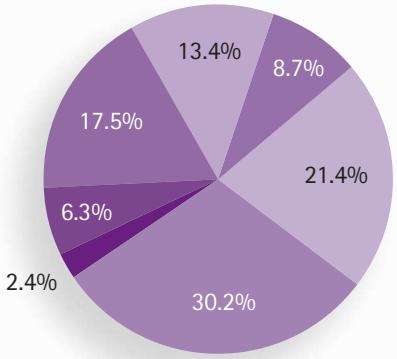
ESMAP PORTFOLIO AT A GLANCE AS OF DECEMBER 31, 2002

Figure 2.1 Breakdown by Thematic Area
(as a % US$ Value)



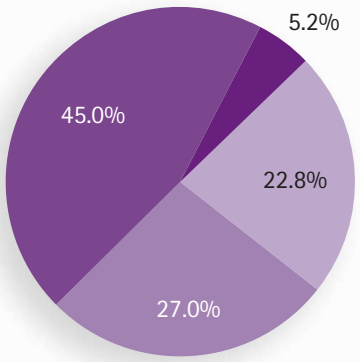
Rural & Peri-urban 31.3%
Sector Reform 19.4%
Energy Efficiency 12.8%
Environment 23.1%
International Trade 7.1%
Other 3.0%
Renewables 3.4%

Figure 2.2 Breakdown by Geographic Area
(as a % US$ Value)



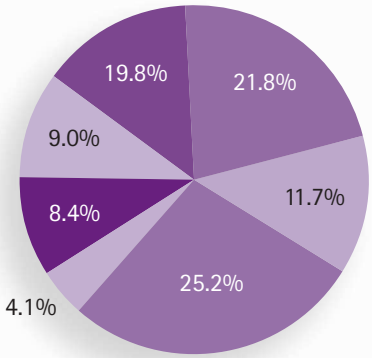
Middle East and North Africa 2.4%
South Asia 6.3%
Africa 17.5%
East Asia and Pacific 13.4%
Eastern Europe and Central Asia 8.7%
Global 21.4%
Latin America and Caribbean 30.2%

Figure 2.3 Breakdown by Strategic Area
(as a % US$ Value)



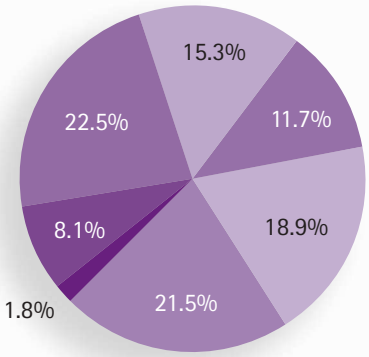
Market 45.0%
Other 5.2%
Access 22.8%
Environment 27.0%

Figure 2.4 Number of Projects
by Thematic Area



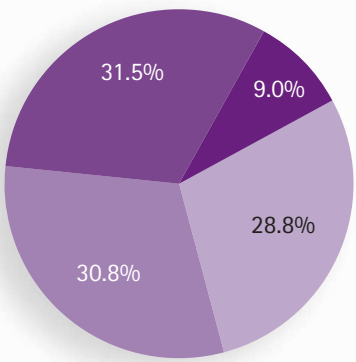
Rural & Peri-urban 21.8%
Sector Reform 19.8%
Energy Efficiency 11.7%
Environment 25.2%
International Trade 4.1%
Other 8.4%
Renewables 9.0%

Figure 2.5 Number of Projects
by Geographic Area



Middle East and North Africa 1.8%
South Asia 8.1%
Africa 22.5%
East Asia and Pacific 15.3%
Eastern Europe and Central Asia 11.7%
Global 18.9%
Latin America and Caribbean 21.5%

Figure 2.6 Number of Projects
by Strategic Area



Market 31.5%
Other 9.0%
Access 28.8%
Environment 30.8%

EVOLUTION OF ESMAP PORTFOLIO (1998-2002)

Figure 2.7 **Evolution of Portfolio by Strategic Area 1998-2002**
By Number of Projects[5]

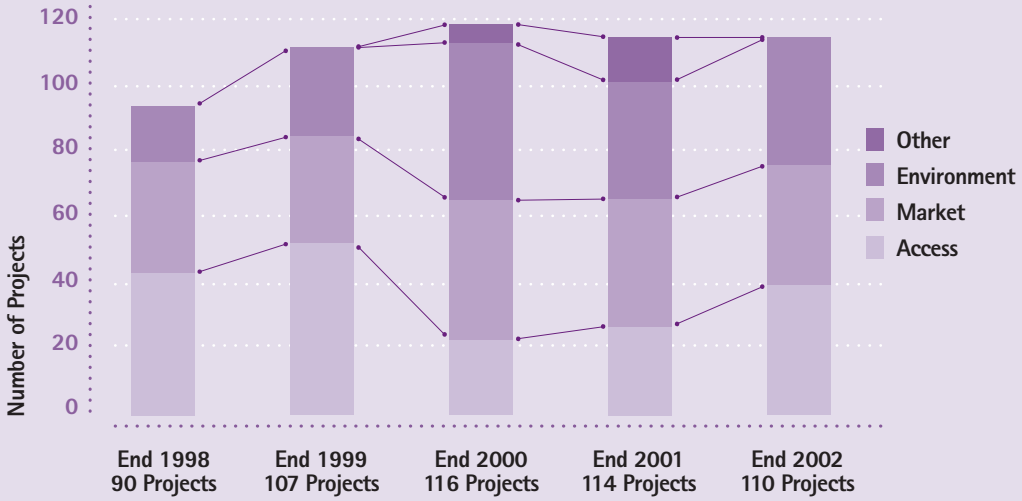
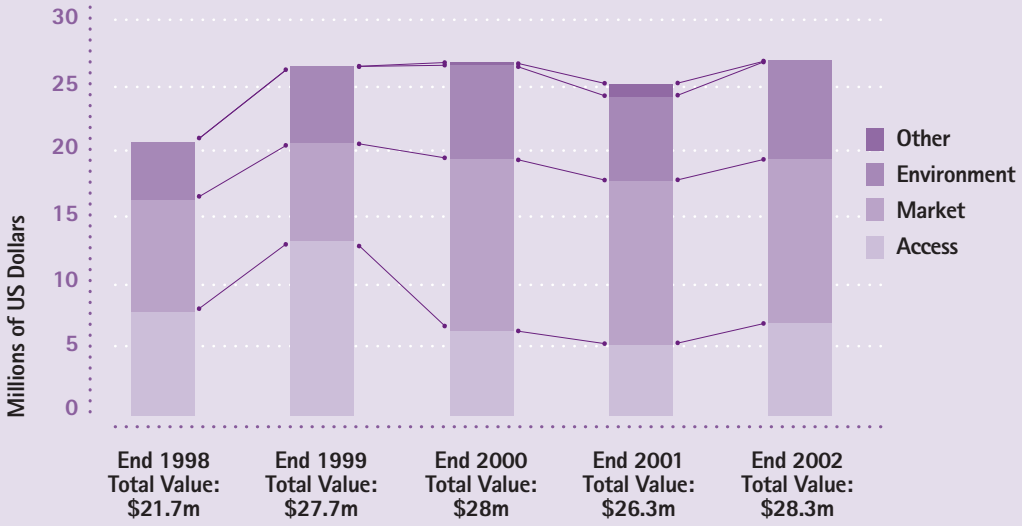


Figure 2.8 **Evolution of Portfolio by Strategic Area 1998-2002**
By Value of ESMAP Funding



[5] Number of projects for 2000 and 2001 corrected from last Annual Report

EVOLUTION OF ESMAP PORTFOLIO (1998-2002) (*continued*)

Figure 2.9 **Regional Distribution of Portfolio 1998-2002**
By Number of Projects[6]

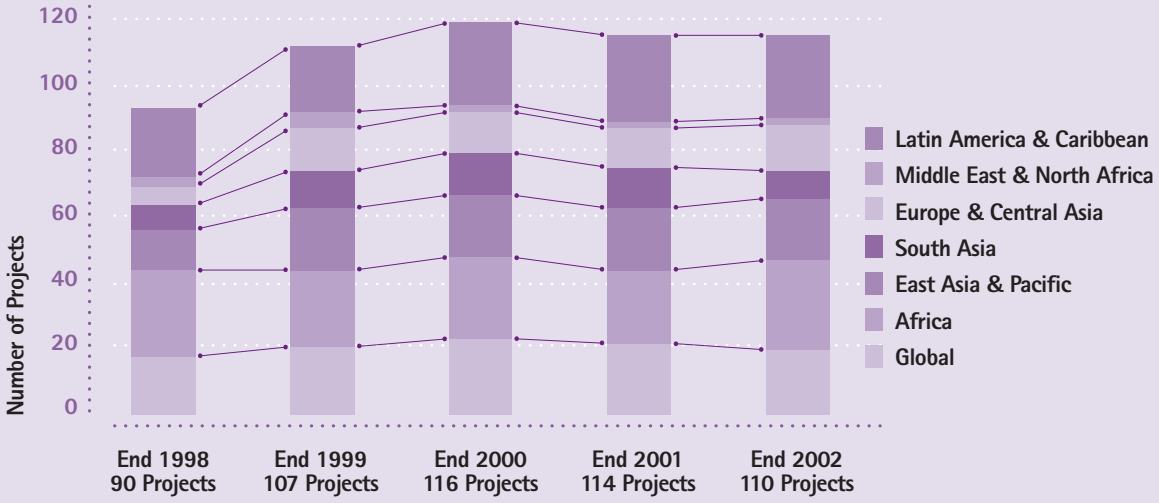
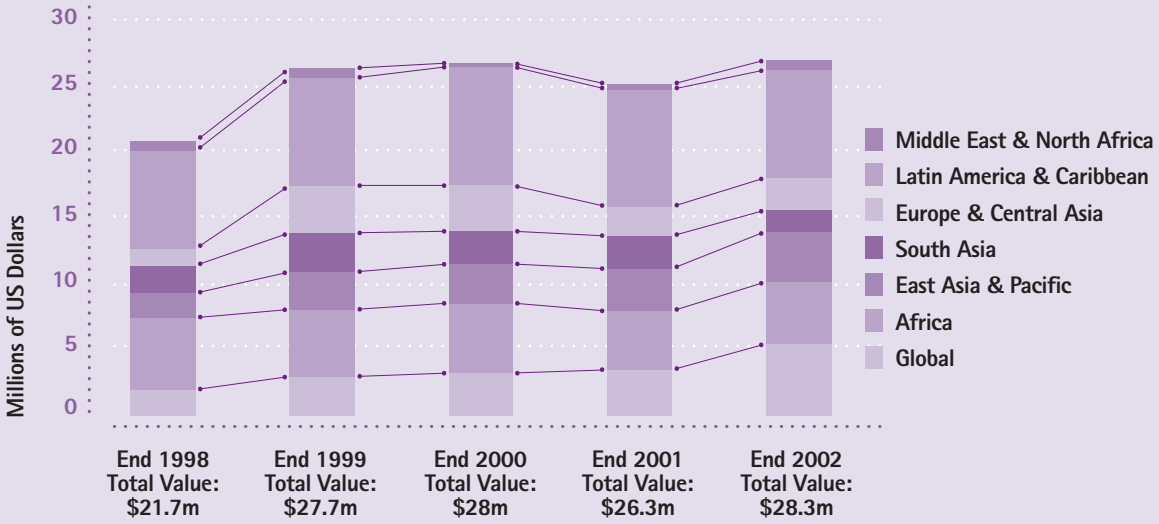


Figure 2.10 **Regional Distribution of Portfolio 1998-2002**
By Value of ESMAP Funding



[6] Number of projects for 2000 and 2001 corrected from last Annual Report

During 2002, the ESMAP portfolio grew by dollar value but not by number. The value of the portfolio rose from US$26.3million at year-end 2001 to US$28.3million at the end of 2002, as 30 new projects worth more than US$3.1million were launched. Thirty projects worth US$4.8million left the portfolio as they were brought to financial closure during 2002. The tail of the portfolio (completed projects yet to be closed) was reduced from its value at the end of 2001.

Portfolio Profile

The distributional graphs show that, in terms of number of active projects, the Africa portfolio has grown from a fifth of the ESMAP portfolio at the end of 2001 to a quarter of the portfolio at year-end 2002—despite the closure of nine Africa projects during 2002. This is the result of active outreach and follow-up by the ESMAP team with the Africa energy team of the World Bank. The key operational objective was to ensure that Africa task managers were able to adapt and complete their ESMAP proposals as recommended by the ESMAP Review Panel, which has been a reason for delay in the past. Some of the newly approved Africa projects from the October 2002 Call for Proposals entered the ESMAP portfolio in early 2003 and were not included in the 2002 tally.

Among the strategic areas, the access portfolio grew significantly with 13 new projects (nearly half of the 29 new projects launched in 2002) primarily focused on increasing access by the poor to modern energy services. Five of these projects are focused on increasing access in Sub-Saharan Africa. (see annex 2 for projects launched in 2002).

The Latin America and the Caribbean Region (LCR) activities accounted for around 30 percent of the ESMAP portfolio over the 1999-2001 business plan period. These activities remained at their traditional strength in 2002 as the Latin America and the Caribbean Region energy team continued its use of ESMAP's funding and intellectual resources.

The new business lines from ESMAP's Business Plan 2002-2004 that gained momentum during 2002 were the Global Village Energy Partnership with eight activities and six activities each for the Indoor Air Pollution, Gender and Energy, and Energy-Poverty Linkages business lines. In terms of strategic focus, ESMAP concentrated on increasing its access/energy-poverty work. This sub-portfolio saw a 30 percent rise from US$5.7million at the end of 2001 to US$7.4million in 2002. The energy market development sub-portfolio remained constant around the US$13million mark during 2002 as this portfolio is being redefined away from basic sector reform work and toward the development of new ESMAP business lines such as Strengthening Reform, Impact of Reform on the Poor, and Governance and Revenue Distribution.

Seed Funding and Fast Track Window

To respond to proponents' demand for just-in-time funding, ESMAP formally launched a "fast track window" in its October 2002 Call for Proposals. For proposals of up to US$50,000, ESMAP promised proponents that a decision and funding (for approved projects) would be made available within two to four weeks on a rolling basis (depending on the kind of funding to be offered). This feature was available earlier

Table 2.1 Portfolio During Calendar Year 2002

	Number
Ongoing projects on January 1, 2002	114
Completed projects yet to be closed, as of January 1, 2002	26
New projects launched during 2002	29
Projects closed during 2002	(30)
Projects withdrawn during 2002	(1)
Completed projects yet to be closed, as of December 31, 2002	(28)
Portfolio as of December 31, 2002	110

but needed some marketing to increase its visibility among task managers. The offering was well received, with 13 out of the 49 proposals in October 2002 falling under this category. Nine of these proposals were approved during 2002.

In addition, ESMAP retained the seed funding window, which deals with activities up to US$15,000 at any time on the basis of a short write-up and consultation with the ESMAP team, to develop project ideas that require preliminary work, such as consultations with clients or literature research. In 2002, ESMAP approved eight seed funding requests.

Closing of projects

The portfolio review presented in ESMAP's Annual Report 2000-2001 discussed difficulties in bringing final financial closure (in the World Bank financial systems) to ESMAP projects that had already completed all budgeted activities. This led to a rise in the tail of the portfolio caused by an imbalance between launched projects and project closings: with 20 and 27 new projects launched in 2000 and 2001, respectively, only 11 and 3 projects were brought to financial closure during these years, respectively (cancelled projects are not included in these numbers). To avoid presenting a distorted picture of the size and value of the portfolio due to this administrative difficulty, ESMAP began to carry these activities in a category called "Projects to be closed." These activities were no longer considered part of the active portfolio. At the end of 2001, this category had 26 projects as reported in the 2000-2001 annual report.

Twenty-nine new projects were launched during 2002. But ESMAP was able to restore balance in the portfolio's turnover during 2002 by closing completed activities more efficiently than has been possible in the past. Yet the project closings have not fully caught up with the new projects entering the portfolio as 28 activities remained in the "Projects to be closed" category at the end of 2002 (see table 2.1). The ESMAP team is continuing its efforts to increase project closings.

3

ESMAP PORTFOLIO HIGHLIGHTS AND IMPACTS

The ESMAP Business Plan for 2002-2004 reiterates ESMAP's continued support in three main strategic areas:

- Increasing access to modern energy for poverty reduction;
- Improving Energy and the Environment; and
- Developing sustainable energy markets.

This section provides an update on ESMAP's activities in 2002 in each of these areas in terms of development status, achievements, lessons learned and follow-up activities.

INCREASING ACCESS TO MODERN ENERGY FOR POVERTY REDUCTION

At the World Summit on Sustainable Development (WSSD) held in Johannesburg in August-September 2002, energy issues, particularly access to energy, were one of the critical elements of the negotiations and outcomes. Increasing access to modern energy services is essential to achieve the Millennium Development Goals (MDGs). Increased access to energy can enhance agricultural productivity, make possible provision of clean drinking water and refrigeration for vaccines, light schools and health clinics, provide for income-generating opportunities, and protect the environment.

ESMAP's overall strategy on energy poverty reduction focuses on finding solutions to scale up energy access efforts, increasing the link between energy services and the MDG of poverty reduction, and analyzing the impact of sector reform on the poor.

Specifically, during 2002, ESMAP provided pragmatic intellectual leadership in the following four broad areas:

- Supporting pilot activities and comprehensive national programs to demonstrate innovative institutional and financing delivery mechanisms.
- Providing technical assistance to improve the policy and regulatory framework for rural electrification and renewable energy.
- Identifying successful factors and lessons learned from grid electrification.
- Launching the Global Village Energy Partnership (GVEP).

Pilot Activities and National Programs to Demonstrate Innovative Institutional and Financing Delivery Mechanisms

A key success factor for scaling up rural energy access is to demonstrate replicable and sustainable institutional and financing mechanisms to deliver rural energy services. In 2002, ESMAP continued to support pilot activities and national programs to demonstrate innovative institutional and financing delivery mechanisms. The *Bolivia Country Program* and *National Biomass Program* were nearly completed. They demonstrated three innovative business delivery models, and established a Biomass Fund as well as a sustainable institution to promote energy efficiency. The results have been incorporated into the design of the World Bank loan project (Decentralized Energy, Information, and Communication Technology for Rural Transformation Project) currently in preparation. The *Technical Assistance to Proposed Expansion of Solar-Net Village Program in Honduras* project aims to demonstrate a sustainable community management mechanism that links energy services with Information and Communications Technologies (ICT) and education applications. The *Philippines Village Power Fund and Incubator for Renewable Energy Enterprises* project is setting up an innovative village power fund and linking community-based energy services with productive use applications in two barangays. The *Bangladesh Women Micro-Enterprise Model* is expanding to Phase II and this experience is being replicated in Ghana.

Bolivia is one of the targeted countries to which ESMAP provided substantial funding to develop national programs. Previous ESMAP support helped the government develop sector reform strategies that have been successfully adopted by the government. The second phase ESMAP

interventions provided technical assistance, institutional building, and pilot activities in the areas of rural electrification, biomass energy, and energy efficiency, which are not part of the sector reform process (see box 3.1).

The *Bolivia Country Program* supported rural energy and energy efficiency activities. The Rural Energy component demonstrated three business delivery models: 1) the rural electrification fund model, which encourages existing private distribution companies to supply electricity to rural areas by grid extension; 2) the solar home system (SHS) model where local firms deliver SHSs on a fee-for-service basis to rural consumers and the local firms are affiliated with multinational SHS manufacturers; and 3) the NGO model where the local NGOs assist in setting up mutually agreeable community-based systems for billing and collection in areas where the private sector cannot reach. These delivery models provided key inputs and lessons learned to the rural electrification project currently under preparation by the World Bank Group (US$20 million) and Kreditanstalt für Wiederaufbau (7 million Euros). This project also developed building codes and standards, and designed passive solar heating for rural schools. The Energy Efficiency component established a sustainable institution for promoting energy efficiency—the Centro de Promoción de Tecnologías Sostenibles (CPTS), which is fully operational with the support of the National Chamber of Industry and additional funding from DANIDA.

The *National Biomass Program* established a US$1 million revolving Biomass Fund, with contributions of US$800,000 from the Dutch government and US$200,000 from La Fundación para la Producción (FUNDA-PRO), a private nonprofit organization that manages the Biomass Fund. The Fund will supply funding to local industries using biomass as a principal source of energy. Local industries are eligible for funding based on goals of reducing biomass consumption and improving environmental impacts. Each project must cost no more than US$100,000. The industry will contribute no less than 5 percent of the project cost toward project financing. The Fund is in operation with 52 projects approved and 99 projects in the pipeline. This project also demonstrated pilot projects in seven enterprises that achieved substantial energy savings—20 percent reduction in energy consumption with an annual savings of US$200,000 and an 18-

Box 3.1 ESMAP Bolivia Country Program and National Biomass Program

Rural activities play a major role in the Bolivian economic growth process. These activities require the provision of basic rural infrastructure in which the supply of sustainable energy is crucial and hinges in large part on effective private participation within a sound legal and regulatory environment.

The *Bolivia Country Program* intended to help the government achieve its policy objectives in the field of rural energy and energy efficiency and develop capacity to implement, monitor, evaluate and adjust rural policies and projects. The Program supported technical assistance, institutional building, and pilot activities regarding Rural Energy (RE) and Energy Efficiency (EE).

