

Annual Report 2000-2001



Energy

Sector

Management

Assistance

Programme





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Dominique Lallement, The World Bank Group

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Image by Craig Mayhew and Robert Simmon, NASA GSFC. Based on data from the Defense Meteorological Satellite Program.

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Paula-Mae Lewis, World LP Gas Association

Page 19 and 52

Kazim Saeed, The World Bank Group

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Winfried Rijssenbeek, The World Bank Group

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Jitendra Shah and Masami Kojima, The World Bank Group

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Richard Spencer, The World Bank Group



ACCESS ENERGY POVERTY • ENVIRONMENT • MARKET



ESMAP 2000-2001 Highlights

115 on-going projects in more than 37 countries

14 projects completed, 47 projects launched, 33 reports published

Donors contributed \$13.2 million to the program

Introduction of the Technical Paper Series with more than twenty published papers

Launching of Four Call for Proposals

Creation of a dedicated web section for Donors' access

A New Energy Development Report for 2001: Energy and the Environment

A New paper: Economic Development, Climate Change and Energy Security

A New Business Plan for the period 2002-2004





ABBREVIATIONS AND ACRONYMS

LIST OF ABBREVIATIONS AND ACRONYMS

AAA	Analytical & Advisory Services
ACR	Activity Completion Report
AFRREI	Africa Rural and Renewable Energy Initiative
AFR	Sub-Saharan Africa Region
AP	Andhra Pradesh (India)
ARPEL	Asistencia Recíproca Petrolera Empresarial Latinoamericana
ASTAE	Asia Alternative Energy Program
BBL	Brown-Bag Lunch seminar
BOT	Build-Operate-Transfer
CAS	Country Assistance Strategy
CDD	Community Driven Development
CDM	Clean Development Mechanism
CEE	Central and Eastern Europe
CG	Consultative Group
CHP	Combined Heat and Power
CIDA	Canadian International Development Agency
CNG	Compressed Natural Gas
COP-6	Sixth Session of the UNFCCC Conference of the Parties
COP-7	Seventh Session of the UNFCCC Conference of the Parties
CSD9	Commission on Sustainable Development, Ninth Session
CY	Calendar Year
DFI	Development Finance Institution
DFID	Department for International Development, UK
DH	District Heating
DRIF	Demand-Driven Rural Investment Fund
DSM	Demand Side Management
E7	Organization of nine leading electric utilities from G7 countries
EAP	East Asia and Pacific Region
ECA	Europe and Central Asia Region
EDR	Energy Development Report
EER	Energy and Environment Review
ESCO	Energy Supply Company
ESMAP	Energy Sector Management Assistance Programme
ESOP	Employee Share Ownership Plan
EU	European Union
FSU	Former Soviet Union
GDP	Growth Domestic Product
GEF	Global Environment Facility
GENES	Gender & Energy Network
GHG	Greenhouse Gases
IAP	Indoor Air Pollution
ICT	Information and Communication Technologies
IEPF	Institut de l'Énergie et de l'Environnement de la Francophonie
IFC	International Finance Corporation
IMF	International Monetary Fund
IPCC	Inter-governmental Panel on Climate Change
IPP	Independent Power Producer
IRD	Integrated Rural Development
JI	Joint Implementation

kW	Kilowatt
kWh	Kilowatt per hour
LCR	Latin America and Caribbean Region
Logframe	Logical Framework
LPG	Liquefied Petroleum Gas
LSMS	Living Standards Measurement Survey
LULUCF	Land Use, Land-Used Change, and Forestry
M&E	Monitoring & Evaluation
M&T	Monitoring and Targeting
MDGs	Millennium Development Goals
MIS	Management Information System
MNA	Middle East and North Africa Region
NGOs	Non-Governmental Organizations
NREL	National Renewable Energy Laboratory (United States of America)
OECD	Organization for Economic Co-operation and Development
OED	Operations Evaluation Department, The World Bank
PCF	Prototype Carbon Fund
PCD	Project Concept Document
PDS	Project Data Sheet
PPI	Private Participation in Infrastructure
PPIAF	Public-Private Infrastructure Advisory Facility
PRGF	Poverty Reduction and Growth Facility
PRSP	Poverty Reduction Strategy Paper
PV	Photovoltaic
PVMTI	Photo-Voltaic Market Transformation Initiative
RII	Rural Infrastructure Initiative
RPTES	Regional Program for the Traditional Energy Sector
SAP	Systems Application Products
SAPP	Southern Africa Power Pool
SAR	South Asia Region
SIF	Social Investment Fund
SMEs	Small and Medium Enterprises
TA	Technical Assistance
TAG	Technical Advisory Group of ESMAP
TF	Trust Fund
TM	Task Manager
UN	United Nations
UNDP	United Nations Development Programme
URE	Energy Regulatory Authority (Poland)
US	United States of America
USAID	United States Agency for International Development
VPP	Village Power Partnership
WBG	World Bank Group
WCD	World Commission on Dams
WHO	World Health Organization
WSSD	World Summit on Sustainable Development