The RE component accomplished the following: It explored options for sustainable mechanisms to deliver electricity to rural areas by either extending the distribution grids by existing concessionaires, or using private suppliers and dealers to supply solar home systems (SHSs) to commercially attractive areas, or supplying electricity services to very remote, isolated communities through NGOs. The RE component identified demand and supply options, and market potential and barriers, and implemented market development measures concerning demonstration projects such as water pumping for rural farms, photovoltaic- powered (PV-powered) video equipment for rural learning centers, and passive solar energy for heating rural schools in the highlands. A Rural Energy Fund was designed to help finance electrification projects sponsored by private concessionaires. Finally, the RE component strengthened the capacity of government, at central and local levels, to carry out rural energy and energy efficiency activities. The Energy Efficiency (EE) component executed energy efficiency pilot projects; supported mechanisms to promote and implement EE measures, including an energy efficiency center located within the National Chamber of Industry and several consulting companies that could evolve toward Energy Service Companies; studied electricity demand-side management; and studied co-generation of electricity by various enterprises.

The *National Biomass Program* aimed to help the Government of Bolivia achieve its policy objectives in the field of biomass as an energy source by financing the institutional development of and technical assistance to the *National Biomass Program (NBP)* initiated by the government in 1997. The program also aimed to develop the Energy Secretariat's capacity to implement, monitor, evaluate, and adjust biomass policies and projects. Although the latter objective was only partially achieved, the NBP supported the establishment of a Biomass Fund within a reputable financial institution (FUNDA-PRO) to help private entrepreneurs finance energy efficiency and substitution projects in small and micro rural industries. The Biomass Fund is active and is currently financing numerous rural industrial activities. The NBP also showed that diesel fuel subsidies hinder the economics of small-scale biomass-based power generation.Some lessons from these two programs can be highlighted:

- The efficiency and outcomes of both programs would have been further enhanced had they focused earlier on activities with the best prospects for replicability and sustainability.
- Involvement and support of private and local players should be actively pursued.
- Subsidies for polluting fuels should be reduced or removed to provide better chances for substitution of cleaner energy sources.
- Application of new technologies to increase efficiency in productive processes of small scale rural industries, together with adequate promotion and training activities, can create local value, improve competitiveness, consolidate rural markets, and create employment opportunities.
- There is a need to include technology and management of natural resources in the rural areas in the curricula of universities.

Contributed by Alvaro J. Covarrubias and Philippe Durand.

month payback period. One important lesson learned from both projects is that ESMAP projects should focus strongly on one or two major activities likely to have successful outcomes.

The *Honduras Solar-Net Village Program* (see box 3.2) is one of the first attempts to set up a model for low-cost ICT applications in remote rural areas. It is setting up two pilot projects—a solar PV-powered and a grid-connected ICT system—linked with computers for education and possibly local business development. The project closely involved local communities that formed a community company to maintain the systems, with training provided from the project. Two important lessons were learned from this project. First, given the low ability to pay in local communities, it is not realistic to expect 100 percent cost recovery of both capital and operating costs. The project, however, should target recovery of the operation and maintenance (O&M) costs. Second, the low density of the rural population prevented development of a critical mass of demand, making ICT applications and business opportunities difficult.

The *Philippines Village Power Fund* project adopted a participatory approach to identify the needs of the communities and prepare feasibility studies with locally based NGOs to ensure community ownership and institutional sustainability. The two pilot micro-hydro projects, in Binosawan, Rapu Rapu, and Bagong Bayan, Palawan, are demonstrating a credit model that provides partial loans to local NGOs. The pilot projects also intend to set up ice-making plants linked with the micro-hydro systems, to generate revenues for the local communities to pay back

Box 3.2 Honduras Solar-Net Village Program

Under its Aldeas Solares program, the Government of Honduras plans to establish about 100 telecenters nationwide and has obtained a loan of US$8.5 million from the Inter-American Development Bank (IADB) for this purpose. About a third of the telecenters would be small rural information centers (RICs) or mini telecenters, located mostly in remote, unelectrified areas. The purpose of the RICs would be to provide basic information and telecommunications (ICT) services, such as internet-based educational services for youth and business development services for rural micro-enterprises. There is little experience worldwide with the establishment and operation of RICs, which often need to be powered with stand-alone photovoltaic systems. A recent demonstration RIC in Honduras used internet connection via satellite, an approach that is too expensive to replicate. An ESMAP-financed technical assistance activity aims to test less expensive ways to obtain access to internet and other ICT services. In partnership with the International Telecommunications Union (ITU), a UN agency, the idea is to use inexpensive packet radio links between existing urban telecenters and solar-powered RICs in villages up to 100 km away to bring internet and other ICT services (for example, telephony via internet) to the villages. The U.S. Sandia Laboratories is contributing experts to assist in the design of the solar power systems. Aside from the technical objective, the main purpose is to gather information on actual usage of the RICs and their operating costs over a pilot period of six months in two villages, Las Trojes and Montaña Grande. This would help determine, as a policy tool, the level of subsidy needed to provide the services to remote, unelectrified villages. The IADB project will use the ESMAP activity's outputs to develop the final design of its RIC component.

Contributed by Ernesto Terrado.

the loans. This is one of the first attempts in the Philippines to test financing mechanisms for community-based energy projects. In addition, this project is preparing to set up the Village Power Fund to scale up these pilot efforts. This approach has high replication potential, particularly with the national government's ambitious goal to electrify all barangays by 2006. The government agencies have already shown great interest in developing productive use applications from rural energy services, and the Asian Development Bank (ADB) is planning to fund project preparation for energy and productive uses. This ESMAP project has leveraged co-funding from UNDP, the Philippines Departments of Energy and Agriculture to support the pilot projects.

The important lessons learned from this project are: 1) a consultative approach takes time during project development; 2) the need for capacity building is greater than expected; and 3) accommodating funding from multiple donors is not easy, as each donor has its own requirements.

Policy and Regulatory Framework of Rural Electrification and Renewable Energy

A successful rural electrification and renewable energy program require a sound policy and regulatory framework to be in place, which usually is a key success factor for scaling up rural energy services. In 2002, ESMAP continued to support a series of projects that assist national policy makers and regulators in developing and improving national rural electrification and renewable energy strategies and policies including off-grid, mini-grid, and grid-connected systems. In the Latin America region (Argentina, Bolivia, Brazil, Mexico, and Nicaragua), the results of these projects have been or will be incorporated in national government programs or new World Bank rural electrification loan projects under preparation.

The *Regulatory Issues of Off-grid Energy Services Delivery as Part of National Rural Electrification Strategies* project in Argentina, Bolivia, Brazil, and Nicaragua helps these countries put in place a sound regulatory framework for off-grid electrification, including setting tariffs, service quality standards, and technical standards. It assists regulators in these countries in enforcement and supervision of off-grid rural energy policies, and in formulating detailed legislation from national energy or electrification laws. In Argentina and Bolivia, the project worked with local regulators and drafted off-grid regulatory frameworks. In Brazil and Nicaragua, the project completed the analytical work, and the draft regulatory framework is under way. This project also promotes cross-exchange of information and experience among legislators in these countries. The results of the project are intended to be incorporated into national legislation in these countries and are feeding into the design of the World Bank rural electrification projects.

The *Policy & Strategy for the Promotion of Renewable Energy Resources in Nicaragua* project focuses on national energy policies for grid-connected and mini-grid renewable energy resources. It will assist the government in developing an overall national renewable energy policy, which includes: 1) increasing the share of wind power under new grid operational rules that require preferential dispatch for intermittent renewables, provided it can be shown that grid stability and economics are not significantly harmed; and 2) public-private risk-sharing mechanisms for developing geothermal resources. This project, together with other rural and renewable energy projects in Nicaragua supported by ESMAP (including the Nicaragua Workshop on Private-Sector Led Mechanisms for Rural Energy Service Delivery, Regulatory Issues of Off-Grid Energy Services Delivery as Part of National Rural Electrification Strategies, and Lessons on Off-grid Electricity, Business Development Services, and Micro-credit in Nicaragua), provided a solid foundation for the design of the World Bank-Global Environment Facility (GEF) Nicaragua Rural Electrification Project currently under appraisal.

The *Mexico Technical Assistance for Long-term Program for Renewable Energy Development* project provides technical assistance to the national

government on policies and strategies for large-scale promotion of renewable energy in the country. It recommended that the UK's successful Non-Fossil Fuel Obligation (NFFO) model be adapted and replicated in Mexico. It plans to carry out a comparative analysis of the economic costs of renewable energy and existing utility options such as grid upgrading, and natural gas combined cycle. Because of the projected increase in prices of imported oil and gas, renewable energy may become a competitive energy choice. The project will also assist the government in developing an energy portfolio diversification scenario. ESMAP support laid the groundwork for a US$70 million World Bank-GEF Large-scale Mexico Renewable Energy Development Project under preparation.

The *Brazil Rural Electrification* project held a successful stakeholder workshop, and produced a draft rural electrification strategy for both off-grid and grid-extension systems. With the changes in government, the new Brazilian Minister of Mines and Energy is showing strong support for rural electrification, and is particularly interested in moving from strategy to action with the implementation of a rural electrification program in the state of Piaui. Under the ESMAP project, the rural electrification strategy is being revised to reflect the needs and visions of the new government. The result of this project will be incorporated in the World Bank Group rural electrification project under preparation in Brazil. One important lesson learned from this project is that waiting for government changes to take effect and consulting with the new government can achieve more profound impacts on the ground. Linking ESMAP projects with government policies and World Bank operations leads to better results, although this process takes more time.

Successful Factors and Lessons Learned for Grid Electrification

Providing modern energy services to the two billion people worldwide without access is a challenging task. ESMAP supported a series of case studies to examine the success factors and lessons learned on best practices of grid extension in eight countries—Bangladesh, Chile, China, Costa Rica, Mexico, Philippines, Thailand, and Tunisia, (see box 3.3). This project demonstrated that rural electrification, though challenging, can be successful in developing countries if well planned, carefully targeted, and efficiently implemented. Each of these countries follows different models and structures. They shared, however, a few common principles that make their rural electrification programs a success. The case studies in Chile also documented the success story of rural electrification after power sector deregulation through setting up a rural electrification revolving fund. These findings have already been applied to rural electrification programs in other countries. The World Bank lending projects *Rural Electrification and Renewable Energy Development in Bangladesh* and *Rural Energy Project in Vietnam* have incorporated many lessons from the results of this ESMAP study. The analysis of these experiences also demonstrated that to scale up rural energy access, both grid-extension and off-grid alternatives have important roles to play, and rural electrification programs should include both options.

The Global Village Energy Partnership

The *Global Village Energy Partnership* (GVEP) is a flagship activity of ESMAP. It was introduced as one of ESMAP's most important new business lines in Business Plan 2002-2004. The Partnership was successfully launched at the World Summit on Sustainable Development in 2002, with the goal of increasing availability and improving use of modern energy services for economic growth and poverty reduction, in rural, peri-urban, and urban areas (see box 3.4).

The Partnership was launched to address several key issues: 1) stagnation or slow progress in making modern energy services available to a larger proportion of un-served low income populations; 2) continued low access to modern

Box 3.3 Rural Electrification in the Developing World: Lessons from Successful Programs

The pace of rural electrification in much of the developing world is painfully slow. In many African and South Asian countries, it is not even keeping up with rural population growth.

Well-publicized reports on the problems of some programs have also led to increasing wariness about rural electrification among energy policy makers. The highly subsidized Indian program, for example, has drained the resources of many of the state power companies, with highly damaging effects on their overall performance and quality of service.

Rural electrification programs can undoubtedly face major obstacles. The low population densities in rural areas result in high capital and operating costs for electricity companies. Consumers are often poor—their electricity consumption is low and they cannot afford to purchase significant electricity services. Politicians interfere with the orderly planning and running of programs, insisting on favored constituents being connected first, and preventing the disconnection of people not paying their bills. Local communities and individual farmers may cause difficulties over rights-of-way for the construction and maintenance of electricity lines.

In spite of these problems, many countries have been quietly and successfully providing electricity to rural areas. In Thailand, over 80 percent of rural people have a supply. In Costa Rica, cooperatives and the government electricity utility provide electricity to almost 95 percent of the rural population. In Tunisia, 90 percent of rural households already have a supply. Some of the main reasons for the success of these programs stems from several important factors:

- Effective institutions deal specifically with the problems involved in rural electrification.
- Prices are kept high enough to make rural distribution companies financially sustainable.
- Subsidies encourage rather than discourage the development of the distribution business.
- Local people are involved with the electricity business and perceive it to be both fair and responsive to their needs.

Contributed by Douglas Barnes and Gerald Foley.

energy services in developing countries to meet the needs of the population in terms of quality of life, access to more and better health care, and education, and in terms of energy for productive activities and investments by households and enterprises; 3) energy needed to achieve the Millennium Development Goals and to foster economic growth; and 4) individual efforts did not succeed due to weak political commitments and market barriers, insufficient enterprises, lack of information and lesson sharing, inadequate financing, and a lack of accountability for results.

To date, the 130 partners that have registered include:

- Governments from developing and industrialized countries;

Box 3.4 The Global Village Energy Partnership (GVEP)

GVEP provides five types of services:

- Action plans that include goals for service delivery, policy framework, demand assessment and priorities, supply and investment options.
- Capacity Development for entrepreneurs, financial institutions, consumer groups, and technicians.
- Funding Facilitation including registry of funding sources, training for financial intermediaries, and pre-investment facilities.
- Knowledge exchange encompassing models of actions plans, projects, and financial mechanisms; lessons learned; toolkits; web site, radio and TV programs; paper information dissemination; a network of trained and knowledgeable individuals; and a help/advisory desk.
- Results and impact monitoring including public accountability for results, and assessment development impact.

GVEP is expected to achieve the following outcomes within ten years:

- Large numbers of national and community-based programs, fewer barriers to entry.
- A greater number of energy service enterprises in developing countries.
- Greater availability of a wide range of technical options for energy provision.
- At least 400 million more people served with modern energy.
- Higher incomes to purchase energy services.
- 50,000 communities equipped with schools, dispensaries, and telecommunications services, and more effective education, health, communications and transport services.
- Greater flow of energy investments toward low-income areas and customers.

GVEP proposes to achieve its goal through the following structures:

- Action plans devised through multi-stakeholder workshops, at the request of stakeholders.
- Programs and projects implemented by Partner organizations and states.
- Resources, guidance and supervision provided by the Technical Secretariat, currently managed by ESMAP.
- The Board of Directors, elected by the Partners for two-year terms, provides oversight and strategic guidance to both the Technical Secretariat and the Partnership as a whole.

GVEP has made substantial progress to date, facilitated by the GVEP Technical Secretariat:

- The Partnership was officially launched at WSSD with over 150 participants including ministers from Germany, Guatemala, The Netherlands, Pakistan, and South Africa.
- As of February 2003, 130 organizations committed to the GVEP Statement of Principles, which outlines the goals and services of the Partnership.

- Partner organizations represent the private sector (for example, BP Solar, RAPS Consulting Ltd. of South Africa, ORMAT International), NGOs (Organization of American States, KITE of Ghana, Energy and Environmental Concerns for Zambia, TERI of India), and bilateral and multilateral institutions (CIDA, DfiD, UNDP, UNEP USAID, and others).
- The governance structure for the Partnership was finalized and the first Partnership Board elected by the Partners. (World Bank was not represented except through Ex-Officio coordinator of the Technical Secretariat).
- A three-year work plan was developed and circulated to donors, with input from focus groups, and preliminary funding commitments were made.
- Four monthly newsletters were published, with input from Partners, and collaboration with existing Village Power updates.
- A demonstration web site was completed, with second phase development commencing by March 2003.
- In partnership with ESMAP and the World Bank Africa Region Energy Unit, two multi-country/multi-sector/multi-stakeholder energy-poverty workshops took place in Addis Ababa, Ethiopia in October 2002, and in Dakar, Senegal, in February 2003. The 13 participating countries prepared preliminary energy-poverty reduction action plans aimed at enriching the poverty reduction strategic documents and identifying energy interventions to achieve the MDGs. Follow-up is planned for national-level activities, as requested by Burkina Faso, Mali, Mauritania, Senegal, Tanzania, Uganda and Zambia, to support the development of investment programs.
- A Pre-Investment Facility workshop is planned for April 2003; a South-Asia Practitioners Workshop is planned for May 2003; and a Regional Energy-Poverty Workshop is planned for Latin America and the Caribbean in June 2003.
- Partner governments are preparing increases in investment in energy services, with support from private sector partners, such as the European Development Fund (EDF) through its access program, and NGOs such as Fundación Solar and Fondo Indígena to reach the 15 percent of the Guatemala rural population presently un-served, UNDP, the World Bank, and others.

Contributed by Katharine Gratwick.

- Communities, local user groups, NGOs;
- Enterprises (service providers, manufacturers, and consultants);
- Private financial intermediaries; and
- Bilateral and multilateral development and financial institutions including UNDP and the World Bank Group with a portfolio of activities, investments and battery of technical assistance and financial instruments.

IMPROVING ENERGY AND ENVIRONMENT

Environmental sustainability is one of the Millennium Development Goals, with the objective of halting the unsustainable exploitation of natural resources. Ten years after the Rio Earth Summit, world leaders gathered again in Johannesburg in August and September 2002 to dis-

cuss environment and poverty reduction issues at the World Summit on Sustainable Development (WSSD). On the energy and environment agenda at WSSD, renewable energy and energy efficiency were among the high priorities in discussions and commitments.

These priorities reaffirmed the justification for ESMAP's Second Strategic Pillar: Energy and Environment Sustainability. Following the World Bank Group's Environmental Strategy for the Energy Sector, "Fuel for Thought," published in 2000, the Bank completed two new strategy papers in 2001, "Making Sustainable Commitments, an Environment Strategy for the World Bank," which makes the case for accelerating integration of environmental objectives throughout the Bank's development assistance efforts, and "Energy Business Renewal Strategy," which highlighted environmental sustainability as one of its four pillars.

In 2002, ESMAP and the Energy & Mining Sector Board of the World Bank co-sponsored an "Energy and Environment" report, which looked at what has been achieved since "Fuel for Thought" and recommended a forward agenda for the Bank. The report concluded that the Bank's processes and outputs are well on course. Some of the upstream work has influenced the Country Assistance Strategies (CASs), created and disseminated knowledge, and built capacity. The bulk of the Bank's upstream work continues to be financed through Bank-donor programs, such as ESMAP. These upstream activities have provided a solid platform from which investment activities have been launched. In the Bank lending portfolio, the number of energy projects with environmental objectives has substantially increased. Looking forward, the report recommends that the Bank's agenda focus on the tradeoffs between poverty and environment particularly in the case of indoor and urban air pollution.

Energy and environment is also an essential component in the ESMAP Business Plan for 2002-2004. ESMAP's overall objective is to address the energy and environment nexus at the local, regional, and global levels as related to energy production, transportation, and consumption. This is to be achieved through assessing environmental health impacts, identifying sound mitigation options, and providing policy advice. Specifically during 2002, ESMAP provided pragmatic leadership in the following three broad areas:

- Addressing indoor air pollution;
- Improving urban air quality; and
- Increasing energy efficiency.

Indoor Air Pollution

Indoor air pollution is one of the most serious health issues, especially for women, and children under 5 years old, due to the use of traditional biomass fuels in open fires in poorly ventilated areas. It is estimated that up to 2.5 million women and children die prematurely every year from respiratory diseases caused by indoor air pollution, and that indoor air pollution is one of the largest contributors to the global burden of disease in developing countries. ESMAP has developed a strong portfolio of activities on energy-related indoor air pollution. The primary objectives of these activities follow:

- To help build knowledge through empirical evidence.
- To educate decision makers and national stakeholders.
- To identify viable options to mitigate indoor air pollution.
- To stimulate investment programs and activities in this area.

This work is a key link in the effort to establish the contribution of energy to the achievement of the Millennium Development Goals, particularly the Goals to reduce maternal and child mortality.

ESMAP is supporting indoor air pollution projects in five countries—China, Guatemala, India,

Mongolia, and Nicaragua. These projects: 1) assessed health impacts of indoor air pollution; 2) evaluated the barriers and best practice of improved stove programs, and promoted innovative designs and a wide knowledge dissemination of improved stoves; and 3) examined liquid and gas fuel alternatives such as LPG, kerosene, and natural gas. In addition, they have already substantially enhanced awareness among local key stakeholders, and influenced the health professionals in the Bank and client countries. The completed *Mongolia Improved Coal Heating Stove Project* has led to a GEF medium sized project. ESMAP held a brown bag lunch event to disseminate the results of these five projects and promote exchange of experience and lessons learned.

The recommendations from the project *India Household Energy, Air Pollution and Health* ESMAP report 261/02 (see ESMAP Annual Report 2000-2001) have been included in India's tenth Five-Year Plan. Its outputs are now the basis of the Bank's dialogue with the Government of India about possible projects involving improved cook-stoves and health outcomes. This project spawned another activity at the request of the Government of India, *Access of the Poor to Cleaner Household Fuels*, to examine the impact of kerosene and LPG subsidies on household fuel use patterns, especially among the poor (see box 3.5). This project concluded that the LPG subsidy and the universal kerosene price subsidy have few social benefits and did not reach

Box 3.5 International Experiences with Promoting Household Petroleum Fuels

Worldwide, a number of countries have (or have historically had, such as Mexico) zero or negative taxes on kerosene and other fuels such as diesel and LPG, particularly in oil-producing countries. Countries that subsidize LPG include Côte d'Ivoire, Ecuador, India, Senegal, and Venezuela. LPG subsidies, however, typically benefit middle class and higher income families, and hence are not pro-poor. Some efforts have been made to make LPG subsidies more pro-poor. For example, Côte d'Ivoire and Senegal specifically target their subsidies at smaller cylinders to make each refill more affordable—6 kg and smaller cylinders as opposed to the most common size of 12.5 kg. However, despite the subsidy (about 25 percent as of December 1999), consumers in Côte d'Ivoire have not switched from 12.5 kg to 6 kg cylinders, and less than 10 percent of kerosene was sold in the subsidized 6 kg bottles in 1999. In Senegal, 2.75 kg and 6 kg cylinders are heavily cross-subsidized by larger size cylinders, and LPG has become the principal cooking fuel for many urban households. However, the urban poor, despite the subsidy, find LPG expensive and tend to use charcoal, which is cheaper and can be purchased on a daily basis. Furthermore, the government of Senegal is now in the process of phasing out its LPG subsidy entirely because of its high fiscal cost.

In Peru, kerosene was heavily subsidized from the 1950s until 1991, when the subsidy was withdrawn. During this period, kerosene became the cooking fuel of choice among many households. Subsidized kerosene was not rationed. A substantial amount was diverted to the auto diesel sector and smuggled out of the country. Similar to India, the petroleum product subsidies amounted to billions of dollars in Peru by the late 1980s. Today, significant private sector participation and the increased availability of gas make LPG available at competitive prices in large and medium-sized cities, making LPG the preferred fuel of choice.

(*continued*)

Box 3.5 International Experiences with Promoting Household Petroleum Fuels (Continued)

Worldwide experience shows that it is extremely difficult to use subsidies to induce the poor to switch to petroleum products for cooking. The task is made virtually impossible if free biomass is available. Only when biomass becomes a commodity traded for cash, typically in urban and peri-urban areas, do the poor begin to consider alternative fuel options. Even so, the poor find fuels that can be purchased on a daily basis, such as kerosene or charcoal, more affordable than LPG, which can be purchased only one cylinder at a time. Add to this the higher start-up cost of LPG and its higher price relative to kerosene or charcoal, and LPG becomes out of reach for the poor. Kerosene merits special consideration because the poor primarily use it for lighting. In the absence of a reliable and affordable source of electricity, making kerosene available and affordable to poor non-electrified households becomes important. Health impacts of the various fuel options need to be taken into account when making decisions on subsidies.

Where biomass is plentiful, even relatively high-income families continue to use biomass, as found in rural India, Guatemala and Mexico. An important question is whether a policy that will achieve partial switching or reduced wood consumption is effective for mitigating the health impact of indoor air pollution. There is no epidemiological evidence to support or refute the health benefit of partial fuel switching. This is an area that needs further investigation.

Contributed by Kseniya Lvovsky, Masami Kojima and the World Bank Oil and Gas Group.

the poor. There is a strong case for phasing out these subsidies. It is unlikely that a sustainable government policy can be found to induce rural households to increase substantially the use of kerosene and LPG for cooking. However, the urban poor appear to be a more promising group for targeted subsidies. The report also found that in addition to income and relative fuel prices, fuel supply security is another important consideration in household fuel choices. Multiple fuel use by households is observed worldwide.

The *Guatemala Indoor Air Pollution (IAP)* study assessed the health impacts of cooking stoves and examined the mitigation options of improved stoves and LPG as a fuel substitute. Upper bound estimates of child morbidity and mortality indicate that approximately 20,000 cases of acute lower respiratory infection (ALRI), and 2,300 deaths from ALRI, among children under the age of 5 in the Guatemalan highlands would be eliminated if high levels of indoor air pollution were reduced—in particular reduction of indoor PM10 levels to less than 200µg/m3. Properly designed and maintained improved stoves (cocinas o estufas *mejoradas*) reduce exposure to indoor air pollution—notably to fine particulate matter—and represent a viable means of mitigating the health impacts of indoor air pollution for persons in the lower income quintiles who cannot afford liquid or gaseous fuels. About 15 percent of households, which rely entirely on fuel wood, have received improved stoves from various programs. However, further work is required to ascertain and quantify the health benefits of using improved stoves. Regarding the use of LPG, this study confirmed the conclusions from the India study—LPG adoption is a viable option only for upper income households in rural areas. From the point of view of government policy intervention, LPG use requires that issues of user safety and adequate cylinder management be addressed. The main findings of the Guatemala IAP study are that: 1) adequate quality control and proper maintenance are key factors to ensure the effectiveness of improved stoves in mitigating

health impacts of IAP; and 2) indoor air pollution should be addressed through the country's poverty reduction policies. The government is now engaged with the World Bank Group, NGOs, and others in including a component on indoor air pollution in a future Bank lending project in the Health sector in LCR. The government has also started to develop a multi-sector integrated energy policy to include health and ecological aspects of all energy use and production; the Ministries of Health and Environment are associated with the preparation process.

The Nicaragua project is intended to conduct a pilot program to commercialize improved cooking stoves, and to monitor the health impacts of improved stoves. A market survey was conducted and local small and medium-sized enterprises have been trained in stove manufacturing. The project trained a local NGO as the marketing facilitator to widely disseminate improved cooking stoves. These stoves have already been tested for health impacts. The lesson learned in this project is that one of the major barriers to marketing improved stoves is their high initial cost (in the range of US$30-$60), since consumers usually build traditional stoves themselves and are not accustomed to paying for them. For comparison purposes, improved stoves cost in the range of US$3 to $40 in India, US$35 to $60 in Mongolia, US$40 to $60 in China, and around US$80 to $150 in Guatemala (due to a monopoly supply from a heavily-subsidized government program). Other factors that prevent wide dissemination of improved stoves include stove quality, consumers' behavior, and cooking needs.

The sum of these experiences has informed the design of a recently launched ESMAP activity, *Sustainable and Efficient Energy Use to Alleviate Indoor Air Pollution in Poor Rural China*. This project will conduct detailed exposure assessments to measure the health impacts before and after introduction of improved coal and biomass stoves for cooking and heating in four Chinese provinces—Inner Mongolia, Gansu, Guizhou, and Shaanxi. The project will also design and implement local initiatives that would enable rural communities to develop cost-effective and affordable household energy interventions (improved stoves, better ventilation, cleaner fuels) that meet community needs and would induce behavioral changes for exposure reduction to IAP. This study is one of the pilot efforts to conduct quantified and consistent exposure assessment of improved stoves under controlled conditions, and the results will provide solid scientific evidence on health impacts of improved stoves.

In addition, ESMAP supported a session on the problems of indoor air pollution in developing countries at the international Indoor Air 2002 meeting. The session was useful in drawing attention to the fundamental health and global burden of disease issues associated with indoor air pollution in developing countries (in contrast with the focus in industrialized countries on issues such as "sick building" syndrome). It also provided a forum for discussing the policy challenges of addressing indoor air pollution in developing countries.

Urban Air Quality

Like indoor air pollution, urban air pollution also has significant negative health impacts on urban residents. Epidemiological studies have confirmed a direct association between fine particulates, one of the worst ambient air pollutants, and mortality. Again, the poor are most vulnerable in this case. Evidence shows that there is a direct link between urban air quality and national income levels. In industrialized countries, urban air quality has been significantly improved over the past four decades due to improved technologies and more stringent regulations. In the developing world, however, urban air pollution remains a huge problem. The World Bank estimated that the economic cost of urban air pollution in China, for example, contributed to about 5 percent of GDP in terms of premature death, morbidity, chronic bronchitis, and restricted activity days. ESMAP's strategy in Urban Air Quality focuses on the worst ambient air pollutants—

fine particulates, lead, sulfur, and nitrogen oxides, particularly in the transport sector. ESMAP activities: 1) provide technical and policy advice to national and municipal governments; 2) build local capacities in integrated air pollution management; and 3) disseminate knowledge on urban air pollution mitigation options.

In 2002, ESMAP activities in this area focused on three critical issues facing developing countries: 1) continuing lead phase-out initiatives, particularly in Africa; 2) providing technical assistance in abatement strategies to reduce fine particulates and sulfur emissions, particularly in Asia; and 3) facilitating the transfer of knowledge across countries and stakeholders, in particular through its support of the Clean Air Initiative. The Clean Air Initiative intends to build capacity for urban air quality management between local environmental and other sector agencies in selected cities and to promote exchange of information through networks in four regions.

Following the successes of ESMAP projects in phasing out leaded gasoline in Asia, Central Asia, Latin America and the Caribbean, and Middle East and North Africa regions, ESMAP *Lead Phase-out Initiative in Vietnam* achieved an "overnight" success in switching to unleaded gasoline (see box 3.6).

The experience and lessons learned from these efforts have led to recent ESMAP interventions in Africa. The two African projects deal with: 1) the overall improvement of urban air quality, including the phasing out of leaded gasoline (see Clean Air Initiative in SSA, in box 3.7); and 2) the specific case of lead phase-out in oil importing countries (Ethiopia, Mali, Mauritania, and Tanzania).

The *South Asia Urban Air Quality Project* is intended to assist municipal and federal governments in developing and accepting a realistic, cost-effective, and sustainable air pollution abatement strategy (see box 3.8). It issued a series of Briefing Notes focusing on technical, planning, and policy issues related to reduction of air pollution from the transport sector, and introduced international best practices. These Briefing Notes received wide recognition and requests from other regions. ESMAP also supports a project on *Source Apportionment of Fine Particulates in Developing Countries,* which is targeted to assist local stakeholders (governments, NGOs, academic/research, private sector) in understanding the sources of fine particulates in their localities in order to make more scientific and technically sound decisions to limit emissions and exposure.

In addition to fine particulates, sulfur emissions remain a major urban air pollutant in many developing countries, because of both the negative health impacts of sulfate oxides found in fine particulates and regional acid rain effects. The *Sulfur Emission Mitigation Policies* project provided assistance to the national and local governments in China for efficient sulfur emission control (see box 3.9). This project helped municipal governments in shifting their sulfur control policies: 1) from measuring emissions only to focusing on exposure and where the sources and people are; and 2) from concentrating on end-of-pipe investment measures only to investigating integrated investment options such as introduction of natural gas to substitute for coal burning.

The *Clean Air Initiative* is a partnership between the World Bank, city governments, private and public institutions, development banks and agencies, ESMAP, and NGOs interested in collaborating to improve the understanding of programs and provide tools to city leaders to make the difficult choices involved in addressing air pollution and mitigating its health impacts. The CAI has been successful in raising awareness of urban air quality issues in major cities around the world. The CAI established regional networks, built partnerships, held workshops, created a website, offered training and distance learning, created and disseminated knowledge, and provided assistance in cities' action plans.

Box 3.6 Going Unleaded in Vietnam

On July 1, 2001, Vietnam switched to unleaded gasoline (ULG), thereby reducing the health risk to its citizens by removing a major source of lead pollution in the environment. Vietnam was able to achieve an overnight switch through a combination of factors, including the commitment and leadership of key government agencies and officials. Initial attempts to eliminate leaded gasoline (LG) in Vietnam began with the passage of transport-related environmental regulations in 1995. However, implementation was delayed due to concerns regarding the cost of the switch, and over fears that without significant modifications, many vehicles in Vietnam would be unable to operate on ULG.

The ESMAP project helped move the unleaded gasoline agenda forward in Vietnam by providing decision makers with information and a forum for discussion. A "South-South" dialogue held in December 1999 in Hanoi between neighboring countries and Vietnamese stakeholders proved effective in overcoming many of the concerns and misperceptions that officials and citizens in Vietnam had about moving to ULG. By the end of the three-day dialogue, key Vietnamese officials indicated that the new information obtained at the workshop would allow the country to eliminate leaded gasoline much sooner than their original target of 2005. Following the workshop, a partnership of international donors, the government, and the business sector was established to help prepare Vietnam for the switch to unleaded gasoline, including: consensus building among concerned stakeholders in the country; an evaluation of Vietnam's vehicle fleet and of what measures, if any, would need to be taken for older vehicles; an estimation of the financial costs of switching to ULG; and the launching of a public education and awareness program on the benefits and process of switching to ULG. In October 2000, the Prime Minister's office announced that Vietnam would switch to ULG nationwide beginning on July 1, 2001.

The Vietnamese experience is noteworthy because while numerous countries have eliminated LG over the past 10 years, few have moved as decisively and as rapidly as Vietnam. Vietnam was well placed to eliminate LG quickly because of the country's lack of significant involvement in petroleum refining and the availability of high-quality ULG on international markets at prices comparable to those of LG. However, the government had to overcome widespread and strongly held perceptions that ULG would harm older vehicles in Vietnam. Vietnam deserves high praise for switching to ULG quickly, and serves as a positive example to other countries on how to eliminate the health and environmental hazards of LG.

Contributed by Todd Johnson from "An Overnight Success: Vietnam's Switch to Unleaded Gasoline," ESMAP Report 257/02, August 2002.

Energy Efficiency

In many developing countries, numerous opportunities exist to improve energy efficiency by 10 to 30 percent (or more) using low-cost, commercial technologies with a short payback period on the investment. Promoting energy efficiency is a highly cost-effective measure and offers significant opportunities to reduce both urban air pollution and greenhouse gas emissions. In the meantime, improving energy efficiency also contributes to poverty reduction. Providing efficient heating services to the urban poor and benefiting the urban poor with the eco-

Box 3.7 The Clean Air Initiative in Sub-Saharan African Cities

The *Clean Air Initiative in Sub-Saharan Africa (CAI-SSA)* was launched in 1998 as a response to deteriorating air quality in the region, where rapid urbanization has changed the landscape of cities and generated increased traffic, with detrimental effects on the environment and human health.

The Initiative focuses on the large cities of Sub-Saharan Africa that have experienced sustained high levels of urban growth over the last decades, accompanied by increased motorization, use of old vehicles, low-quality fuels, and few investments in traffic management. Its overall objective is to reduce urban air pollution and improve the quality of life in African cities, with the phase out of leaded gasoline as a first step toward reaching that goal.

The *Clean Air Initiative in SSA* is designed to accomplish the following:

- Raise stakeholder awareness of the dangers of urban air pollution, especially for those at highest risk—children and their mothers, street vendors, and pedestrian commuters—and the implications of vehicle and fuel choices;
- Evaluate baseline vehicle emissions measures, air quality, pollution exposure, and pollution effects, and monitor change over time;
- Identify the most cost-effective and enforceable measures targeting changes in vehicles, fuels, and traffic management;
- Design and monitor the impact of Air Quality Action Plans, including clear, measurable, and enforceable goals for reducing pollutants;
- Strengthen local expertise on air pollution and help develop a network of professionals in the field.

The *CIA-SSA* Initiative is part of the World Bank Clean Air Initiative; it is managed by the Bank's Africa Region, and is supported by ESMAP, the Belgium Cooperation, and the Trust Fund for Environmentally and Socially Sustainable Development (TFESSD. It operates in close partnership with African authorities, UNEP, WHO, bilateral environmental agencies, IPEICA, and representatives of the automobile industry.

nomic benefits from the energy savings, are only two examples in the ESMAP Energy Efficiency Portfolio, as described below, to demonstrate the linkage between energy, environment, and poverty reduction. In addition, energy efficiency technologies can also bring local sustainable development benefits, such as reduced need for new power plants and increased product competitiveness in the market.

In 2002, ESMAP supported improving energy efficiency focused on five critical areas: 1) developing heating strategies for low-income countries in Eastern Europe, and recently in China; 2) reducing energy costs in water utilities in Central Asia, Brazil, and China; 3) developing innovative financing mechanisms in Romania; 4) disseminating knowledge through South-South cross-exchange of experience and lessons; and 5) engaging the private sector in the industrial park in Morocco.

Developing Heating Strategies for Low-Income Countries. Heating is a vital energy service in

The Clean Air Initiative in Sub-Saharan African Cities (continued)

Since its inception, the Clean Air Initiative has implemented case studies on air pollution in various cities (Dakar, Senegal; Ouagadougou, Burkina Faso; Cotonou, Benin; Abidjan, Cote d'Ivoire; and Douala, Cameroon). It has organized regional and national seminars as well as training sessions on air quality management; sponsored the preparation of national action plans to mitigate urban air pollution; produced a number of publications and videos; and helped create a regional network of air pollution experts, Africaclean, now operating throughout sub-Saharan Africa.

The phase out of leaded gasoline has become the top priority of the Initiative. In June 2001 the Clean Air Initiative organized a pan-African regional conference in Dakar, Senegal, where 25 countries signed a declaration setting the date of 2005 for the complete elimination of lead from gasoline in SSA. Since then, the Initiative has sponsored and monitored the phase-out process through five sub-regional working groups, focusing on the preparation and implementation of detailed action plans to speed up the process. A specific Initiative, also supported by ESMAP, focuses on the lead phase out in oil-importing countries.

More information on the *Clean Air Initiative in Sub-Saharan Africa,* including the progress report for the period 1998-2002, can be found on the Initiative's Website (www.worldbank.org.cleanair/caiafrica) or on the Initiative's CD-ROM.

Contributed by Chantal Reliquet.

the countries of Central and Eastern Europe and the Former Soviet Union, and an essential component of national poverty reduction strategies. However, the heating systems in most of these countries are highly inefficient, many households receive inadequate heating services, and in several poor transition countries low-income households lack access to clean and affordable heating.

In many countries poor urban households consume less heat and have lower heat expenditures than usually associated with a district heating system. Even though district heating systems can be the most cost-effective heating mode given a high heat load, their high fixed costs make them potentially very expensive for consumers demanding less heat. To investigate sustainable and affordable provision of heat in those circumstances, ESMAP supported a project in the Kyrgyz Republic and Armenia that developed comprehensive and phased strategies and action plans for urban heating—*Development of Heat Strategies for Urban Areas of Low-Income Transition Economies*. Following the methodology developed in the ESMAP comprehensive report *Increasing the Efficiency of Heating Systems in Central and Eastern Europe and the Former Soviet Union*, this project is one of the first efforts to apply the balanced approach between district heating and decentralized heating alternatives, and it developed tools to compare heating alternatives. This project enjoyed strong support from the Government of Armenia, and it is being followed up by several projects supported by various donors including the World Bank Group, USAID, and UNDP-GEF. The lessons learned from this project are that: 1) it is critical to conduct demand surveys of household income levels and ability to pay, to provide consumers with heating systems that are flexible (that is, controllable and metered) to enable them to choose the level of heat consumption and expenditure in accordance with household income;

Box 3.8 South Asia Urban Air Quality Management

Ambient concentrations of fine particles in a number of South Asian cities rank among the highest in the world. Fine particulate pollution in turn has been shown to be extremely damaging to health, being linked strongly to premature death and serious illnesses. To address the social and economic costs of outdoor air pollution, the South Asia Urban Air Quality Management program aims to reverse the deteriorating trend in urban air by supporting the region-wide process of developing and adopting cost-effective and viable policies and efficient enforcement mechanisms.

Fostering debate and exchanging information and lessons learned have been two of the principal components of this program. To this end, a website with an on-line discussion forum has been set up and a series of briefing notes widely circulated. The briefing notes are intended for policymakers, NGOs, professionals in urban air quality management, researchers, and other affected stakeholders, and cover topics ranging from how to assess the health impact of air pollution to urban planning and fuel adulteration. The notes have been featured in the media not only in South Asia but also in Australia, and solicited responses from policymakers in regions as far away as South America. A few targeted studies have been commissioned, and the results are made immediately available on the website and summaries have been published in briefing notes.

One lesson that emerges is that engaging a diverse group of stakeholders with different and sometimes even incompatible objectives is very much necessary if sensible policy formulation is to prevail. At the same time, this type of engagement requires an enormous amount of sustained effort, and its impact can be assessed only in the long run.

Transport is one of the major sources of ultra-fine particulate emissions, particles considered most damaging to public health. For this reason, this program has focused especially on vehicle emissions, and more specifically on in-use vehicles among which gross polluters are found. The systems for identifying polluting vehicles and requiring them to be repaired in South Asia have been assessed in light of international experience. These lessons are being incorporated in the World Bank's urban transport projects in the region.

Contributed by Masami Kojima.

and 2) public support should be given to enable more providers of heating services to enter the market under less restrictive rules. This innovative approach is also being applied in another ESMAP project in Lithuania, where in addition, new technological options will be explored. The collective experience of heating sector reform in Central and Eastern Europe informed the design of a recently launched ESMAP project on heating pricing policy reform in China.

Reducing Energy Costs in Water Utilities. ESMAP is supporting energy conservation projects in water utilities in Brazil, Central Asia, and China. Energy costs account for a substantial portion of the operating cost in water utilities—50 to 70 percent in Central Asia, 40 to 60 percent in China, and up to 40 percent in Brazil. Improving energy efficiency in water utilities offers significant potential for energy savings, up to 40 percent in Central Asia and China and 25 percent in Brazil.

Box 3.9 Air Pollution and Acid Rain Control in China

Sulfur emissions from China's huge coal consumption have resulted in acid rain and high ambient concentrations of sulfur dioxide (SO_2), a large contributor to fine particulates in Chinese cities. Sulfur emissions have raised concerns among scientists, government leaders, and the public over damage to agricultural production and impacts to human health. Recognizing the threat of current and projected future sulfur emissions, in late 1998 the Chinese government passed far-reaching legislation to control sulfur emissions from power plants, industry, and other emitters in Two Control Zones (TCZ): 1) the SO_2 control region, comprising large coal consuming metropolitan areas in the North; and 2) the acid rain control region, comprising a wide area of the country south of the Yangtze River.

Municipalities in China will be largely responsible for implementing sulfur control measures under the TCZ legislation. By simply focusing on reducing sulfur emissions, important questions were: 1) to what extent would control measures help to reduce ambient sulfur concentrations in the cities and the incidence of acid rain; and 2) what are the relative costs of different control measures.