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

MISSION STATEMENT



The Energy Sector Management Assistance Programme

ESMAP is a global technical assistance programme sponsored by a group of donors, 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 help 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 the increased access to reliable, efficient and affordable energy services by un-served or under-served populations.

ESMAP concentrates on energy related issues not yet mainstreamed in the operations of bilateral or multilateral development institutions, and of the private sector. 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.

2000-2001

DONORS AND MEMBERS OF THE
CONSULTATIVE GROUP,
TECHNICAL ADVISORY GROUP
AND ESMAP TEAM IN 2000-2001



CONSULTATIVE GROUP

BELGIUM

General Administration for Development
Cooperation

CANADA

Canadian International Development Agency

DENMARK

Ministry of Foreign Affairs
Duke Energy International, L.L.c.

FINLAND

Ministry of Foreign Affairs

FRANCE

Ministry of Foreign Affairs

GERMANY

Bundesministerium für Wirtschaftliche
Zusammenarbeit und Entwicklung

ITALY

Ministry of Foreign Affairs

THE NETHERLANDS

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

NORWAY

Royal Ministry of Foreign Affairs

SWEDEN

Swedish International Development Cooperation
Agency

SWITZERLAND

State Secretariat for Economic Affairs

UNITED KINGDOM

Department for International Development

UNITED NATIONS DEVELOPMENT PROGRAMME

(co-sponsor)

THE WORLD BANK GROUP

(co-sponsor)

CHAIR OF THE CONSULTATIVE GROUP

Richard D. Stern¹

Nemat Talat Shafik²

Jamal Saghir³

MEMBERS AT LARGE OF THE CONSULTATIVE GROUP

Rufino Bomasang, Philippines

Ketane Sithole, Botswana

TECHNICAL ADVISORY GROUP

Alfredo Mirkin

Andrew Barnett

Jan Moen

Youba Sokona

ESMAP MANAGEMENT AND ADMINISTRATIVE TEAM

Dominique Lallement, ESMAP Manager

Jacqueline Ajala

Henri Bretaudeau⁴

Maureen Cuffley

Charles Feinstein⁴

Joanne Fleming

Nyra Guice

Marjorie Puentes⁴

Josefina Regino-Suarez

Kazim Saeed

REPRESENTATIVES FROM CO-SPONSORING ORGANIZATIONS

Thomas B. Johansson (UNDP)⁵

Suresh Hurry (UNDP)⁶

Susan McDade (UNDP)⁵

Minorou Takada (UNDP)⁶

Frannie Leautier (The World Bank Group)⁷

Jamal Saghir (The World Bank Group)⁷

¹ Mr. Stern retired as Chair of the CG on April 18, 2000.

² Ms. Shafik succeeded Mr. Stern as Chair of the Consultative Group on April 18, 2000.

³ Ms. Shafik delegated responsibility for chairing the Consultative Group meetings to Mr. Jamal Saghir, Chair, Energy and Mining Sector Board, The World Bank Group.

⁴ Henri Bretaudeau retired in October of 2001; Charles Feinstein joined in January of 2000; and Marjorie Puentes joined in July of 2000.