With these questions in mind, the World Bank Group, with the support of ESMAP, initiated a project in 1999 to assist two municipalities in China in assessing the environmental benefits and costs of various sulfur emission control options. In collaboration with the State Environmental Protection Agency, a series of training programs were organized between June 2000 and December 2001 to provide local environmental bureaus from Shijiazhuang in Hebei Province and Greater Changsha in Hunan Province with the analytic tools to evaluate the impact of sulfur emissions and the effectiveness of their sulfur control proposals.

The main conclusions from the project are the following:

- Shijiazhuang. The analysis indicates that planned sulfur control measures would fall short of allowing the city to meet ambient pollution standards as required under the TCZ policy. However, additional emission reductions sufficient to ensure compliance could be gained most cost-effectively by the use of additional low-sulfur coal from neighboring Shanxi Province.
- Greater Changsha (including Xiangtan and Zhuzhou). The analysis shows that while the planned sulfur control measures would allow Greater Changsha to meet national sulfur emissions goals, environmental costs from acid rain in Hunan would still be significant. In addition, sulfur control targets are threatened over the short-term by social and economic constraints of shutting down local high-sulfur coal-producing mines, and over the medium term by the construction of new coal-fired power plant capacity in Greater Changsha.

Aside from providing the cities with new analytical tools for assessing sulfur emissions, the results of the two case studies will be of value to the State Environmental Protection Agency as it continues to evaluate and revise national sulfur control measures

Contributed by Sarath Guttikunda and Todd Johnson. ESMAP report 267/03.

Box 3.10 **Applying Energy Efficiency Measures To Improve Commercial Viability of Water Supply Concessions in Small and Medium Sized Municipalities of Brazil**

Due to decentralization of federal and state government structures and regulatory processes, municipalities in Brazil—where over 85 percent of the existing 5,500 municipalities are classified as small municipalities because they have populations of 100,000 or less—are increasingly taking over responsibility to close the "access" gap in the provision of utility services by promoting, among other things, a greater degree of private sector participation through concession arrangements. In response to those reforms, a Brazilian association of private water supply utilities (ABCON) has been formed to actively engage small and medium sized municipalities in public-private partnerships.

Under an ESMAP activity *Brazil Energy Efficiency in Small and Medium Water Supply Operations,* three ABCON members (Agua do Imperador, NOVACON, and SANEATINS) have been receiving technical assistance over the past year, to determine, how they can apply energy monitoring and targeting (M&T) methodology to reduce operating losses. Reducing operating losses will bring the costs of water supply below the ability to pay of local consumers in small and medium sized municipalities in Rio de Janeiro State (Petropolis), Sao Paulo State, and Tocantins State (Palmas, Porto Nacional, Paraiso). At their request, ESMAP is assisting designated teams in each of the three ABCON members to become proficient in the use of M&T methodology as a means to overcome specific barriers, such as the lack of managerial know-how to improve system efficiency, and the lack of technical capacity to collect, analyze and utilize the relevant supply-side and/or demand-side data to achieve energy efficiency improvements.

The results to date have been very promising for each ABCON member, especially for the municipality of Petropolis. Specifically by strategically deploying additional water and electricity metering systems under a system-wide M&T set-up, and implementing low-cost measures —resizing pumps, power factor correction—Agua do Imperador is reducing annual electricity expenditure by about 15 percent. Moreover, the private concessionaire is exploiting operational synergy between existing water and energy acquisition systems—in particular the installation of micro-hydropower turbines in the existing water intake structures—to self-produce 30 percent of electricity requirements. Overall, the ESMAP activity has so far established a firm basis for the private water supply concessionaire to reduce its annual electricity expenditure for operations in Petropolis from R$1.125 million to about R$0.500 million. The projected life-cycle investment to put the efficiency improvements in place would be on the order of R$2.2 million; hence the expected payback period would be about three years.

Contributed by Amarquaye Armar. ESMAP report 265/03.

In Brazil, ESMAP supported the *Energy Efficiency in Medium and Small Water Supply Utilities in Brazil Project* (see Box 3.10). As a follow-up, one private concessionaire is planning to invest in the energy saving measures recommended through this project, including installation of micro-hydro turbines at water intake points. Working with the SEBRAE-RJ/GTZ Project and local financial institutions, ABCON intends to set up a sustainable dissemination mechanism that

can provide outreach to enable other municipal water utilities to replicate this approach. In addition, they plan to collaborate with PREPASSIST, a pre-investment facility, managed by the Fiorello LaGuardia Foundation, for *Sustainable Small-Scale Infrastructure,* to develop "bankable" proposals for presentation to international sources of financing, including the Community Development Carbon Fund. One important lesson learned was that the key barriers to improving energy efficiency in water utilities are the lack of managerial know-how and technical capacity to improve system efficiency. This project overcame these barriers by using local consultants—who previously had received training under the earlier ESMAP Monitoring and Targeting (M&T) project in Brazil—to extensively transfer know-how in M&T methodology to the ABCON members. The second lesson was that the analysis of water loss minimization and energy efficiency options should be conducted at the same time.

The *Energy Efficiency in Urban Water Utilities in Central Asia Project* conducted a rapid technical and economic assessment of potential energy efficiency gains in investment projects of public water utilities in Uzbekistan. The common assumption of water utilities of the former Soviet Union was that all pumps were highly inefficient and that their replacement was an obvious investment. The study found that this is not the most cost-effective approach. First, there is great variability in the energy efficiency of individual pumps. Second, some simple low-cost technologies can save up to 20 percent of energy with small investments that do not require replacement of the pumps. Third, the extremely high water leakage levels measured in the water distribution network indicate that the sizing of any pump to be replaced should be carefully chosen to avoid over-sizing. (A joint water loss and energy efficiency approach is recommended to bring the two perspectives into a single study). The project also provided training to local staff in water utilities. The results of the study are finding immediate applications in a management contract with the private sector that includes specific targets for reduction of energy consumption as part of a set of performance criteria that the private operator will need to achieve in order to receive a bonus payment. This project has been viewed with great interest by other countries in the region for replication of this approach given the very similar challenges faced by urban water utilities in FSU countries.

Engaging Private Sector in Industrial Park in Morocco. In many developing countries, the industrial sector contributes to a major share of energy consumption in the economy, and there exist many opportunities for significant energy savings. An innovative ESMAP activity to improve energy efficiency in the industrial sector is the *Global Efficiency in Sidi Bernoussi Industrial & Peri-Urban Area in Morocco Project*. This project aims to increase energy and water efficiency in the industrial park of Sidi Bernoussi in Casablanca, which consists of about 700 industrial enterprises, and that also contributes a portion of the economic benefits from the energy and water costs savings to an Environment and Social Fund (see Box 3.11). This project has conducted three pilot activities, and is planning a workshop to disseminate this approach to other countries in the region. As a follow-up, a GEF Medium Sized project of US$750,000 leveraged US$800,000 from FFEM of France and approximately US$10 million from commercial banks to scale up the approach demonstrated through the ESMAP activity from pilot phase into a full project dealing with the whole industrial zone. This project established a direct and clear linkage between energy, environment, water, and poverty reduction, and has wide replication potential in the region.

Developing an Innovative Energy Efficiency Financing Mechanism in Romania. Even though many energy efficiency projects have substantial environmental benefits with sound financial returns, this potential is not always being realized. Availability of commercial financing is usually a major barrier inhibiting mainstreaming of energy efficiency investments. The main financing

Box 3.11 Improving Energy Efficiency in the Industrial Zone in Morocco

The industrial zone of Sidi Bernoussi Zenata in Casablanca is one of the oldest and largest in Morocco, comprising some 700 industrial units. The area has a number of infrastructure problems ranging from poor road quality, inadequate sewage systems, nonexistent (or nearly so) garbage collection, and inappropriate street lighting, to the coexistence of over 1000 households located in 10 slums huddled between the walls of industrial units. Realizing the extent of the problems at hand and the insufficiency of initiatives taken by public authorities, the industrialists of the zone got together to create an association, IZDIHAR (Association des Opérateurs Economiques de la Zone Industrielle de Sidi Bernoussi Zenata). IZDIHAR acts both as a lobbying agent with local and national public authorities and as the focal point for projects mobilized through international financing. They realized that improving the efficiency of water and energy consumption is consistent with the objectives of improved competitiveness. The key characteristics of this ESMAP initiative included the following:

- Working through the association of industrialists as a whole, an energy and water efficiency services "market" can be developed, achieving economies of scale;
- The industrialists interested in benefiting from improved water and energy efficiency benefit from a "quality control" through IZDIHAR which qualifies the consultancy and service companies; and
- A proportion of the energy savings are paid back to a special account for environmental and social activities managed by IZDIHAR.

The project has completed the analysis on potential efficiency gains and on the interest of slum dwellers for a relocation plan. The estimated savings potential of water, electricity, and fuel is 18 percent, 7 percent, and 30 percent, respectively, with a simple payback period ranging from 10 to 20 months. A social impact assessment survey was undertaken covering some 800 households, and concluded there was an overall interest by slum dwellers for an improved housing plan. The pilot phase under implementation proposed an investment plan of three industrial units, and one of the 10 slums of the zone is being targeted for a priority improved housing plan.

Contributed by Anjali Shanker, IED (Innovation Energy Development).

barriers include high transaction costs and high perceived risks associated with energy efficiency investment, and a lack of expertise in identifying and developing commercially viable energy efficiency investment projects.

ESMAP supported an upstream activity to identify the barriers to energy efficiency investments in Romania and aid in the design of a market-based energy efficiency financing mechanism. This project extensively reviewed experiences and lessons learned from previous energy efficiency activities in Romania; worldwide experience with energy efficiency funds, such as in China, Hungary, and India; and other international experiences with financing of energy efficiency and environmental investments. The important lessons learned from this review are: 1) the financing institution needs to be very proactive in the development of a project pipeline; 2) energy efficiency financing should use existing market players where possible; and 3) energy

efficiency financing mechanisms should initially focus on projects with high rates of return to quickly demonstrate the benefits of these investments to other market players and encourage them to participate in market-based energy efficiency schemes. This ESMAP upstream work has led to the design and establishment of the Romanian Energy Efficiency Fund (FREE), which was initially capitalized through the US$10 million GEF *Energy Efficiency Project in Romania*. FREE combines project development and a financing facility that provides primarily debt financing to medium-sized energy efficiency projects within restructured/private industries.

Disseminating Knowledge Through South-South Cross-Exchange of Energy Efficiency Programs. There exists a wealth of knowledge and best practices of energy efficiency programs in developing countries. ESMAP supported a project to facilitate "South-South" energy efficiency practitioner networks and exchanges of information and best practices for implementing programs. This project held five well-targeted and designed workshops on:

- Energy Service Companies (ESCOs);
- District Heating;
- Energy Efficiency Funds;
- Operating Utility Demand Side Management (DSM) Programs in a Restructuring Electricity Sector; and
- Developing Financial Intermediation Mechanisms for Energy Efficiency Projects—Focusing on Commercial Banking Windows.

The project increased knowledge and capacity of practitioners from developing countries as well as of Bank staff. The workshops provided support and key inputs to World Bank-GEF operation projects in Brazil, China, India, Romania, The Baltic States, Poland, Thailand, Uruguay, and Vietnam. As a result, a follow-on activity is now under implementation with support from ESMAP and the United Nations Foundation—*Developing Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China and India*. The project seeks to achieve major increases in energy efficiency investments by the domestic financial sectors in Brazil, China and India. The important lessons learned from this project are: 1) it is critical to carefully choose the topics and design the discussion questions well for an effective exchange; and 2) participation from international consultants and Bank staff should be limited.

DEVELOPING SUSTAINABLE ENERGY MARKETS

Throughout the 1990s, ESMAP supported training, knowledge generation, and technical assistance on the reform of electricity and hydrocarbon markets. This included the following activities:

- Supporting the corporatization of state-owned utilities (power in Ghana and Cambodia, oil and gas in Vietnam);
- Developing designs for restructured markets (power in Bolivia and China);
- Strengthening the contractual and regulatory frameworks (oil and gas in Vietnam, power in Poland);
- Building understanding on sector restructuring (power in Bangladesh, Slovenia, South Africa, and Uganda);
- Learning the lessons of reform experiences (the UK power pool and power distribution concessions); and
- Taking stock of the progress on reform (the global scorecard on energy sector reform).

ESMAP's Business Plan 2002-2004 underscored that the development of sustainable energy markets is far from complete and, therefore, ESMAP's support to the development of energy markets should continue in two strands. First, continued knowledge dissemination must occur, capitalizing on the significant global knowledge pool that exists to help policymakers make informed decisions about basic sector reform and market structure issues. Second, knowledge must continue to be developed by engaging in work on the next generation of reform issues. The

2002-2004 Plan includes three new business lines focused on issues that are at the cutting edge of sustainable energy market development:

- The mitigation of environmental and social impacts of hydrocarbon development;
- Governance and revenue management; and
- Gauging the impact of sector reform on the poor.

All three business lines have the overall objective of making formal energy markets benefit the poor. This section presents work supported by ESMAP under each of these business lines during 2002.

Benefiting the Poor from Hydrocarbon Revenues

The objective of this business line is to equip the indigenous peoples of the Andean region to become more effective stakeholders in the negotiation of oil and gas development operations so they can gain their share of the rents generated by extraction and production of oil and gas. The governance and revenue management business line has begun to build awareness.

Mitigating the impact of hydrocarbon operations on indigenous peoples in the Andean region. Hydrocarbon development in Latin America and the Caribbean has grown substantially in the 1990s. According to the Organización Latinoamericana de Energía (OLADE) the region's oil production rose by 32 percent from 1991 to 2000 and gas production rose 50 percent in this period.

Since the early 1990s, oil and gas exploration in the Andean region has gradually entered environmentally sensitive and culturally vulnerable areas of the Amazon and Orinoco watersheds, which are mainly populated by the indigenous peoples of the region. For example, in Bolivia, by 2000, twenty IPCTs (Indigenous Peoples' Communal Territories under Bolivian law) were affected by 32 exploration ventures. These numbers represented 22 percent of all IPCTs territory and the area under exploration in indigenous territories represented 28 percent of all the country's concessions. For half of these 20 IPCTs, concessions covered more than 95 percent of their geographical area.

The exploration and development projects across the region have led to the mobilization of indigenous peoples in each of the Andean countries, with active support from international environmental groups. The indigenous organizations have become aware of their minority rights recognized in International Legal Conventions, such as the ILO Convention 169, ratified in local laws. The resulting conflicts have moved governments to introduce improved social-environmental regulations that require consultations with the affected indigenous peoples. As these conflicts have caused delays in project closure and implementation and driven project development costs up, the oil and gas industry has become more sensitive to the need to work with indigenous peoples' concerns.

An underlying impediment to the resolution of these conflicts was the lack of capacity among these players to appreciate each other's positions. The indigenous peoples' representatives did not understand the hydrocarbon business.

Indigenous peoples' representatives receiving field training during a visit to gas processing operations near Santa Cruz, Bolivia.

The oil and gas companies did not have a comprehensive appreciation for the socioeconomic, cultural, and environmental impact of resource exploration-exploitation on the indigenous peoples despite their resolve to develop the community trust, social transparency, and a new approach to corporate responsibilities.

In view of the rising tensions in each country in the Andean region, and the commonality of problems, it was clear that a regional approach would be most instrumental to building communication and understanding above the politics surrounding specific projects. The parties understood that much was at stake and that there was room for developing a dialogue that could lead to consensus on the basic principles under which industry operations should or should not proceed.

ESMAP's contribution. In 1997, ESMAP—with Canadian funding—supported the efforts of the World Bank to team with OLADE in the establishment of a program entitled *Energy, Population, and Environment*. The program was designed to support a broad initiative of communication and information exchange among 11 countries of the region, with a focus on the sub-Andean region. The goal was to begin a dialogue among the region's players and help develop a common approach to environmentally and socially acceptable industry operations. The activity was launched on the basis of the recommendations of a comparative analysis of the existing legal, institutional, contractual, and regulatory frameworks of the participating countries.[7] This analysis became the basis for two 11-country workshops in 1998 in Quito, Ecuador, attended by representatives of each government. This comparative study and workshop was considered the first phase of the initiative to facilitate the adoption of a long-term program by the governments. The second phase was intended to involve tri-partite consultations between all stakeholders (that is, representatives of governments, industry, and indigenous peoples) to identify socially adequate and enforceable regulations.

- ESMAP's unique role as an honest broker able to support activities at the regional level allowed for a wider, non-confrontational dialogue. The stakeholders expressed strong commitment to building capacity among the indigenous peoples of the region. This workshop was followed by a work plan of activities across the region. Among these activities are:
- The strengthening of **tripartite dialogues** in the participating countries with the purpose of achieving better communication between the most important parties, facilitating the search for better regulations, and, if necessary, offering solutions to conflicts.
- The development of an **information network** —supported by the Andean Corporation for Development and OLADE—which has created a website (http://www.OLADE.org.ec/redeap) with the goal of providing all those interested with easy access to relevant information.
- The preparation of **reference documents** that would permit the improvement of the regulatory framework of industry operations in the Amazon Basin under common criteria. This activity has been executed with financial support from the program of Canadian cooperation to the Regional Association of Petroleum Enterprises (ARPEL), now an active member of the Energy, Population and Environment program.
- A **training program** that seeks to improve the environmental and social standards, and the basis of dialogue between the parties. This activity is being carried out in five countries —Bolivia, Colombia, Ecuador, Peru, and Venezuela —with the support of Capacity Building International, a German development organization.
- A comparative **study of the distribution of rents** from oil operations destined for the development of regions where the industry is active, and in particular, the areas where indigenous peoples live and are directly affected by the operations.[8]

[7] This work is documented in ESMAP's Report 217/99, Environmental and Social Regulation of Oil & Gas Operations in Sensitive Areas of the Sub-Andean Basin.

[8] See ESMAP Technical Paper 020/03.

[9] Documented in ESMAP Report 244/01. Oil Industry Training for Indigenous People: The Bolivian Experience.

The importance of training. Training of indigenous peoples rapidly became a major concern to improve the quality of the regional and national tri-partite dialogue and to facilitate the projects consultation and participation arrangements. At the regional level, COICA (Coordinadora de Organizaciones Indígenas de la Cuenca Amazónica) has entered into a specific agreement with Capacity Building International to obtain financial and human resources to build additional capacity to continue the dialogues.

At the national level, the governments of Colombia and Peru have financed the training of indigenous peoples' representatives using their own funds. In 1999, the government of Bolivia and the Confederation of Indigenous Peoples of Bolivia (CIDOB) requested ESMAP support for conducting training courses for indigenous peoples' representatives. In Bolivia, representatives were trained to become trainers who can then transmit the knowledge to other members of the indigenous communities.[9] In Bolivia, the training of indigenous peoples is completing a second phase aimed at strengthening CIDOB's capacity to understand the industry and participate in small-scale gas developments. This experience became a model for similar ESMAP work in Ecuador, begun in late 2000.[10]

[10] See ESMAP Technical Paper 025/02.

Milestones in 2002. ESMAP's efforts in both Bolivia and Ecuador reached important milestones in 2002. In Bolivia, CIDOB established its Technical Unit for Hydrocarbons dedicated to sustained engagement with the hydrocarbon sector. In Ecuador, CONFENIAE, the umbrella organization for indigenous peoples, has requested further ESMAP support to establish its own technical unit for hydrocarbons after the initial training.

At the last tripartite meeting (Iquitos, Peru, November 2002), the representatives of three key stakeholder groups agreed to continue the Energy, Population, and Environment program focusing on improving the information systems, obtaining more detailed information on the distribution of rents, disseminating Reference Documents to improve the regulatory frameworks and developing capacity for a more participatory approach to environmental monitoring. ESMAP has pledged its support to this new phase of the EPE in which dialogue starts to evolve toward concrete recommendations and practical applications to industry projects.

Although industry knowledge is still limited, the first program for Ecuador indigenous peoples has shown very positive results. In particular, CONFENIAE (Confederation for the Indigenous Peoples of the Amazon) has provided significant input to the preparation of the recently approved Regulation for consultation. It has also created its own company, Amazonia Gas, for entering in commercial ventures for processing associated flared gas, and is requesting a second training program aiming at developing a technical advisory team on hydrocarbons.

The experience gained using ESMAP's continuous support to multi-stakeholder and multicultural initiatives could be replicated in other regions where extractive industries are confronted with the interest of local communities and where clarity and understanding are essential to reach common sustainable development goals. Con-

tacts have already been established to assess how to transfer the positive experience from Latin America to Nigeria, in particular to the Niger delta where the development of hydrocarbon resources is confronted with major conflicts.

Improving Governance and Revenue Management in the Hydrocarbon Sector

Revenues generated by oil and gas production represent a substantial share of GDP, budget, and foreign exchange earnings in many petroleum and gas producing developing countries. This wealth presents both an opportunity for development and a challenge of governance. Unfortunately, evidence to date suggests that the opportunity has been overshadowed by the challenge in developing countries.

To take an example, Nigeria's GDP for 2002 was approximately US$41 billion, no less than 40 percent of which (some US$17 billion) came from oil exports.[11] During 2002, petroleum exports accounted for 90 percent of its total export revenues. In the last 25 years, oil rents generated in Nigeria are estimated at US$300 billion. Petroleum revenues on this scale present an enormous potential for positive impact on development. Yet gross national income per capita for many in Nigeria remains at 80 cents of a dollar a day, infant mortality stands at nearly 80 deaths per 1000 births, and female adult illiteracy is greater than 53 percent. Only 10 percent of rural households and approximately 40 percent of Nigeria's total population have access to electricity.