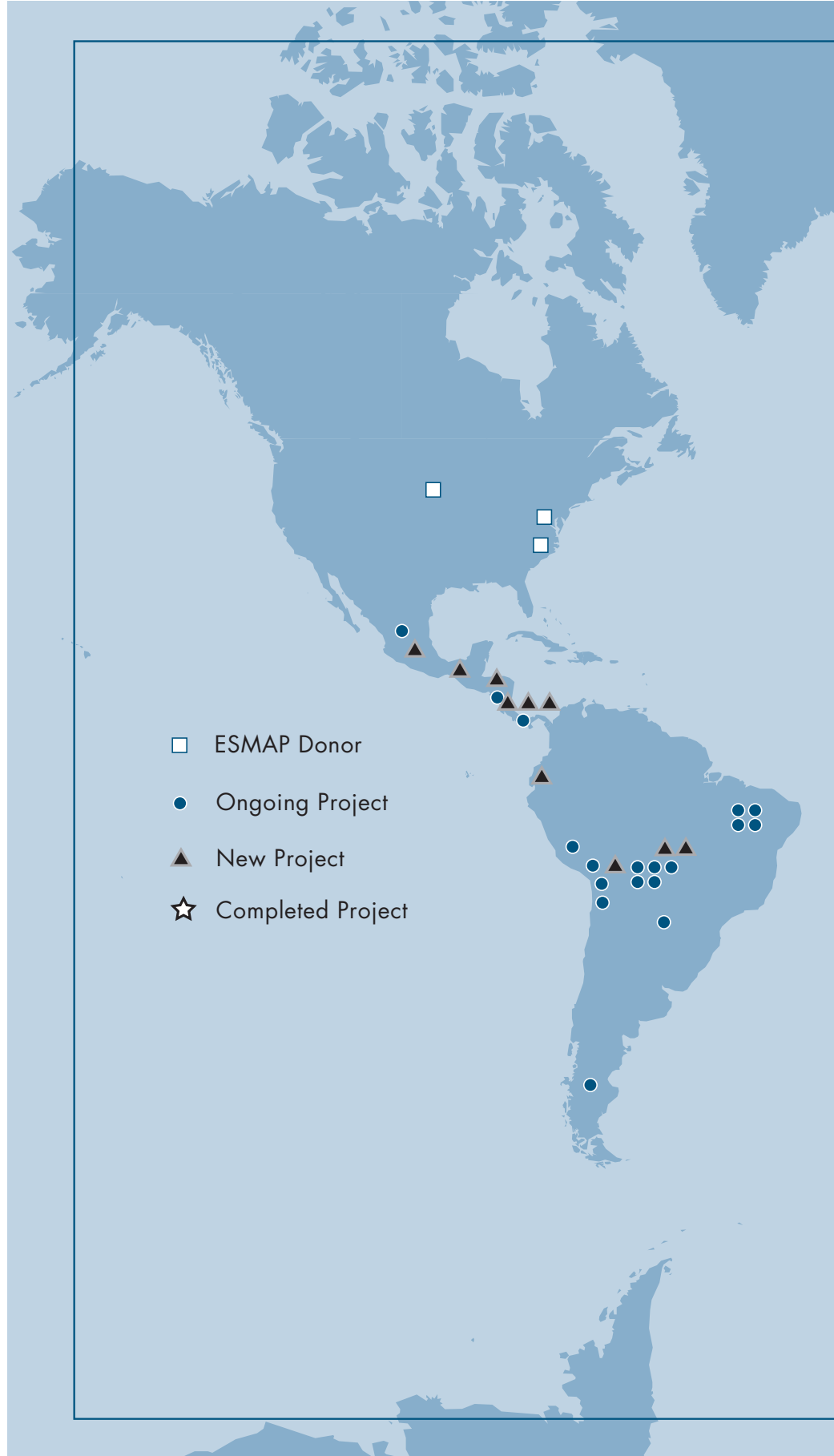
⁵ Mr. Johansson was replaced by Ms. McDade as UNDP Representative to ESMAP.

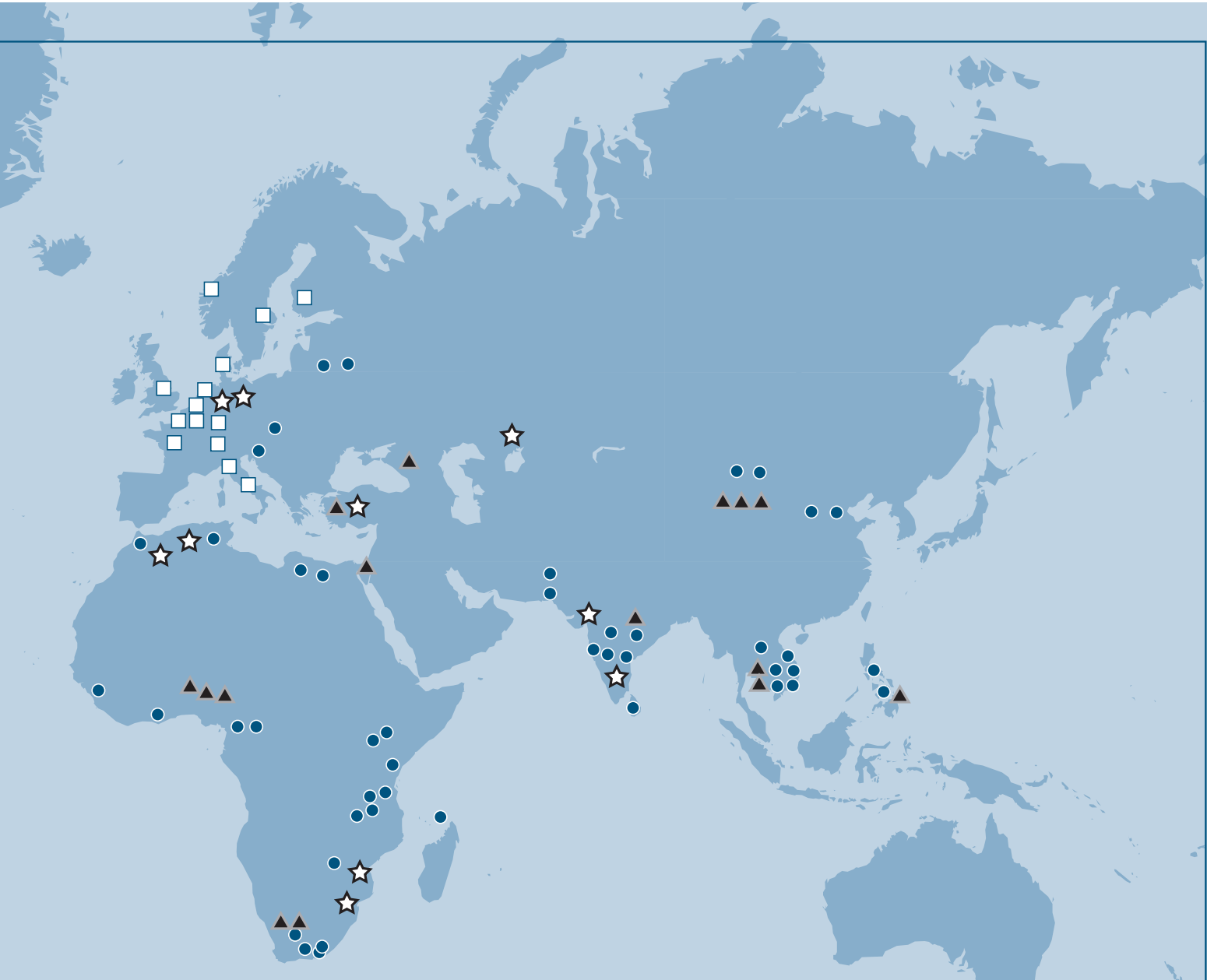
⁶ Mr. Hurry retired on December 20, 2000, and Mr. Takada was appointed as acting liaison officer to ESMAP.

⁷ Ms. Leautier was replaced by Mr. Saghir as Director of the Energy and Water Department.

2000 -2001

ESMAP
IN THE
WORLD





<p>Africa</p> <p>☆ ▲▲▲▲▲●●●●●</p> <p>☆ ▲▲▲▲▲●●●●●</p> <p>▲▲●●●●●</p>	<p>East Asia & Pacific</p> <p>▲▲●●●●●</p> <p>▲▲●●●●●</p> <p>▲▲●●●●●</p>	<p>Europe & Central Asia</p> <p>☆ ▲▲●●●□□□□</p> <p>▲▲●●●□□□□</p> <p>▲▲●●●□□□□</p>	<p>Latin America & The Caribbean</p> <p>☆ ▲▲▲▲▲●●●●●</p> <p>▲▲▲▲▲●●●●●</p> <p>▲▲▲▲▲●●●●●</p>
<p>Middle East & North Africa</p> <p>☆ ▲ ●</p> <p>☆ ●</p> <p>☆</p> <p>☆</p>	<p>North America</p> <p>□</p> <p>□</p> <p>□</p>	<p>South Asia</p> <p>☆ ▲●●●●</p> <p>▲●●●●</p> <p>●●●●</p>	<p>Global</p> <p>☆☆ ▲▲▲▲▲●●●●●</p> <p>☆☆ ▲▲▲▲▲●●●●●</p> <p>☆☆ ▲▲●●●●●</p>