Growing Interest. The growing number of international initiatives and partnerships advocating better governance and transparency in the petroleum sector represents an increasing awareness of this paradox among civil society, oil company investors, development agencies, and governments. For example, the Extractive Industries Review, which is initiated by the World Bank Group and involves wide-ranging stakeholder consultations on what the World Bank Group's role in the oil, gas, and mining sectors should be, among other issues looks into what it takes to achieve good governance in these sectors. The Soros Publish What You Pay Campaign and the Extractive Industries Transparency Initiative by Tony Blair are multi-stakeholder programs designed to increase revenue transparency—a prerequisite to good management and accountability. The UN-Business Global Compact seeks to uphold a set of core values in the areas of human rights, labor standards and the environment, including transparency. The *International Peace Academy Project* addresses linkages between resource revenue mismanagement and violent conflict. And the New Economic Partnership for Africa (NEPAD) is preparing to launch a continent-wide campaign for improved resource revenue management.

The World Bank Group has taken a lead position in the campaign to improve oil revenue management in the developing world, and is well placed to play this role. The Bank's response has been wide-ranging, comprising external partnerships and consultations, global and regional initiatives, country- and project-specific programs and, through the IFC, corporate social responsibility initiatives.

ESMAP's Contribution. Under its Business Plan 2002-2004, ESMAP has committed to address this issue with the development of a global knowledge base that can become the foundation for sustained awareness building to persuade countries to improve their revenue management policies. This strategy leverages ESMAP's global knowledge generation mandate as well as its role in providing operational tools for policy formulation and implementation.

A two-day international stakeholder workshop (see box 3.12) in October 2002 in Washington,

[11] Nigeria Country Analysis Brief, Energy Information Administration, Department of Energy, United States government (*www.eia.doe.gov/emeu/cabs/nigeria.html*), April 2003.

Box 3.12 Making Petroleum Revenue Work for the Poor

Transparency and good governance dominate discussion on petroleum revenue management. The link between oil revenues and governance was taken up at a two-day workshop convened at the World Bank Group's headquarters in Washington, D.C. co-sponsored by the Oil, Gas, Mining and Chemicals Department and the Energy Sector Management Assistance Programme (ESMAP). The 150 participants came from governments, major oil corporations, nongovernmental organizations, and multilateral organizations to debate the merits of existing and proposed methods of revenue collection, management and distribution.

From left to right: Bennett Freemann, Former Deputy Assistant Secretary of State for Democracy, Human Rights and Labor in the US Government; Alan Detheridge, Vice President International Affairs at Shell; by Ezekwesili, Senior Advisor to President Obasanjo of Nigeria.

"Proper management of petroleum revenues depends on a number of factors, including institutional capacity and more importantly, the quality of governance. Where governance is poor, there is little chance that sound policies will be implemented," said Peter Woicke, Managing Director of the World Bank Group and Executive Vice President of the International Finance Corporation (IFC). Much of the discussion on revenue collection focused on the importance of transparency. Karin Lissakers, Senior Advisor to George Soros, underscored the importance of disclosure in her keynote address in presenting Publish What You Pay, a transparency initiative led by the Open Society Institute and Global Witness that targets disclosure for natural resource companies in G8 countries. Yet full disclosure by companies is not sufficient. Representatives of the governments of Angola and Nigeria and of NGOs noted that weak institutional capacity precludes host countries from using information effectively regardless of how complete and accessible it may be. Even assuming capacity is built, participants agreed that there is a need to simplify tax arrangements. On revenue distribution, past experience has revealed that, "the government's take is not necessarily the public's take," said Arvind Ganesan, Senior Researcher at Human Rights Watch. "It may just be the government's take."

"It is not just pressure from NGOs, NEPAD, the UK government. It is the communities themselves, among whom we operate," said Alan Detheridge, Vice President, International Affairs of Shell International. But reform, including the active engagement of civil society, must be in line with political realities, said Oby Ezekwesili, Senior Advisor to the President of Nigeria. "The shift from an environment of no transparency to transparency involves a tremendous cost." Rashad Kaldany, Director of the Bank's Oil, Gas, Mining and Chemicals Department, called for a holistic approach to revenue management and reiterated the importance of transparency and simplifying accounts. Kaldany noted that this workshop would serve as a model for similar workshops in developing countries and countries in transition.

DC, kicked off ESMAP's work in this area. With 150 participants from governments, major oil corporations, nongovernmental organizations, and multilateral organizations, the workshop focused on three broad issues: revenue collection, management (for example, of oil funds), and distribution. The workshop emphasized the core elements of good governance—transparency, accountability, inclusion, and adequate institutional capacity—as critical to success in meeting these challenges. A position paper that outlines the main issues was prepared for the conference. This paper is to be published by ESMAP with an annotated bibliography of readings on the topic, as well as the presentations and speeches made at the conference.

The governments of Angola and Nigeria have shown great interest in improving their national petroleum revenue management regimes. During 2003, ESMAP will support national workshops in both countries. Similar workshops are being discussed with the governments of Bolivia, Timor Leste, and Sudan. In addition, since little or no systematic research has been done on publicly-owned oil companies (among the most important players on the oil revenue management scene), evidence on their performance is mostly piecemeal or anecdotal. Therefore, a study of national oil companies was also approved in ESMAP's October 2002 Call for Proposals to heighten stakeholder awareness of the issue by developing a credible set of data and materials that can be used to engage host countries proactively on the issue so that an attractive and manageable economic and political strategy for reform of these companies can be developed.

Impact of Sector Reform on Energy Access for the Poor

The liberalization and development of competition benefit society as a whole in terms of a greater, more efficient, and financially sustainable supply of energy services. However, there has been rather little analytical work to document the impacts of reform on the poorer members of society and to assist in poverty reduction. Most studies, including those supported by ESMAP, on the impact of energy sector reform have focused on the overall performance of the sector (reduced electricity tariffs or fuel prices, increased total number of connections to the grid, and so on), not on the direct impact on the poor.

A review of the available literature on the impact of power sector reform on the poor commissioned by ESMAP in 2000[12] found that the knowledge available is diffuse and the required data is limited to a handful of countries. It also found that while reform opponents usually focus on the most directly visible impacts of reform—electricity price changes—there is less understanding of the indirect impacts of reform such as the changes in the role of energy in development and the issues raised by energy subsidies. The review strongly recommended that more knowledge be accumulated about this important topic through pre- and post-reform social assessments and evaluations of good practice.

To fill these knowledge gaps, ESMAP is supporting a number of projects to assess the impact of sector reform on the poor. The *Rural Electrification and Power Reform in Central America Project* has examined four case studies in Central America, including El Salvador, Guatemala, Nicaragua and Panama, where the sector reform started later than in South America. It aims to assess rural electrification strategies and priorities for both on-grid and off-grid alternatives when these countries undertake power sector reforms. The project found that most of the countries in the region are aware that rural electrification needs to be incorporated into the power sector reform; however, the poor in the rural areas are generally left out of the reform process due to a lack of effective implementation strategies.

The *Power Sector Reform in Africa Project* is intended to assess the impacts of power sector

[12] See ESMAP Technical Paper 002/00: *Impact of Power Sector Reform on the Poor: A Review of Issues and the Literature*, July 2000. The paper includes a bibliography on the subject.

reforms on the poor and to design strategies to ensure integration of pro-poor measures in the reform process in eight African countries as illustrated in box 3.13. The project is taking a pragmatic methodological approach to this work given the nature of the data available on reform processes in Africa. Instead of attempting to identify causality between reforms and impact through a quantitative "macro-analytical" approach, the project is taking a qualitative approach mixing interviews, existing studies, and some data collection.

The *Assessing the Impacts of Energy Sector Reform on the Poor Project* identifies the links of poorer households to the use of energy that can be directly impacted by sector reform, and it uses household survey results to assess how much impact sector reform has actually had on these links in four reforming countries: Botswana, Ghana, Honduras, and Senegal. This project takes a more quantitative approach focused on household energy use. Household energy surveys will be conducted in an attempt to gain an in-depth understanding of how reforms in both the power and hydrocarbon sectors are felt by the poor given their patterns of energy use, and the methods of supply available to them.

Box 3.13 Electricity Reform and Access in Africa

Dr. Alix Clarke of the Graduate School of Business at the University of Cape Town, South Africa, spoke about how electricity reforms can contribute to poverty reduction in Africa at ESMAP's regional workshop on "Modern energy services and poverty reduction" (Addis Ababa, Ethiopia, October 2002). Dr. Clarke observed that in many African countries, access programs and power reforms are not being planned together. Although the data in this area is thin, it appears that reforms are slowing access initiatives down as subsidies are reduced and tariffs increase. The lack of coordination between reform and access programs has also meant that reforms focus mostly on mainstream activities in the formal economy to the detriment of those on the fringes of the formal economy. Despite this disconnect, electricity tariff and subsidy reforms in African countries are unlikely to impact the *poorest of the poor* since they do not use electricity as a source of energy (the average rate of electricity access across sub-Saharan Africa is below 10%). Dr. Clarke underscored that current reform programs in African countries have increased the ability to absorb change in the electricity sector as well as the opportunities for scaling up electricity access during reforms. Access can be increased through financing arrangements that reduce pressure on governments (as in Chile and Argentina), ring-fenced funding for increasing access (as in Ghana, South Africa, Thailand, Indonesia, and Brazil), cost-reflective tariffs *and* targeted *nonrecurring* subsidies, policy frameworks that encourage integrated and coordinated development, an institutional infrastructure to support ongoing electrification programs (as in South Africa), and an increased role for rural cooperatives and NGOs.

4

ESMAP KNOWLEDGE DISSEMINATION

During 2002, ESMAP expanded its knowledge dissemination along two key avenues: through direct knowledge dissemination events, and through the adoption of the knowledge transaction approach in ESMAP activities. The direct knowledge dissemination events were held under ESMAP's seminar series for dissemination within the World Bank Group. And the knowledge transaction approach—which diffuses knowledge and expertise through interactions among stakeholders and experts—has been systematically mainstreamed into ESMAP's work.

Seminar series. During 2002, ESMAP conducted seminars within the World Bank Group to disseminate knowledge and catalyze debate on topics of interest through its seminar series. Where appropriate, work generated by ESMAP-funded activities has been showcased at these events. For example, ESMAP-funded work on the Institutional and Economic Barriers to the Commercialization of Improved Cookstoves for the Poor in Ulaan Baatar, Mongolia, was presented in February by ESMAP task manager Salvador Rivera. In September, Navroz Dubash presented the findings of research funded by the World Resources Institute into the politics of electricity sector reform in six developing countries during the 1990s. These findings have been published in the volume "Power Politics: Equity and Environment in Electricity Reform." The presentation's assertion that financial drivers behind reform have tended to crowd out social and environmental considerations generated a healthy debate among the seminar's more than 40 participants. In October 2002, Shehnaz Atcha and Duncan Austin of the World Resources Institute introduced the work of the Green Power Market Development Group of the World Resources Institute and Business for Social Responsibility. The Group is working to transform energy markets to enable corporate buyers to diversify their energy portfolios with green power and to reduce their impact on climate change. The presenters outlined the challenges and success in catalyzing the private sector to support and grow the domestic renewable energy market and the strategies being adopted by market players.

The introduction of business lines in ESMAP's 2002-2004 plan has helped increase the focus of ESMAP's intellectual work. As these business lines began to gain momentum within the World Bank Group, more frequent and better targeted knowledge dissemination activities were planned for 2003.

Knowledge transaction approach in ESMAP activities. During the 1999-2001 business plan period, ESMAP brought about a systematic shift in the design of its activities by ensuring that knowledge dissemination was a significant component of every one of its knowledge generation activities. The "quality at entry" checks in ESMAP's proposal review process ensures that each activity is designed as an opportunity to disseminate knowledge and build capacity rather than just an exercise in generating new knowledge. Proponents are advised to adapt their proposals to take a knowledge transaction approach, which can be summarized as the development of knowledge/policy options to address a well-defined development objective through a process that consistently involves all stakeholders as well as a client institution, ready to make decisions and implement.

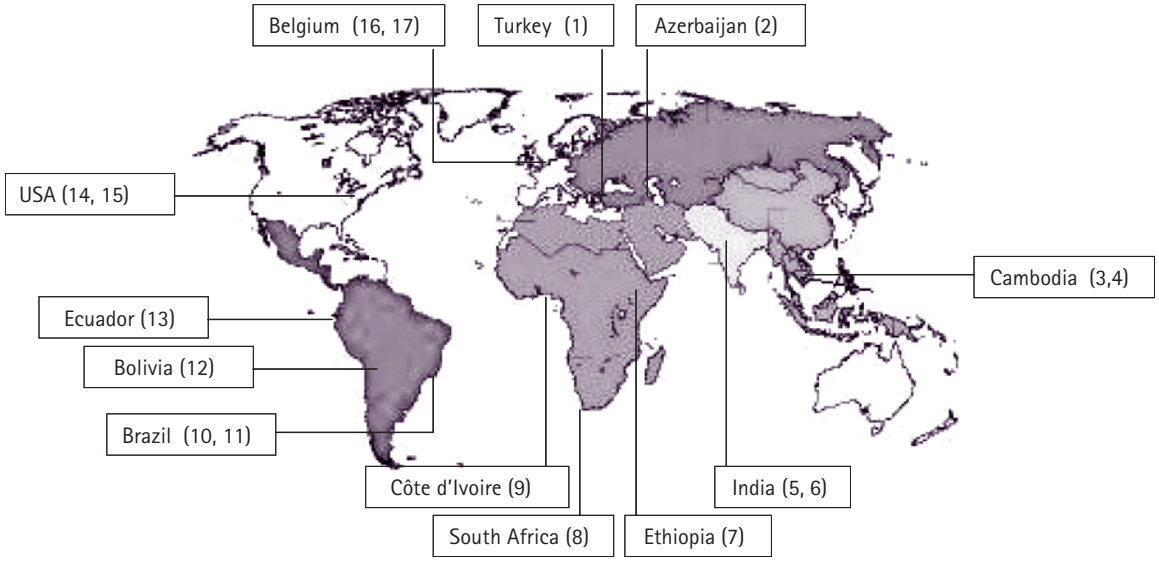
ESMAP management demonstrated this approach with the Africa Energy team of the World Bank in a three-day workshop held in Addis Ababa, Ethiopia, in October 2002 (see ESMAP Report 266/03). The workshop's objective was to bring a cross-section of stakeholders from Ethiopia, Ghana, Kenya, Tanzania, Uganda, and Zimbabwe to address two key questions. The first question was: How Can Modern Energy Services Contribute to Poverty Reduction Targets? The second was: What Mechanisms Can Improve Living Standards and Income Opportunities of the Poorest Segments of the Population? To serve the inter-sectoral theme, the participants included ministers and senior officials from the ministries of finance, of energy, and of the productive and

social sectors; representatives of civil society, academia and the private sector; as well as senior representatives from the World Bank and other donor organizations. The workshop was designed to maximize the interaction of the participants through working groups that sketched energy-for-poverty-reduction strategies for each participating country. The process of developing these strategies engendered knowledge exchange among the African participants about their respective countries. Such exchange illustrates the knowledge transaction approach that has been systematically mainstreamed into the ESMAP portfolio.

Another example of the knowledge transaction approach is the development of the Cambodia Renewable Energy Action Plan (REAP). This plan has been developed through multiple workshops in which international, as well as local experts exposed stakeholders to strategies for renewable energy development. This process has resulted in a plan that has greater ownership than if the plan were developed by international experts alone. But, more importantly for knowledge dissemination, the process has diffused the methodologies and considerations for developing such plans among the stakeholders.

With the knowledge transaction approach, ESMAP has moved beyond mechanical knowledge dissemination measures such as distribution of reports and stipulations about the use of consultants from developing countries. These measures are based on what can be called a "knowledge provision" approach. While both of these knowledge provision measures remain, ESMAP activities systematically bring stakeholders and decision makers in direct contact with international as well as local experts through seminars, workshops, and group discussions. These interactions have transformed ESMAP activities in that they do not simply generate knowledge and recommend policy options. The map of workshops held under ESMAP activities (see figure 4.1) illustrates that ESMAP saw significant action on the knowledge dissemination front in 2002.

Figure 4.1 Workshops Held Under ESMAP Activities in 2002



1. Turkey: A number of reports produced under the *Turkey Energy Environment Review (Phase III)* project were discussed at a major stakeholders' workshop in Istanbul (June 2002).
2. Azerbaijan: The *Azerbaijan–Natural Gas Sector Restructuring and Regulatory Reform* project presented NERA's inception report at a stakeholder workshop in Baku (March 2002).
3. Cambodia: First national stakeholder workshop was held under the *Cambodia Renewable Energy Action Plan* project in Phnom Penh (January 2002).
4. Cambodia: Final national stakeholder workshop was held under the *Cambodia Renewable Energy Action Plan* project in Phnom Penh (November 2002).
5. India: A major regional workshop was held under the *India Indoor Air Pollution* activities in Delhi (May 2002).
6. India: Three-country workshop was held in Delhi under *Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China and India* activity (May 2002).
7. Ethiopia: Regional Energy and Poverty Reduction Workshop was held by ESMAP and the World Bank's Africa Energy team in Addis Ababa (October 2002).
8. South Africa: The Global Village Energy Partnership was launched at a well-attended side event at the World Summit on Sustainable Development in Johannesburg (August 2002).
9. Côte d'Ivoire: ESMAP and the World Bank's Africa Energy team co-financed a workshop on rural electrification for poverty reduction in Abidjan (March 2002).
10. Brazil: A document about the national rural energy strategy was discussed at a stakeholders' consultation workshop under the *Brazil Rural Electrification Strategy* project (June 2002).
11. Brazil: Stakeholder roundtable about financing options for energy efficiency projects was held in Rio de Janeiro, under the *Brazil Energy Efficiency Monitoring & Evaluation for Water Utilities* project (September 2002).
12. Bolivia: Third of four stakeholder workshops held in Trinidad, Bolivia, under the *Training Program for Key Group Representatives of Indigenous Peoples* (September 2002).
13. Ecuador: The *Ecuador–Indigenous People's Training Program on Oil Development* activity held a consensus-building training course for the representatives of indigenous peoples (February 2002).
14. USA: An ESMAP-supported session on solid fuel use in developing countries (with 12 sponsored developing-country participants) was held at Indoor Air Pollution 2002 Conference, Monterrey, California (July 2002).
15. USA: An international stakeholder workshop on Petroleum Revenue Management was held in Washington, DC, under the *Governance and Revenue Management* project (October 2002).
16. Belgium: EU/ESMAP workshop on power sector for EU accession candidates was held in Brussels (March 2002).
17. Belgium: EU/ESMAP workshop on power sector for EU accession candidates was held in Brussels (November 2002).

5

GOVERNANCE AND MANAGEMENT

THE CONSULTATIVE GROUP

The Governance structure of ESMAP includes a Consultative Group (CG) composed of a chairperson, representatives of donors, and members "at large" from countries receiving ESMAP assistance. During 2002, Mr. Jamal Saghir, Director of the Energy and Water Department of the World Bank and Chair of the World Bank's Energy Mining Sector Board, continued as Acting Chair of the CG. Mr. Rufino Boomasang, President and CEO, PNOC Exploration Corporation, Philippines, and Mr. Ketane Sithole, Business Development Manager, Grinaker-LTA, Botswana, continued as Members at Large.

The annual meetings of the Energy Trust Funded Programs (ETFP) managed by the World Bank were held from April 29 to May 1, 2002, at the Royal Danish Ministry of Foreign Affairs in Copenhagen, Denmark. The theme for the 2002 meeting was "The New Environment for the Provision of Energy Services for Poverty Eradication." The objective of the meeting was three-fold: to discuss the strategic directions of the energy sector, to further strengthen coherence among the ETFPs, and to share views on preparations for the World Summit for Sustainable Development (WSSD).

The discussions focused on the following:

- *New environment for energy*. These discussions highlighted the necessity of energy services for achieving the Millennium Development Goals (MDGs) and the importance of development assistance for empowering the poor to participate in the establishment of sustainable energy markets.
- *Implementing the World Bank Group's (WBG) Energy Business Renewal Strategy and the ETFPs*. Mr. Saghir delivered a presentation on energy investments in relation to the Renewal Strategy. ETFPs managers highlighted the programs' complementarity to the Renewal Strategy by providing illustrations detailing the connection, which included innovation/experimentation; disseminating/transacting knowledge; capacity building; and implementing change. ESMAP's management pointed out specific links between the strategic directions outlined in the ESMAP 2002-2004 business plan and the Renewal Strategy by demonstrating how ESMAP's business lines fit into the four petals of the Renewal Strategy.
- *Lessons from the Programs*. Each program reported on progress, setbacks and deliverables within the calendar year. ESMAP's report centered on its 2002-2004 Business Plan, trends in the global energy-related private sector, structure of the Global Village Energy Partnership, and linkages between energy and the MDGs.

Annex 1 presents the Summary Proceedings of the April 2002 CG meeting.

THE TECHNICAL ADVISORY GROUP

The Technical Advisory Group (TAG) consisted of five members in 2002: Messrs. Alfredo Mirkin (Moderator), Andrew Barnett, Youba Sokona, Jan Moen, and Ms. Jyoti Parikh.

Professor Jyoti Parikh joined the TAG on October 23, 2002. Prof. Parikh is a renowned energy expert who has worked in the field of energy for over 20 years beginning with a World Bank project titled "Energy Systems and Development." Oxford University Press later published a report from this project in 1981. She subsequently worked on rural energy system modeling, gender issues, rural energy technology assessment, and other issues. She is also a national project coordinator for rural pollution and health projects.

During the reporting period, members of the TAG maintained frequent contact with the ETFP management team, and held meetings with several task managers, providing advice and guidance.