1

MAKING ENERGY WORK FOR THE POOR

MAKING ENERGY WORK FOR THE POOR

THE LINKAGES BETWEEN ENERGY AND POVERTY AND ECONOMIC GROWTH

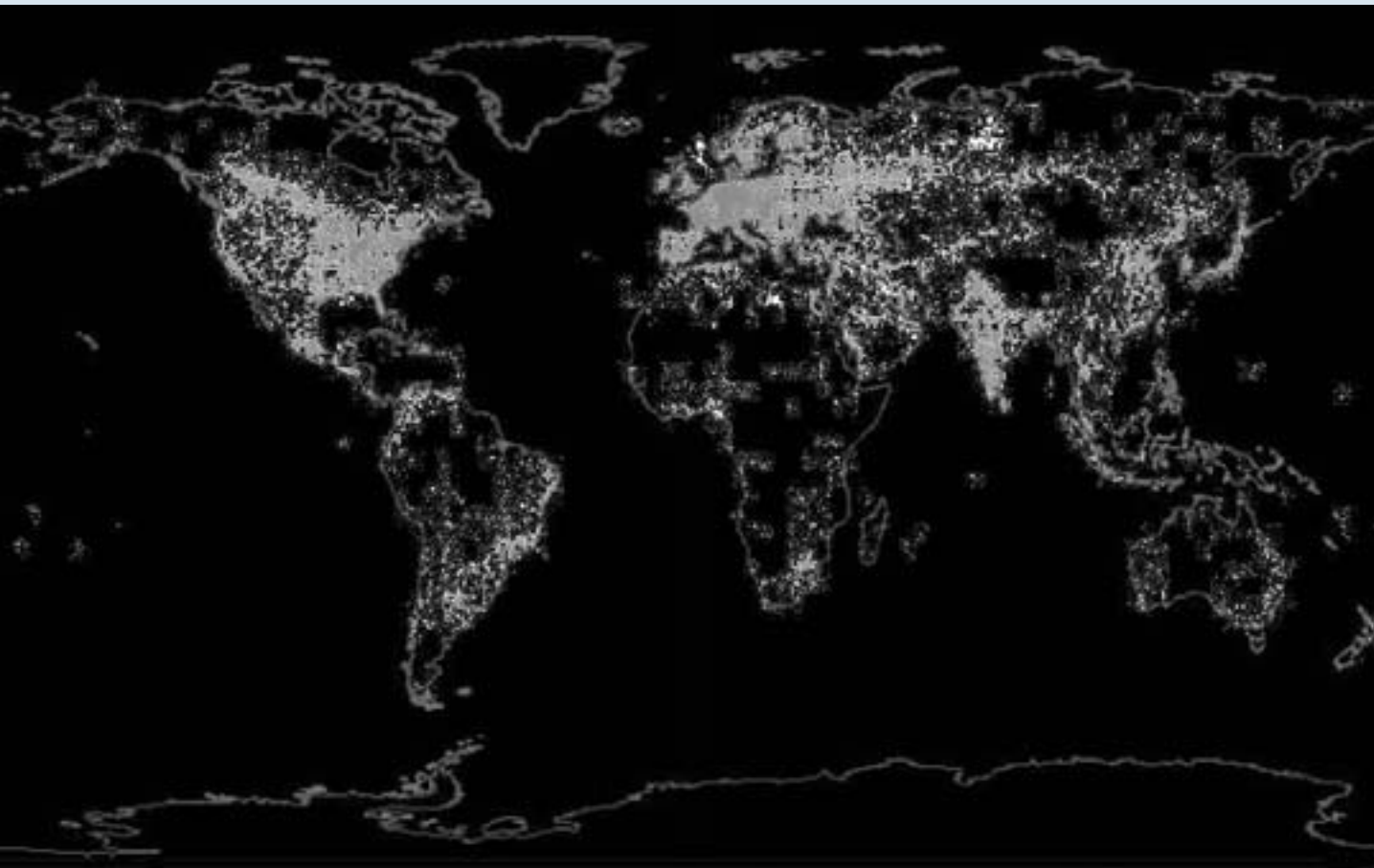
Who are the energy poor? The map of the world at night (see Figure 1.1) is now well known, but seeing it again is always a forceful reminder of the disparities and inequities between those who have access to electricity for their minimum needs and those who do not. We must note that there is only a limited correlation between the countries' natural endowments for primary energy resources and the development of energy services to the poor. In some resource rich countries like Nigeria, rural access to electricity is only 4%.