The TAG's mandate is approved by the CG through the TAG's Terms of Reference, and its line of authority is exercised through the CG Chair. A major task for the TAG in its expanded

Terms of Reference to the ETFPs was to gain a complete understanding of donors' views of each Program. To this end, a series of interviews were conducted in a sample of agencies in European capitals in November 2002. The capitals included Brussels, Copenhagen, London, Oslo, Stockholm, and The Hague. The overall views expressed were that the donors were generally pleased with the work carried out by the ETFPs. In particular, they were satisfied with the "upstream" approach ESMAP applied to operational activities, as this approach allowed for space to reflect, learn lessons, and innovate. They were also pleased by the move to unify the Consultative Group meetings.

The TAG is currently overseeing a review of ESMAP's work on regional integration of energy markets. The review focuses on five ESMAP projects intended to engender regional integration in the Mekong River delta, the Nile Basin, South America, Southern Africa, and West Africa. The report is expected to be completed by the end of 2003.

IMPROVEMENTS IN ESMAP SYSTEMS AND BUSINESS PROCESSES

The October 2002 Call for Proposals introduced important improvements in ESMAP's interface with its immediate clients—the energy task managers of the World Bank Group—as well as non-energy task managers. The two Calls for Proposals preceding the October 2002 call met very low responses. The November 2001 call received only nine proposals and the April 2002 call received ten.

Informal consultations following the April 2002 call identified the processing time for proposals—from submission to funding—as the key reason for discontent among task managers. In July 2002, ESMAP conducted an analysis of the preceding seven Calls for Proposals and found that the average time between submission of a proposal to ESMAP and the first funding allocation to it was around six months. The most significant delays were in two areas: one, the development of full proposals in accordance with the ESMAP review panel's recommendations, and two, in securing funding from donors once a full proposal is approved.

To get client feedback about its two-step proposal process, ESMAP conducted an informal survey of energy task managers in September 2002. The two-step process involves the submission of a two-page concept note which is evaluated by the ESMAP review panel on a basic set of criteria (relevance to ESMAP goals, innovativeness, client interest, value-added, soundness of design, etc.) followed by detailed full proposals submitted for the concept notes that pass the first stage. The task managers gave overwhelming support to the two-step process because it allows them to test the waters with ESMAP without a great deal of effort.

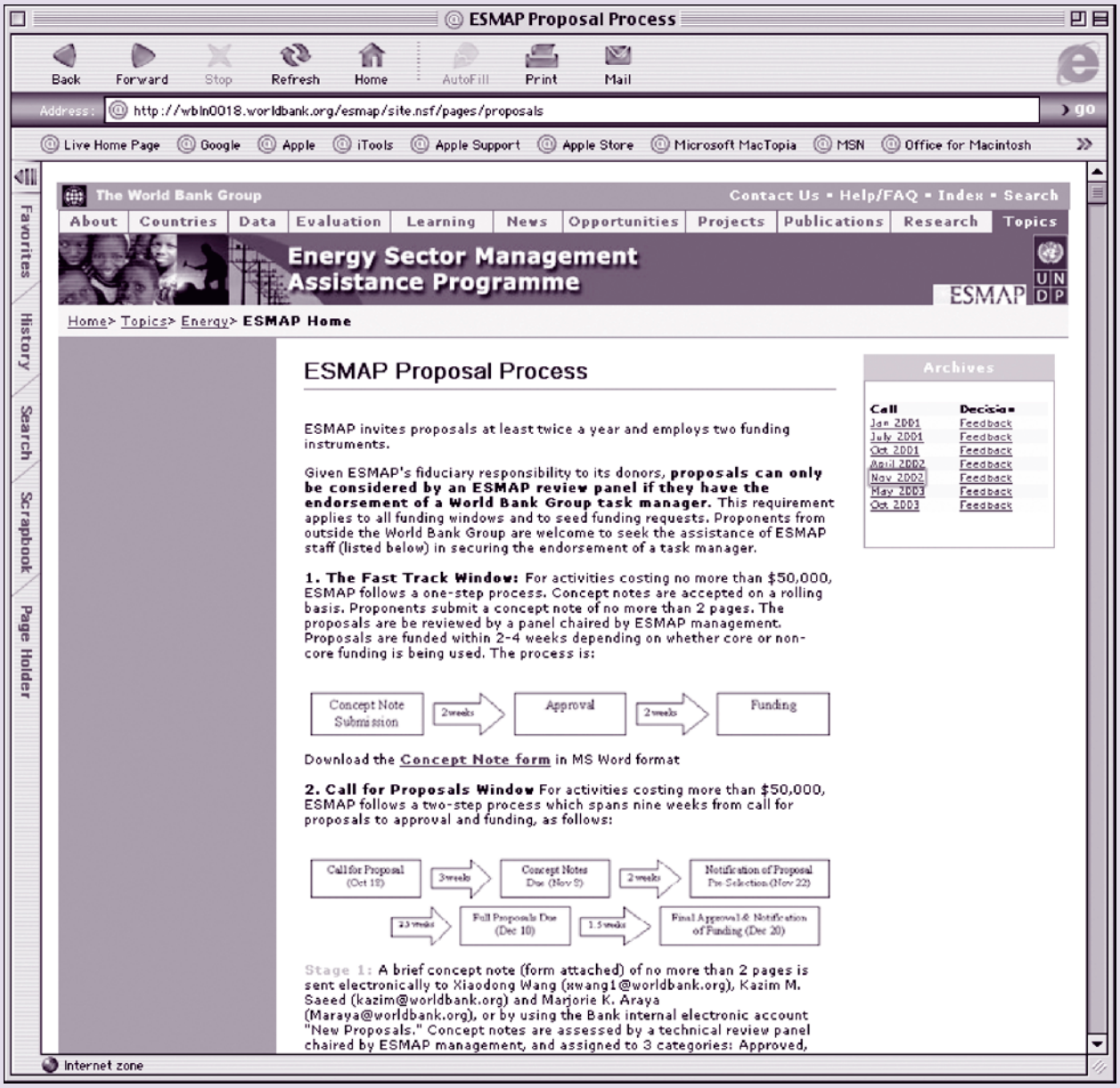
ESMAP then set about designing a proposal process that would reduce the cycle time from six months to ten weeks. A standard concept note form was developed so that proponents submit all the information required for an efficient evaluation by the review panel. The full proposal form was also streamlined to reduce the time and effort required by task managers to complete them.

Armed with these tools for an improved process, ESMAP management decided to aggressively reach out to task managers in the energy practice as well as in other groups to make the October 2002 Call for Proposals a turning point in ESMAP's operations. ESMAP staff elicited proposal ideas in conversations with task managers and helped them develop their two-page concept notes.

As a result, ESMAP received high demand within and outside the Bank: 49 proposals from the Bank task managers, and 70 proposals from external submissions. In addition, the quality of the proposal submissions also improved. ESMAP approved about 50 percent of the proposals submitted, as compared to 15 percent in the previous calls. Of the 24 remaining proposals, 10 were

not retained and 14 are still good candidates on which task managers are expected to come back. The October 2002 call also demonstrated an increase in Africa representation. Among the 24 projects approved, 10 were from Africa. Of the 24 approved projects, 11 focused on rural energy access, 8 on market development, and 5 on energy and environment. Most approved proposals received funding allocations within two months from the announcement of the call.

ESMAP also opened up a fast-track window for smaller, just-in-time activities. For proposals under US$50,000, ESMAP announced a cycle time of two to four weeks (depending on whether core funding could be used) from submission to funding allocation. This window was well received with 13 fast-track proposals submitted in the October 2002 call. The window remains open on a rolling basis.



FINANCIAL REVIEW

6

FINANCIAL REVIEW

DONOR CONTRIBUTIONS

Contributions to ESMAP in 2002 totaled US$7.8 million, roughly maintaining the level of 2001 (US$8.2 million). Of these 2002 contributions, actual cash receipts were US$5.1 million during 2002 but, as detailed in table 6.1, contributions earmarked for 2002, which were received by ESMAP in early 2003, bring the 2002 total to US$7.8 million as illustrated in figure 6.1. Table 6.1 also shows that donors have already made pledges for US$7.3 million for calendar year 2003. With some donors yet to make 2003 contributions, ESMAP expects that total contributions for 2003 will cross the US$8 million mark evidencing a trend of higher contributions in the 2002-2004 business plan period compared to the 1999-2001 period.

NEW DONORS

As ESMAP's Consultative Group of donors endorsed ESMAP's Business Plan 2002-2004 at its Copenhagen meeting, a funding gap of approximately US$16 million appeared between the business plan's US$40 million budget requirement and donor pledges. To help bridge this gap, ESMAP management continued to pursue new opportunities with other donors. In addition to the World Bank Group, eight donors made cash transfers to ESMAP through trust funds. Fundraising efforts will continue in the coming year with the objective of mobilizing the additional resources needed to implement the ESMAP Business Plan 2002-2004.

CORE AND THEMATIC FUNDING

Table 6.2 shows core contributions from donors other than the World Bank Group totaled US$1.38 million in 2002 compared to US$2.42 million in 2001. This was a decrease of 21 percent compared to core resources mobilized in 2001.

The World Bank Group's contribution (which is considered core) was US$545,000 in 2002, a decrease of about 47 percent from its level of US$1.03 million in 2001. This is a result of broad-based reforms of all World Bank Group trust funded programs, which are causing a shift of program management overheads to donors.

Including these, core contributions totaled about US$1.92 million in 2002 or 25 percent of total contributions. Denmark, Finland, and Germany provided their entire contributions to ESMAP as core funding. Sweden's contribution beginning in 2001 was all core funds and Sweden provided project-specific funding in 2002. United Kingdom provided core funding along with project-specific funding carrying restrictions on the use of their contributions in identified recipient countries. Other donors provided either thematic funding or project funding.

Among major thematic contributions, the Dutch government's thematic contributions totaled US$3.1 million compared to US$4.5 million in 2001.

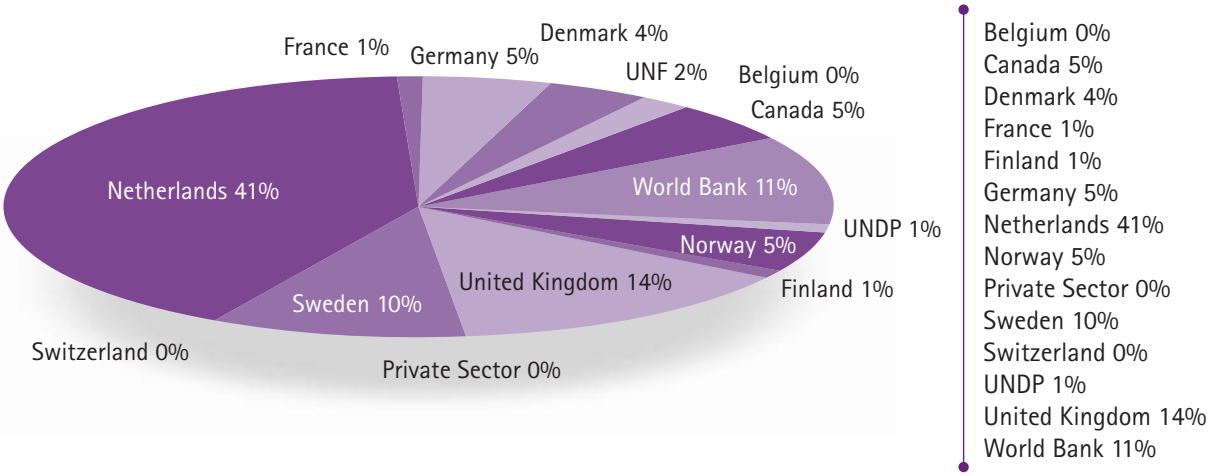
Germany will provide thematic funding of 1,850,000 Euros for the years 2003-2006 in addition to their core contribution. The grant will be utilized on ESMAP's Energy & Environment sub-portfolio and activities under the Global Village Energy Partnership (GVEP).

The Government of Norway and the World Bank Group have recently established the Norwegian Trust Fund for Private Sector & Infrastructure (NTF-PSI) that consolidates Norwegian support to the World Bank Group in the areas of Private Sector and Infrastructure. The NTF-PSI agreement will channel funding of US$800,000 in 2003 to ESMAP and will be used to finance the Global Village Energy Partnership; improve the enabling environment for private sector investment; and fund other innovative activities. The Government of Norway did not make a direct contribution to ESMAP in 2002 because the NTF-PSI was being processed during 2002.

Table 6.1	ESMAP Receipts, 2000-2002 (US$ thousands)						
	2000	2001	2002	Pledges for 2003	Total 00-02	Percentage of	
Donor	(US$ thousands)					Total Receipts 2002	Core
UNDP	57.2	0.0	100.0	100.0	157.2	1.3	1.7
World Bank	820.3	1,032.4	545.4	1,000.0	2,398.1	7.0	25.8
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	134.6	255.9	737.8	257.7 [1/]	1,128.3	9.4	0.0
Germany	80.1	72.4	899.5 [2/]	845.2 [3/]	1,052.0	11.5	3.7
Finland	0.0	168.7	82.8	0.0 [4/]	251.5	1.1	2.7
Netherlands	1,008.6	4,468.8	3,097.0 [5/]	1,500.0 [6/]	8,574.4	39.6	0.0
Denmark	234.3	234.8	258.1	0.0 [7/]	727.2	3.3	7.8
Norway	507.7	576.5	0.0	800.0 [8/]	1,084.2	0.0	11.7
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	1,010.7	487.4	636.4	469.3 [9/]	2,134.5	8.1	19.1
France	260.3	0.0	0.0	0.1	260.3	0.0	0.0
United Kingdom	856.1	880.3	1,125.2	1,875.3 [10/]	2,861.6	14.4	27.0
Private Sector	45.0	0.0	0.0	0.0	45.0	0.0	0.5
United Nations Foundation	0.0	0.0	335.0 [11/]	550.0	335.0	4.3	0.0
Total	5,014.9	8,177.2	7,817.2	7,347.6	21,009.3	100	100

[1/] Installment payment for LAC Region Energy from Landfill Gas: Best Practice, Dissemination, & Future Programs
[2/] Includes $708.5 received on Feb. 28, 2003 for new Agreement dated Dec. 20, 2002 for years 2003-2006.
[3/] Second payment of $708,500 for new Agreement dated Dec. 20, 2002 for years 2003-2006. Third & fourth installment payment of $136,700 for 2003, Agreement dated Dec. 20, 2001.
[4/] New Agreement for the years 2003-2004 to be agreed with the government of Finland.
[5/] Second installment payment for Energy Access & Sector Reform Fund for 2002 was received by BNPP in 2002, and transferred to ESMAP on Feb. 25, 2003.
[6/] Third installment payment for Energy Access & Sector Reform for 2003.
[7/] New Agreement for the years 2003-2004 to be agreed with the government of Denmark.
[8/] First installment of $800.0 received on March 17, 2003.
[9/] Contribution for 2003, which is the last installment payment.
[10/] Received in March 2003: $800,950 for Core Funds and $445,348 for Project Funds. Expected $629,000 as second installment for China Indoor Air Pollution.
[11/] Contribution for GVEP was $35,000. First installment payment of $300,000 received on Feb. 7, 2003 for "Developing Financial Intermediation Mechanisms for Energy Efficiency in Brazil, China & India: In-Country Activities."

Figure 6.1 ESMAP Receipts 2000–2002



PROJECT-SPECIFIC FUNDING

Table 6.3 shows project-specific funding totaled US$2.15 million in 2002 compared to US$256,000 in 2001. These contributions were provided by CIDA, Sweden, and the United Kingdom. Given the continuing gap between financing needs and core or thematic resources, additional funding will continue to be mobilized from donors on a case-by-case basis for promising projects as they clear the evaluation process.

The United Nations Foundation became a new donor in 2002. In addition to their US$35,000 contribution to GVEP in 2002, they are expected to contribute US$1.216 million in project-specific funds for the 2003-2004 period, channeling funds via their cooperation with the United Nations Environment Program.

EXPENDITURES

Table 6.4 shows that expenditures in 2002 totaled US$6.0 million, a decrease of US$0.30 million from expenditures in 2001. Expenditures through ESMAP projects (disbursements) decreased in 2002 by US$0.221 million. Expenditures on work program development (time

Table 6.2 Core/Thematic ESMAP Donor Contributions, 2000-2002

Year	Total Donor [a/] Contributions ($m)	of which, Core ($m)	of which, Core *plus* Thematic ($m)	Core as % of Total Donor Contributions (%)	Core *plus* Thematic as % of Total Donor Contributions (%)
2000	4.13	2.40	3.41	58.0	82.4
2001	7.14	2.42	6.89	33.9	96.5
2002	7.17	1.92	5.02	26.8	70.0
Total	18.5	6.7	15.3	36.5	83.0

a/ Does not include World Bank and UNDP.

Table 6.3	Receipts by Type of Funding in 2002
	Amount (millions US$)
WB Contribution	0.545
UNDP	0.100
Core	1.921
Thematic	3.097
Project	2.154
Country Program	0
Total	7.817

spent by ESMAP staff to help develop specific ESMAP projects) increased from US$40,000 to US$51,000. Program management costs, which increased by 27 percent in 2001, were reduced by 7 percent in 2002, reflecting a stricter accounting discipline under which staff from the ESMAP management team charged their time to specific projects when working on the substance of such projects. Dissemination costs increased by US$88,000 in 2002, as a result of an increased level of activity from workshops, in-house seminars, and published ESMAP reports.

Table 6.4	ESMAP Expenditures, 2000–2002		
	(thousands US$)		
	2000	2001	2002
Project Expenditures	6,698	5,445	5,224
Work Program Development [1/]	22	40	51
Program Management	334	425	394
Knowledge Dissemination	43	82	170
Governance	147	321	172
of which TAG	62	166	72
of which CG	85	155	100
Total	7,244	6,313	6,011
of which funded by Donors	*6,367*	*5,281*	*5,366*
of which funded from World Bank budget	*820*	*1,032*	*545*
of which funded by UNDP	*57*	*0*	*100*

[1/] Includes *Review of Proposals.*

FUNDING FOR NEW PROJECTS AND CASH BALANCE

During 2002, ESMAP launched 29 new projects with a cumulative budget of US$5.6 million. Out of this total cost, ESMAP has provided funding of US$3.1 million. The difference of US$2.5 million is required to fully fund the launched projects. In addition, as of March 2003, ESMAP has approved 13 projects that amount to US$1.7 million. Ongoing projects, which were approved prior to 2002 and have already been partially funded, require about US$1.8 million to fully finance their remaining activities. In total, ESMAP requires US$6.0 million to finance the remaining partially funded projects and new approved projects as of March 2003.

After taking into account the expenditures and receipts, cash balances in ESMAP trust funds and UNDP accounts on December 31, 2002, amounted to US$12 million (of which US$421,093 is in UNDP accounts) compared to US$9.4 million in 2001 (of which US$101,024 was in UNDP accounts). The unallocated cash balance at the end of 2002 amounted to US$3,695,543 (of which US$1,437,800 is in core funds). Therefore, as of December 31, 2002, ESMAP faced a funds mobilization target of US$2.3 million for its approved projects.

ESMAP's Annual Report 2000-2001 stated that the remaining funds in the UNDP accounts held in ESMAP would be disbursed during 2002 and the accounts would be closed. However, a World Bank audit of the accounts delayed their closure. Consequently, in the UNDP accounts, there was an increase of funds of about US$220,000 in 2002, as a result of the World Bank Group's broad review of Bank-executed trust funds, launched in September 1999. The review identified some expenditures that were not entirely consistent with the specific provisions of the trust fund agreement or with Bank policies and procedures

even though these funds were used for purposes in line with the broader development mandate of the Bank and UNDP. With respect to the expenditures found to have been charged inappropriately, the Bank has covered these expenditures. The UNDP accounts will remain active in 2003 and will disburse the funds in the same year.

The Danish funds under the UNDP account have not been returned, due to the delay in receiving the clearance of the report from the government. It is expected that funds in the amount of about US$91,000 will be returned in 2003.

ANNEXES

ANNEX 1

SUMMARY PROCEEDINGS OF THE JOINT DONORS' MEETING FOR TRUST FUNDED ENERGY PROGRAMS MANAGED BY THE WORLD BANK, ESMAP/ ASTAE/AFFREI/RPTES, APRIL 29, 2002, COPENHAGEN, DENMARK.

Summary Proceedings

The joint Consultative Group (CG) for the Energy Trust-Funded Programs (ETFPs) managed by the World Bank met at Copenhagen, Denmark, on April 29 through May 1, 2002. Mr. Jamal Saghir, World Bank Group Director for Energy and Water and Chair of the World Bank Group Energy and Mining Sector Board chaired the meeting on behalf of Ms. Nemat Shafik, World Bank Vice President for Private Sector and Infrastructure and Chair of the CG. This document presents a summary of this meeting's proceedings.

After welcoming remarks by Mr. Jens Rasmussen, Chief of Infrastructure at DANIDA, Denmark, Mr. Jamal Saghir outlined the three-fold objective of the meeting: to further strengthen the coherence among the ETFPs in the context of the World Bank's energy strategy, to discuss the strategic directions of the energy sector, and to share views on preparations for the World Summit for Sustainable Development (WSSD) to be held in Johannesburg in August 2002.

New Environment for Energy

Mr. Richard Jones of the UK's Department for International Development (DFID) emphasized the necessity of energy services for achieving the Millennium Development Goals (MDGs). He stressed that the MDGs are driving both the development and the energy agenda. DfiD's Working Group on Energy for Poverty Eradication (EnPov) is working to consolidate efforts to bring energy back to the development agenda, particularly its links to the MDGs. Among these efforts are: EnPov's matrix demonstrating the contribution energy can make to achieving the MDGs and a paper proposing an approach to incorporating energy interventions into development programs.

Mr. Griffin Thompson of the United States Agency for International Development (USAID) pointed out that there is an increased acknowledgement in the development community that energy is catalytic to the achievement of the development goals. This shift demands that the energy business respond with business models, which not only link good governance with private investment but also address fundamental questions of social justice and equity. Distributed generation opens many paths for such work at the convergence of major trends: the decentralization of political decision-making and the distribution of technological capability to the local level.

The ensuing discussion highlighted the importance of development assistance for empowering the poor to participate in the establishment of sustainable energy markets. While the new implementation challenges presented by distributed energy were acknowledged, the importance of large energy plants in an increasingly urbanized world was also underlined.

Implementing the Energy Trust Funded Programs (ETFPs)

The Technical Advisory Group (TAG) Report

Mr. Alfredo Mirkin, member of the TAG, prefaced the presentation of the TAG report by stating that the TAG understands that the achievement of the MDGs and the implementation of the World Bank Group's energy strategy should be the reference framework for the ETFPs. Each of the ETFPs should retain its own identity as they work more coherently.

Before summarizing the TAG report, Mr. Andrew Barnett stressed that the TAG is issuing this report with the intention of stimulating discussion, not to present recommendations because a thorough analysis of the ETFPs has yet to be conducted. He identified the TAG report's main message to be of strong support for greater coherence among the ETFPs. While the TAG found the programs to be very effective in delivering their current mandates, it focused on how these mandates fit into the overall strategic directions.

Each program's different mandate and character reflects the varied donor motivations for supporting these programs. These motivations vary between learning more about the energy and development arena to leveraging these programs to influence the strategic directions of the World Bank's energy operations.

Within the World Bank Group, the ETFPs provide flexibility for innovation, which would not be otherwise available. The TAG report points to a potential conflict between the World Bank Group's poverty reduction mission and the mandate of some programs to mainstream renewables.

The TAG report also raises concerns about the ability of the ETFPs to play their requisite role in the achievement of the MDGs in an environment of insufficient emphasis and support by the donor community for the MDGs. The ETFPs are ahead of the knowledge curve on many of the broader issues, including those discussed in the preceding session, but the challenge is to communicate the new insights and knowledge.

The TAG invited the CG to share its comments on the current TAG report and requested the World Bank Group to provide its comments formally on future TAG reports. By the first quarter of 2003, the TAG proposes to deliver substantive results of its review of the ETFPs along the following six themes: client orientation, adequacy of funding and match to task, output orientation, poverty focus, knowledge management, and transparency. Mr. Barnett also presented summaries of three papers written by TAG members on challenging issues facing the energy sector. These papers are included in the TAG report and are titled: "Beyond Enron: the Emerging Challenges for Regulation and Restructuring" (by Jan Moen), "Reflections on the Restructuring of the Energy Sector" (by Alfredo Mirkin), and "Development is More Than the Environment" (by Youba Sokona and Andrew Barnett).

Many donor representatives commended the TAG report for asking the right questions. Discussion focused on two main issues: the mainstreaming of innovation of the ETFPs into the World Bank Group's operations, and to what extent the TAG's expanded role requires the TAG to evaluate the World Bank Group's non-ETFP work. The discussion on mainstreaming innovation reached the conclusion that while more needs to be done to incorporate the innovation from the ETFPs into the Bank's lending operations, a broader picture of the functioning of the programs is needed to determine if either program

had served its purpose and should itself be mainstreamed. There was consensus that while the TAG needs to site its review of the ETFPs in the World Bank Group's lending operations, the TAG's terms of reference do not include an evaluation of those lending operations. The World Bank Group reiterated its commitment to providing all information required for the TAG's review, including reports of its Operations Evaluation Department (OED).

Implementing the World Bank Group's Energy Business Renewal Strategy and the Energy Trust Funded Programs

Mr. Jamal Saghir presented the energy investment context in which the World Bank Group's energy business renewal strategy is being implemented. He categorized the past decade of private capital flows into three phases: overall optimism about energy projects and potential returns in developing countries (1990-1997), heightened risk perceptions after the East Asia and Russia crises (1997-2000), and finally, skepticism about risk and return in energy investments in the developing world (2000-present). Energy investment in developing countries was geographically very restricted, mostly favoring two regions (three quarters of investment in 1990-2000 went to Latin America and East Asia) and six countries (Brazil, Argentina, China, Philippines, Indonesia, and India received over 55 percent of this investment). Meanwhile, Official Development Assistance (ODA) flows into infrastructure have also declined, particularly to the least developed countries. Against this backdrop, the Energy Business Renewal Strategy is bringing the World Bank Group's energy practice back into action with a sharp focus on poverty impact. Energy is beginning to appear more meaningfully in Country Assistance Strategies and Poverty Reduction Strategy Papers, environment issues are increasingly integrated into the Bank Group's energy projects, and over US$1.5 billion in new World Bank Group commitments are planned for fiscal year 2002. Mr. Saghir reminded the meeting of the challenge to match the enormous investment needs for energy service delivery in developing countries over the next 20 years.

On behalf of Mr. Ananda Covindassamy, Energy Sector Manager for Africa at the World Bank, Mr. Arun Sanghvi, Program Manager of AFRREI, presented the World Bank energy strategy and portfolio in the Africa region. In addition to the Africa component of the Energy Business Renewal Strategy and a profile of the Africa energy portfolio, Mr. Sanghvi outlined how a realignment of the Africa portfolio is being conducted to address the key issues facing the Africa energy team. These issues include: portfolio quality needs improvement; the volume of new commitments is low compared to the demand; alignment with Bank priorities is weak (10 percent of the portfolio is focused on direct poverty alleviation); project implementation periods are long; resource mobilization needs to rise; and the knowledge function needs to be strengthened. He pointed out that the priorities of the Africa ETFPs (AFRREI and RPTES) have clear links to the regional energy strategy and are integrated with the Africa region's work program.

Mr. Mohammad Farhandi, Energy Sector Manager for East Asia at the World Bank and Program Manager of ASTAE, presented the shifts in regional priorities in East Asia and South Asia, and how ASTAE's activities in the two regions are consistent with the Energy Business Renewal Strategy. ASTAE contributes to poverty reduction goals through its support of renewable energy for rural access programs. ASTAE's work in supporting development of grid-connected renewables and energy efficiency produce environmental benefits from reduced emissions and reduced energy intensities. ASTAE also helps accelerate the commercialization of private sector provision of alternative energy and works to improve governance by supporting policy and regulatory mechanisms in support of the above. He outlined how ASTAE is implementing its programmatic themes under this strategy. These themes

include: scaling up renewable energy through provision of rural access (for poverty alleviation) and energy efficiency (for environmental protection); support for alternative energy policy and regulatory frameworks; and alternative energy in cross-sector applications.

Ms. Dominique Lallement, Program Manager of ESMAP, presented the placement of the ETFPs in the framework of the Energy Business Renewal Strategy. She provided illustrations to show how each characteristic of the ETFPs serves the strategy. These characteristics include: innovation and experimentation; catalyzing change by influencing policy, building capacity; implementing change; and mobilizing resources incrementally by influencing the World Bank Group's and others' energy portfolios; and disseminating and transacting knowledge.

Lessons from the Programs

Asian Development Bank's Trust Funded Initiatives in the Energy Sector

Dr. Aminul Huq of the Asian Development Bank (ADB) outlined the ADB's realignment of its energy sector assistance toward poverty reduction, expansion of access, improvement of governance, promotion of private participation, promotion of environmentally clean energy, and regional energy trade. He illustrated the ADB's energy sector assistance with a presentation of the ADB's trust funded initiatives, particularly the ALGAS project and the Renewable Energy, Energy Efficiency and Climate Change (REACH) Program trust funds.

Expanding the Frontier of Knowledge: Innovation, Experimentation & Dissemination

Messrs. Arun Sanghvi and Charles Feinstein of the World Bank Group presented the main value of the ETFPs as knowledge transaction: building awareness and "buy-in" among decision-makers and communities for new ideas. They highlighted two examples of innovation and experimentation emerging from the ETFPs: AFRREI's cross-sectoral approach to energy interventions in Uganda, and ASTAE's passive solar heating in rural health clinics in China. They outlined the programmatic approach taken by ASTAE, ESMAP and others in the *China Renewable Energy Scale-up Program* (CRESP) and RPTES's *Senegal Sustainable & Participatory Energy Management Project* as illustrations of the ETFP's influence on policy. ESMAP's contribution to developing the grounds for the World Bank/GEF/Government of Nicaragua PERZA project for energy access in isolated areas and RPTES's contribution to the World Bank/Government of Ethiopia Energy Access Project were cited as examples of ETFP work influencing energy sector investments. ESMAP's work in leveraging its indoor air pollution activities in India for developing similar activities in China was highlighted as an instance of knowledge transaction by the ETFPs.

Evaluating Results and Impacts

Mr. Jeremy Levin of the World Bank Group presented the basic issues facing the ETFPs for improving the evaluation of their results and impacts in the context of the MDGs and their corresponding indicators. He emphasized that the results and impacts of the ETFPs have to be placed in the perspective of what outputs they produce. To extend measurement of results and impacts beyond those outputs to include effectiveness towards the MDGs, the ETFPs must review the value and adequacy of their current indicators, consider options for new indicators (including a possible energy-related subset of MDG indicators), and make a determination of the costs, processes, and methodologies involved.

The distinction between program indicators (more focused on projects and their outputs) and development indicators (more focused on the overall development agenda and its outcomes—such as the MDG indicators) was explored in depth in the discussion that followed. There was consensus that the energy business needs to monitor and evaluate its impact and outcomes rather than measure its performance in terms of megawatts and efficiency figures. The Country Assistance Strategy and Poverty Reduction Strategy frameworks at the country level and the Millennium Development Goals at the global level provide mechanisms for measuring the collective outcomes and impacts of projects. However, while tracking performance at this level, the program level cannot be ignored because bad projects need to be identified and addressed. A combination of these top-down and bottom-up perspectives would constitute a suitable approach.

In a discussion of the resources required for such measurement, it was pointed out that the capacities available in developing countries for such measurement need to be strengthened. It was also observed that bilateral donors need to be as active on such measurement as they expect multilateral institutions like the World Bank Group to be.

Overview of the Trust Funded Energy Programs
Achievements in 2001: Program Managers' Reports

Asia Alternative Energy Program (ASTAE)

Mr. Mohammad Farhandi presented the work through which ASTAE has been able to achieve its initial goal of ensuring that alternative energy represents 10 percent of total World Bank power sector lending in the two Asia regions. He attributed the success of the ASTAE model to its focus on project development as part of the World Bank's operations, its regional location within Bank operations, and the strong partnerships it has built. Given that the projected demand for alternative energy in Asia dwarfs the impact of current projects, ASTAE has decided to embrace an additional goal for the next decade. This goal is to mainstream alternative energy in national energy policies and programs. Mr. Farhandi stated ASTAE's two-fold success indicators to be: 1) that three key Asian countries adopt national energy programs/policies to encourage large-scale development of alternative energy; and 2) the impact of individual Bank lending operations.

ASTAE was complimented for achieving its initial target. It was also commended as a source of innovation in the renewables community and as a contributor of value in integrating alternative energy components to projects. GEF, the World Bank, and client country decision makers were also acknowledged for their role in contributing to the success of the ASTAE model. The discussion focused on the nature of ASTAE's strategic shift, in particular, what the shift would mean for the activities ASTAE undertakes and how far the original mandate of ASTAE can be mainstreamed into the World Bank's operations. ASTAE clarified that its activities will continue to involve the awareness building and capacity development required to mainstream alternative energy into the policies of client countries in Asia. These activities are not just advanced project preparation activities, and therefore cannot be mainstreamed into the Bank's operations yet. Alternative energy projects are more costly to prepare, as significant capacity building is still needed within client country counterpart agencies and among local stakeholders. ASTAE will build its new policy-focused work while continuing to support the development of individual alternative energy projects and project components since a large scale programmatic, policy-focused approach may not be appropriate for all countries at this time.

Regional Program for the Traditional Energy Sector (RPTES)

Mr. Boris Utria, Program Manager RPTES, presented the program's objectives, structure, human resources, and its place in the energy matrix as the context for how its activities implement the Energy Business Renewal Strategy in Africa's biomass sector.

Responding to donors' questions about RPTES work, Mr. Utria emphasized RPTES' focus on capacity building; client ownership of activities; and persuading the biomass users and policymakers that biomass has value. This persuasion is strengthened by RPTES' experience with biomass-related policy instruments. The combination of persuasion and experience has helped RPTES make biomass schemes "bankable" by demonstrating to users and policymakers that they are losing or misusing a valuable resource and that measures are available to redress the situation.

Africa Rural and Renewable Energy Program (AFRREI)

Mr. Arun Sanghvi, Program Manager, AFRREI, stated that AFRREI contributes to three of the four pillars (excluding macro/fiscal issues) of the Energy Business Renewal Strategy in Africa. He categorized AFRREI's progress into two phases: innovation and product development, particularly the Energy for Rural Transformation concept (1998-2002), and mainstreaming and dissemination of the results of the first phase (2002-2005). Among emerging lessons learned, he listed the high level of priority placed by clients on the energy-for-rural-transformation concept and its related project work; the effectiveness of short-term workable entry points for long-term targets; the difficulties of decentralizing the decision-making processes to accommodate sectoral ministries into multi-sectoral projects; the need to increase productive uses of new energy services; and the value of smart-subsidy intermediation.

Energy Sector Management Assistance Programme (ESMAP)

In an overview of ESMAP's activities, Mr. Charles Feinstein, Lead Operations Coordinator, ESMAP, presented the links between ESMAP's strategic directions and the World Bank Group's Energy Business Renewal Strategy by demonstrating how each business line from the ESMAP Business Plan 2002-2004 fit into the four petals of the Strategy. He also outlined how ESMAP is "jump-starting" the Business Plan through activities already underway which fit into the business lines. The Africa portfolio of ESMAP still faces a shortfall, although the Africa energy sector manager of the World Bank has announced a target of 20 successful proposals to ESMAP in 2001. ESMAP has also expanded its outreach to the Africa region and the idea of a coordinator/interface between Africa and ESMAP is being put on the table.

Ms. Dominique Lallement, Program Manager, ESMAP, reported progress on the deliverables that ESMAP was mandated with at the Lisbon CG meeting in November 2001:

- The business plan draft circulated at the Lisbon meeting was finalized and distributed in this meeting,
- A proposal was made for appointing a suitable senior World Bank Group staff member as a manager of each respective business line as a sub-portfolio. This would facilitate the inclusion of non-World Bank Group proposals and task managers in ESMAP activities.
- Mr. Jamal Saghir also presented the report about trends in the global energy-related private sector in this meeting (see section on Implementing the World Bank Group Energy Business Renewal Strategy, above).

- The structure of the formerly designated Village Power Partnership was presented in the GVEP session of this meeting.
- The paper on the linkages between energy and the MDGs is being developed as the Energy and Development Report 2002 (the template being developed for this paper was circulated). This report is being developed in consultation with the health, education, and rural development sector boards of the World Bank Group, among other stakeholders.

ESMAP's responsiveness to the CG's guidance since the Lisbon CG meeting was appreciated and a renewed wave of international support for ESMAP, evidenced by its suggested role in GVEP, was acknowledged. UNDP offered increased cooperation with the World Bank Group for pushing energy higher on the MDG agenda.

Global Village Energy Partnership (GVEP)

Ms. Dominique Lallement presented GVEP's background, tracking its progress from the first Village Power Conference in 1992 to prospective implementation following WSSD in August 2002. She outlined the demand and delivery mechanisms for each of the services that GVEP will provide. These services are: country action plans, knowledge build-up and knowledge transaction, energy service enterprise development, funding facilitation, and monitoring of results and impacts. Ms. Lallement also proposed options for GVEP's governance and participation criteria as well as a basic budget and timeline of steps leading toward WSSD and beyond.

While expressing UNDP's full commitment to GVEP, Ms. Susan McDade (Manager, Sustainable Energy Programme, UNDP) outlined UNDP efforts to advance the GVEP agenda at international fora. At the UNDP Heads of Agencies meeting in Rome (April 2002), GVEP was proposed as one of the initiatives for UNDP to pursue actively at WSSD. GVEP was also a key topic of discussion at the WSSD-related meeting of donors, key developing countries, industry representatives, and NGOs hosted by the UNDP in Brussels (April 2002). Ms. McDade emphasized UNDP's comparative advantage for capacity building in developing countries as well as micro-credit and consumers and micro-enterprises. These strengths would be of great use to GVEP. She urged the participants to make GVEP a Type II Initiative at WSSD.

The Netherlands, the United Kingdom, Norway, Germany, Sweden, the United States, Canada, and Finland as well as the UNDP, UNF, and the E7 expressed their keen interest in joining and supporting the Global Village Energy Partnership, and congratulated ESMAP and its partners for having advanced the proposal to that stage. The importance of ensuring that the GVEP agenda is endorsed and led by developing countries was underscored. There was consensus that ESMAP should serve as the interim secretariat for GVEP. DfiD indicated its willingness to extend support to ESMAP for this purpose. There was consensus that the senior managements of all donor agencies and multilateral institutions present should be briefed about the resounding support for GVEP as a possible Type II initiative at WSSD. To present a more detailed concept note about GVEP at the WSSD preparatory committee meeting (PrepCom3) in Bali in June 2002, ESMAP will circulate a draft document to the donors for endorsement and comments.

Consolidated Business Plan of the Energy Trust Funded Programs

The World Bank presented a consolidated budget of $61 million for the four energy trust funded programs for the 2002-2004 period. The CG found broad consensus around the proposal that a con-

solidated business plan for the four energy trust funded programs must be developed as a framework supporting a consolidated budget to which the CG can respond with pledges. To ensure clarity about the scope of such a consolidated business plan, the following deliverables were agreed upon:

- By September 2002, the World Bank Group will circulate to the donors (on a no-objection basis) a two-page issue paper about the scope and content of the consolidated business plan.
- Subsequently, the World Bank Group will secure the TAG's feedback on a detailed outline of the consolidate business plan.
- By January 2003, the World Bank Group will present a basic concept to donors for no-objection.
- At the CG meeting 2003, the final document will be distributed to the donors.

Governance of Consultative Group and TAG Issues

The meeting reached agreement on the following issues related to the governance of the Consultative Group and the Technical Advisory Group:

- Mr. Andrew Barnett and Mr. Youba Sokona will be renewed for another term each starting at the end of their current tenures.
- Terms will hereby be staggered to avoid the retirement of two TAG members simultaneously.
- The donors will suggest candidates for a fifth member of the TAG based on a description page to be circulated by the TAG; the mechanism for candidate selection will be: the World Bank Group will interview candidates identified by the donors and present a shortlist to the donors for final selection.
- If the information requested from the World Bank Group is not received by TAG, the TAG will record this in writing and the World Bank Group will state its reasons for withholding the information in writing.
- ESMAP will fund the TAG's review of ESMAP's regional power markets work.
- UNDP and its donors will decide whether UNDP funding should be extended to the expanded TAG.
- The TAG will give its report to the CG a week ahead of each CG meeting.
- A consolidated CG for all four ETFPs will be held annually and, to facilitate participation, its timing and location may be linked to a major energy-related event worldwide.

UNDP Briefing on WSSD

Ms. Susan McDade briefed the meeting on how energy has fared in the WSSD process including the discussions about the Type I Initiatives (intergovernmental processes) and Type II Initiatives ("coalitions of the willing") as the context for GVEP's future. She emphasized the need for a Type I declaration to include language stating that energy is crucial to development and that the MDGs cannot be met without it. The developing countries are keen to see funded initiatives emerge from WSSD. GVEP is among the front-runners on this count and it is important for energy practitioners to ensure that energy does not get sidelined from the development agenda after WSSD. Ms. McDade also outlined the UNDP-led LPG Challenge, which has the strong support of industry as well as other players.

ANNEX 2

29 PROJECTS LAUNCHED IN 2002

Project No.	Name	Region/Country	ESMAP Financing
P081978	Africa Region Energy Strategy for Poverty Reduction and Sustainable Development	AFR.	$15,000
P080210	Clean Fuels Africa Project: Phasing Out Leaded Gasoline in SSA Importing Countries	AFR.	$257,000
P080820	Power Sector Reform in Africa: Assessing the Impact on the Poor and Influencing Policy Decisions	AFR.	$186,000
P081979	Energy and Poverty Workshop (Francophone)	AFR.	$250,000
P077595	Energy and Poverty Reduction Workshop	AFR.	$276,130
P082009	Natural Gas Market Development Study.	Bolivia.	$50,000
P082160	Development of Pro-poor National Heat Pricing and Billing Policy	China.	$250,000
P080290	Sustainable and Efficient Energy Use to Alleviate Indoor Air Pollution in Poor Rural China	China.	$1,110,000
P077534	Workshop on Rural Energy and Sustainable Development	Cote d'Ivoire.	$10,000
P081975	Media Workshops on Energy in ECA	ECA.	$15,000
P078351	Developing Mechanisms for Regional Cooperation on Oil Spill Management in the Caspian Sea	ECA.	$320,000
P079802	Stimulating the market for family-hydro for low-income households in Ecuador	Ecuador.	$141,000
P078016	Women's Energy Enterprise: Developing a Model for Mainstreaming Gender into Modern Energy Service Delivery	Ghana.	$35,645
P081804	Governance of National Oil Companies	Global.	$10,000
P081980	Mainstreaming Gender into Energy Projects	Global.	$7,000
P081803	Global Decommissioning of Oil & Gas Fields in Developing Countries	Global.	$15,000
P078333	Pioneering New World Bank Approaches in Support of Sustainability in the Extractive Sector.	Global.	$210,000
P078199	Capacity Building and Policy Assessment in Indoor Air Pollution	Global.	$45,900
P081789	Rationing Energy in a "Rational Way"	Global.	$50,000
P078804	Source Apportionment of Fine Particulates in Developing Countries	Global.	$295,000
P081943	Rural Infrastructure in Chile: Improving Efficiency and Reaching the Poor	LCR.	$15,000
P077905	Regional Approaches to Energy Sector Reform and Renewable Energy Development in Small Island Economies.	LCR.	$160,000
P078599	Village Power Partnership for Latin America and the Caribbean (VPP-LAC)	LCR.	$140,000
P077801	Energy From Landfill Gases for the LAC Region: Best Practice and Social Issues	LCR.	$694,664
P081778	Rural Development of Mongolia via provision of Wind Power–Seed Funding	Mongolia.	$12,000
P078013	Rural Energy Access and Poverty Reduction	Mongolia.	$10,000
P078519	Policy & Strategy for the Promotion of Renewable Energy Resources in Nicaragua	Nicaragua.	$250,000
P081780	Expanding Rural Access to Infrastructure	Nigeria.	$48,000
P082262	Rural Electrification Regulation Framework	Philippines.	$230,000
P080572	Energy Poverty and Access	Yemen	$447,980
			$5,556,319

30 PROJECTS COMPLETED IN 2002

Source	Project ID	Project Title	Region/Country	TM	ESMAP Financing	ESMAP to date
End 1999	P048502	Forum on Downstream Petroleum	AFR	Eric Daffern	$67,694	$67,694
End 1999	P068929	Energy Sector Reform Workshop	Bangladesh	Mangesh Hoskote	$88,675	$88,675
End 1999	P034782	Energy Efficiency and Environment	Bolivia	Willem M. Floor	$376,022	$376,022
End 1999	P045121	Bahia End-use Energy and Effluent Management Strategy TA	Brazil	Arturo S. Rivera	$64,400	$64,400
End 1999	P044442	Energy Efficiency TA Phase II—FINEP	Brazil	Arturo S. Rivera	$93,884	$93,884
End 1999	P064912	Rural Electrification Study	Chad	Robert J. van der Plas	$59,210	$59,210
End 1999	P068570	Reduction of Pollution by the Development of a Gas Market in Guangdong	China	Ralf H. H. Dickel	$21,978	$21,978
End 1999	P065450	Natural Gas Distribution Development	Croatia	Peter L. Law	$7,632	$7,632
End 1999	P066020	Central Asia Clean Transportation Fuel Program for Air Quality Improvement	ECA	Masami Kojima	$288,511	$288,511
End 1999	P070041	Accelerating Grid-Based Renewable Energy Power Generation Conference	Global	Dominique M. Lallement	$50,000	$50,000
End 1999	P065307	Designing Competitive Single Buyer Power Market Structures	Global	Ranjit J. Lamech	$111,937	$111,937
End 1999	P061190	Peri-urban Electrification Project	Global	Willem M. Floor	$15,000	$15,000
End 1999	P057415	Oil & Gas Investment Promotion Project	Global	Thomas E. O'Connor	$148,111	$148,111
End 1999	P049548	Environmental Manual for Power Development	Global	Masaki Takahashi	$454,684	$454,684
	P070585	ESMAP Participation in World Energy Forum on Regulation	Global	Dominique M. Lallement		
End 1999	P065306	Low-cost Electrification Pre-feasibility Project	Kenya	Robert J. van der Plas	$80,458	$80,458
End 1999	P068335	Regional Interconnection b/w Southern American Electricity Markets Phases I & II	LCR	Jean-Pierre Charpentier	$404,695	$404,695
End 1999	P050511	Improving Fuel Quality in Latin America (Lead Elimination Phase II)	LCR	Eleodoro O. Mayorga Alba	$378,098	$378,098
End 1999	P045122	End-use Energy & Effluent Management Strategy Study	LCR	Arturo S. Rivera	$51,288	$51,288
End 1999	P062488	Environmental Strategy for the Energy Sector	Mexico	Masami Kojima	$379,366	$379,366
End 1999	P066320	Improved Space Heating Stoves for Ulaan Bataar	Mongolia	Arturo S. Rivera	$103,490	$103,490
End 1999	P064698	Sustainable Charcoal Production in the Chinandega Region	Nicaragua	Willem M. Floor	$70,000	$70,000
End 1999	P053228	Modernization of Fuelwood Sector	Nicaragua	Rene Masse	$174,338	$174,338
	P073842	Nicaragua—Workshop on private sector-led mechanisms for rural energy service delivery	Nicaragua	Ernesto N. Terrado		
End 1999	P043318	Rural Energy Electrification	Peru	Anke S. Meyer	$214,143	$214,143
End 1999	P053242	Strengthening of Rural & Non-Conv. Energy Development Program	Philippines	Ernesto N. Terrado	$210,000	$210,000
End 1999	P040067	Energy Efficiency TA—Monitoring & Targeting & Feasibility of Third Party Financing	Slovak Republic	Anke S. Meyer	$303,053	$303,053
End 1999	P056574	Solar Market Development	Swaziland	Robert J. van der Plas	$179,877	$171,897
End 1999	P044561	Uganda—Rural Electrification Study	Uganda	Robert J. van der Plas	$170,931	$170,931
End 1999	P053421	Decentralized Rural Electrification	Zimbabwe	Robert J. van der Plas	$188,041	$188,041
					$4,755,516	$4,747,536

PROJECTS IN ESMAP PORTFOLIO ON DECEMBER 31, 2002

Project ID	Project Title	Region/Country	TM	ESMAP Financing
P023879	Energy Sector Restructuring	Zambia	Savary	$591,761
P044275	Decentralized Rural Electrification	Cameroon	Masse	$249,999
P044440	Regional Electricity Demand Management TA—Phase II	AFR	Savary	$101,823
P044764	Rural Energy Development	Malawi	Hoskote	$322,498
P048500	Petroleum Transportation Corridors	AFR	Alba	$150,659
P049075	Gas Flaring Reduction	Global	Svensson	$87,000
P049639	Oil Spills Occurrence Database, Modeling, Remediation and Prevention	ECA	Oduolowu	$53,000
P050391	Institutional Reform & Restructuring of Petrovietnam Gas Company	Vietnam	Svensson	$104,524
P052260	Corporatization of Distribution Concessions through Capitalization	Ghana	Hoskote	$133,186
P053126	Integrated Heat Demonstration Project	Ukraine	Meyer	$207,096
P053523	Rural Electrification & Power Reform in Central America	LCR	Barnes	$302,000
P056928	National Biomass Programme	Bolivia	Durand	$2,569,113
P056929	Country Programme—Phase II	Bolivia	Durand	$1,330,846
P057861	Dissemination on Environmental Issues in the Power Sector	India	Imran	$403,923
P058884	Coal Stove Improvement Program	Mongolia	Saeed	$50,000
P063170	Energy-Environment Review	Sri Lanka	Saeed	$284,892
P063180	South Africa Workshop—People's Power Workshop	South Africa	Sanghvi	$35,000
P064743	Energy Efficiency (Reconnaissance)	Romania	Atur	$101,329
P064933	Energy Sector Reform—Phase I	Mexico	Feinstein	$402,000
P064935	Opportunities for International Power Trade in the Nile River Basin I	AFR	Hoskote	$515,915
P065311	Removing Obstacles to Cross-Border Oil & Gas Pipelines	Global	Bacon	$335,000
P065449	Energy Sector Regulation (incl gas proj)	Poland	Benmessaoud	$584,740
P065453	Opportunity for Women in Renewable Energy Technology Utilization (Phase I)	Bangladesh	Ahmad	$188,979
P065454	Energy Efficiency Operational Exchange Program	Global	Taylor	$299,907
P065461	Global Efficiency in Sidi Bernoussi Industrial & Peri-Urban Area	Morocco	Mendonca	$340,000

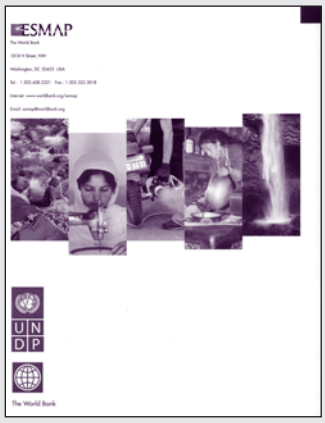
Project ID	Project Title	Region/Country	TM	ESMAP Financing
P065663	Training Program for Key Group Representatives From Indigenous People Regional Organizations/Rural Energy Development, Phase 2	Bolivia	Alba	$857,616
P065971	ESMAP Knowledge Dissemination Activity	Global	Lallement	$320,149
P066021	Best Practices for Grid Electrification—Phase II	Global	Barnes	$279,860
P067826	Revision of the Existing Legal & Regulatory Framework for the Petroleum Sector	Vietnam	Svensson	$89,600
P068523	Sulfur Emission Mitigation Policies	China	Johnson	$100,000
P068663	Regional Electricity Market: Mekong Basin Power Pool Phase II	EAP	Charpentier	$430,733
P068875	Development of a Regional Power Market in West Africa	AFR	Layec	$253,792
P069382	Petroleum Sector Review	Nigeria	McPherson	$59,664
P069434	Key Aspects of Energy-Environment/GHG Strategy	Macedonia	Moose	$70,000
P069828	Power Pool Study	Thailand	Lamech	$100,000
P069992	Motorcycle Fleet Upgrade to Reduce Air Pollution in Bangkok	Thailand	Shah	$120,000
P070054	Environment and Health: Bridging the Gaps (Phase IV)	AFR	Gulstone	$54,681
P070678	Heat strategies in low-income transition countries	ECA	Travers	$293,291
P070684	Clean Air Initiative in Sub-Saharan African Cities	AFR	Reliquet	$210,000
P070797	Advancing Modern Biomass Energy Opportunities & Challenges	Global	Utria	$232,640
P070922	Central America Gender in Sustainable Energy	LCR	Correia	$225,000
P070938	Household Energy & Women's Lives: The Case of India	India	Barnes	$50,000
P070940	Power Trade in Nile Basin Phase 2	AFR	Hoskote	$504,000
P072413	Philippines—Village power fund and incubator for renewable energy enterprises	Philippines	Shum	$371,500
P072626	Towards Formulating a Rural Energy Strategy	Bangladesh	Barnes	$310,000
P072936	India—Environmental Policies for the State Power Sector—Rapid Assessment for Karnataka & Uttar Pradesh	India	Imran	$222,750
P072947	Vietnam—Policy dialogue seminar and new mining code	Vietnam	Sa	$150,000
P072999	Alternative Energy Applications (Seed Funding)	Global	Labaste	$8,027
P073016	Developing Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China and India	Global	Taylor	$1,525,904
P073145	Developing Regional Clean Air Networks	Global	Xie	$900,000
P073293	Nicaragua—Pilot commercialization of improved cookstoves	Nicaragua	Torres	$175,000
P073366	Lithuania—Heating supply to small cities/towns	Lithuania	Stuggins	$278,500
P073511	South Asia Urban Air Quality Management Strategy	SAR	Kojima	$195,000

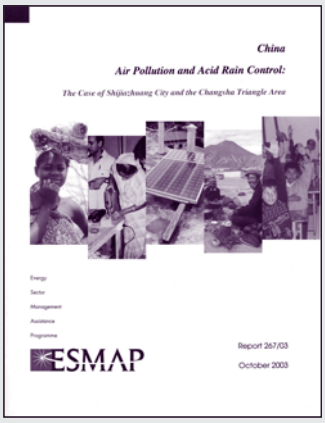
Project ID	Project Title	Region/Country	TM	ESMAP Financing
P073535	Mexico—TA for long-term program for renewable energy development	Mexico	Feinstein	$100,000
P073536	Evaluation of Bank Experience with Integrated Rural Electrification Projects—Seed Funding	LCR	Rysankova	$15,000
P073630	Energy efficiency in urban water utilities in Central Asia: The Uzbekistan Case.	Central Asia	Ijjasz-Vasquez	$150,000
P073751	Assessing the Impacts of Energy Sector Reform on the Poor	Global	Bacon	$430,000
P073936	CDM-assist: A collaborative program to build CDM capacity in Africa	AFR	Hoskote	$49,987
P073965	Initiating the Bank's Peri-Urban/Rural and Renewable Energy Activities in Nigeria	Nigeria	Cosgrove-Davies	$45,000
P074149	Brazil—Rural Electrification Strategy	Brazil	Carreiro	$250,000
P074232	Health impacts of traditional fuel use	Guatemala	Ahmed	$203,000
P074337	LCR—Low income energy assistance	LCR	Wodon	$150,000
P074455	Petroleum Revenue Management Conference	Global	McPherson	$238,204
P074557	Turkey: Energy and Environment Review (Phase III)	Turkey	Moose	$79,992
P074622	Global Village Energy Partnership (GVEP)	Global	Lallement	$331,831
P074684	China: Policy Advice on Implementation of Clean Coal Technology projects. Phase II	China	Takahashi	$50,000
P075127	Technical Assistance to Proposed Expansion of Solar-Net Village Program	Honduras	Torres	$197,000
P075196	Energy Efficiency in Medium and Small Water Supply Utilities	Brazil	Armar	$160,000
P075756	Access of the Poor to Cleaner Household Fuels in India	India	Lvovsky	$100,000
P075883	Designing a Poverty-focused, Gender-sensitive Monitoring and Evaluation Plan for a World Bank Renewable Rural Electrification Project	Cambodia	Barnes	$65,000
P076081	Regulatory issues of off-grid energy service delivery as part of national rural electrification strategies	LCR	Torres	$150,000
P076097	Multilateral Energy Sector Assistance to the EU Accession Countries	ECA	Hamso	$100,000
P076111	Capacity building for national and provincial socially and environmentally sustainable management of coal resources in China	China	Husband	$350,000
P076113	Cambodia—Renewable Energy Action Plan	Cambodia	Crousillat	$308,000
P076471	Energy Efficiency in Water Utilities—Seed Funding	China	Rivera	$9,993
P076709	Lessons on Offgrid Electricity, Business Development Services and Microcredit (Seed Funding)	Nicaragua	Motta	$15,000
P076760	Azerbaijan—Natural Gas Sector Restructuring and Regulatory Reform	Azerbaijan	Townsend	$230,000
P076783	Assessing the poverty alleviation impacts of rural electricity access—SEED Funding	Mozambique	Sakairi	$3,500

Project ID	Project Title	Region/Country	TM	ESMAP Financing
P077061	Nigeria LPG Market Development and Access Expansion	Nigeria	Belguedj	$345,756
P077534	Workshop on Rural Energy and Sustainable Development	Cote d'Ivoire	Ekouevi	$10,000
P077595	Energy and Poverty Reduction Workshop	AFR	Durix	$276,130
P077689	Rapid Assessment for Meeting Immediate Needs for Water and Energy Services	Global	Davis	$105,000
P077801	Energy From Landfill Gases for the LAC Region: Best Practice and Social Issues	LCR	Ahmed	$694,664
P077887	Opportunity for Women in Renewable Energy Technology Utilization in Bangladesh (Phase 2)	Bangladesh	Iqbal	$220,000
P077905	Regional Approaches to Energy Sector Reform and Renewable Energy Development in Small Island Economies	LCR	Shukla	$160,000
P078011	Good Practice Case Study in Integrating Environment into Gas and Oil Pipeline Projects: Experiences Based on the Bolivia-Brazil Gas Pipeline	Bolivia	Quintero	$117,000
P078016	Women's Energy Enterprise: Developing a Model for Mainstreaming Gender into Modern Energy Service Delivery	Ghana	Agyen	$70,000
P078199	Capacity Building and Policy Assessment in Indoor Air Pollution	Global	Johnson	$45,900
P078333	Pioneering New World Bank Approaches in Support of Sustainability in the Extractive Sector	Global	Davidson	$210,000
P078351	Developing Mechanisms for Regional Cooperation on Oil Spill Management in the Caspian Sea	ECA	Castberg	$320,000
P078519	Policy & Strategy for the Promotion of Renewable Energy Resources in Nicaragua	Nicaragua	Torres	$250,000
P078599	Village Power Partnership for Latin America and the Caribbean (VPP-LAC)	LCR	Rysankova	$140,000
P078804	Source Apportionment of Fine Particulates in Developing Countries	Global	Johnson	$295,000
P079802	Stimulating the market for family-hydro for low-income households in Ecuador	Ecuador	Durand	$141,000
P080210	Clean Fuels Africa Project: Phasing Out Leaded Gasoline in SSA Importing Countries	AFR	Alba	$257,000
P080290	Sustainable and Efficient Energy Use to Alleviate Indoor Air Pollution in Poor Rural China	China	Baris	$1,110,000
P080572	Energy Poverty and Access	Yemen	Spencer	$447,980
P080820	Power Sector Reform in Africa: Assessing the Impact on the Poor and Influencing Policy Decisions	AFR	Bacon	$186,000
P081778	Rural Development of Mongolia via provision of Wind Power–Seed Funding	Mongolia	Bale	$12,000
P081780	Expanding Rural Access to Infrastructure	Nigeria	Cosgrove-Davies	$48,000
P081789	Rationing Energy in a 'Rational' Way	Global	Maurer	$50,000
P081803	Global Decommissioning of Oil & Gas Fields in Developing Countries	Global	Oduolowu	$15,000
P081804	Governance of National Oil Companies	Global	McPherson	$10,000

Project ID	Project Title	Region/Country	TM	ESMAP Financing
P081943	Rural Infrastructure in Chile: Improving Efficiency and Reaching the Poor	LCR	Sara	$15,000
P081975	Media Workshops on Energy in ECA	ECA	Osborne	$15,000
P081978	Africa Region Energy Strategy for Poverty Reduction and Sustainable Development—Seed Funding	AFR	Koljonen	$15,000
P081979	Energy and Poverty Workshop (Francophone)	AFR	Durix	$250,000
P081980	Mainstreaming Gender into Energy Projects	Global	Ofosu-Amaah	$7,000
P082009	Natural Gas Market Development Study	Bolivia	Durand	$50,000
P082160	Development of Pro-poor National Heat Pricing and Billing Policy	China	Taylor	$250,000
P082262	Rural Electrification Regulation Framework	Philippines	Shum	$230,000

ANNEX 3





REPORTS PUBLISHED IN 2002

ANNEX 3

FORMAL REPORTS

REGION/COUNTRY	ACTIVITY/REPORT TITLE	DATE	NUMBER
EAST ASIA AND PACIFIC (EAP)			
Mongolia	Improved Space Heating Stoves for Ulaanbaatar	03/02	254/02
Philippines	Rural Electrification and Development in the Philippines: Measuring the Social and Economic Benefits	05/02	255/02
Vietnam	An Overnight Success: Vietnam's Switch to Unleaded Gasoline	08/02	257/02
	The Electricity Law for Vietnam—Status and Policy Issues—The Socialist Republic of Vietnam	08/02	259/02
SOUTH ASIA (SAS)			
Bangladesh	Reducing Emissions from Baby-Taxis in Dhaka	01/02	253/02
India	Energy Strategies for Rural India: Evidence from Six States	08/02	258/02
	Household Energy, Indoor Air Pollution, and Health	11/02	261/02
EUROPE AND CENTRAL ASIA (ECA)			
Bulgaria	Energy Environment Review	10/02	260/02
GLOBAL			
	Economic Development, Climate Change, and Energy Security	05/02	–
	Annual Report 2000–2001	05/02	–
	Energy and Development Report 2001: Energy and the Environment	06/02	–
	Status of ESMAP Portfolio of Projects as of June 30,2002	08/02	–
	Economic Development, Climate Change, and Energy Security: The World Bank's Strategic Perspective	09/02 and Paper No. 3	
	Private Financing for Community Infrastructure	05/02	256/02

TECHNICAL REPORTS

REGION/COUNTRY	ACTIVITY/REPORT TITLE	DATE	NUMBER
SUB SAHARAN AFRICA (SSA)			
	Phase-Out of Leaded Gasoline in Sub-Saharan Africa	04/02	028/02
Nigeria	Phase-Out of Leaded Gasoline in Nigeria	11/02	029/02
Senegal	Regional Conference on the Phase-Out of Leaded Gasoline in Sub-Saharan Africa	03/02	022/02
Tanzania	Mini Hydropower Development Case Studies on the Malagarasi, Muhuwesi, and Kikuletwa Rivers Volumes I, II, and III	04/02	024/02
EAST ASIA AND PACIFIC (EAP)			
Cambodia	Efficiency Improvement for Commercialization of the Power Sector	10/02	031/02
Vietnam	Renewable Energy Action Plan	03/02	021/02
LATIN AMERICA AND THE CARIBBEAN (LAC)			
	Proposals to Facilitate Increased Energy Exchanges in South America—Phase II	04/02	016/01
	Population, Energy and Environment Program (PEA) Comparative Analysis on the Distribution of Oil Rents (English and Spanish)	02/02	020/02
	Estudio Comparativo sobre la Distribución de la Renta Petrolera Estudio de Casos: Bolivia, Colombia, Ecuador y Perú	03/02	023/02
	Latin American and Caribbean Refinery Sector Development Report—Volumes I and II	08/02	026/02
	The Population, Energy and Environmental Program (EAP) (English and Spanish)	08/02	027/02
Ecuador	Programa de Entrenamiento a Representantes de Nacionalidades Amazónicas en Temas Hidrocarburíferos	08/02	025/02
Nicaragua	Memoria Taller de Electrificación Rural	08/02	030/02

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

Email: esmap@worldbank.org

The World Bank