There are vast differences in access between income groups. For example, in Vietnam, 76%

of the richest groups have access to electricity, against 27% for the poorest. In Cote d'Ivoire, these figures are 71% and 11% respectively. There are also major disparities between urban and rural areas, with the rural areas far less well served than the urban areas. In Vietnam, only 38% of the rural population is served, 88% of the urban population. In Ghana, these figures are 4% and 62% respectively. Finally, we should note the significant disparities between the large enterprises which have either access to the grid or the capacity to have their independent or back-up generation, while SMEs are rarely able to do so.

Furthermore, we know that sustainable energy is indispensable for economic growth and human development. Lack of access to sustainable modern energy services limits the benefits from

Figure 1.1 THE ENERGY POOR BY NIGHT



other services such as education and health, and prevents the development of more productive activities. Lack of efficient lighting limits students' study time; lack of electricity in schools prevents access to additional education materials for teachers and students. Lack of reliable power is a major deterrent to productivity increases, be it at the household level or for small and medium-size enterprises, or be it to permit new larger scale investments.

The link between energy and poverty is equally important regarding other sources of energy. About half of the world's population still relies on biomass fuels for basic cooking and heating needs. However, few people use these fuels efficiently and safely. Indoor air pollution is one of the leading causes of high morbidity and premature deaths in developing countries. Indoor air pollution is the cause of 2 million excess deaths per year, and represents 5% of the global burden of disease, more than tuberculosis, AIDS, and malaria (WHO). Air-borne pollution from fossil fuels also has tremendous health effects on the poor, either in terms of respiratory diseases, or premature mortality, or decreased IQ in children from lead ingestion. The cost to families, households, and society of these high burden of death and illness is enormous. In one ESMAP study in Bangladesh, three-wheeler taxi drivers understood for the first time that pollution was causing them to miss up to one-third of their work time a month—this for people who already live at minimal income levels.

Looking ahead, we have to be aware that the growth in energy demand over the next 20 years will come mostly from developing countries, and that at the current rate of electricity connections (as a proxy for modern energy), another 450 million energy poor will be added. We also have to be aware that while today's energy poor are largely in the rural areas, by year 2020, 70% of the world population will be living in urban areas, and 60% will be below poverty, and that many of those will be energy-poor. Therefore, unless a major international effort is made to

invest in the development of sustainable modern energy services, many countries and many people will continue to be left behind. Gradually, it is becoming clearer that these strong linkages between energy and poverty reduction and economic growth have to define the role of energy in the achievement of the Millennium Development Goals.

The Changing Environment for Fostering Sustainable Energy Solutions

Against this background, some key changes are taking place in the global energy and development sector from which sustainable energy solutions are emerging.

A few years ago, the analysis of the structure of energy demand was done largely by looking at the consumption sector: households, industry, agriculture, and services. Today, we are taking a comprehensive approach, between basic household needs (such as lighting) to community and social needs (such as for health, education, and transport) to productive needs for households, SMEs, or industry. The advantage of this new comprehensive approach is:

- First, to look at a wider range of technical options to meet the demand, and
- Second, to be able to explore a wider range of institutional and financial options to deliver the services.

These options, for example, range from sustainable biomass utilization to thermal generation for grid or off-grid extensions, to mini-grids and hybrid systems, including a range of renewable energy options.

Additional opportunities come from the remarkable reduction in the cost of certain technologies, in particular renewables, micropower, and in the wider range of products offered, such as liquid fuels.

We are also seeing major changes in the institutional landscape, with an increasing trend from

monolithic public service provider to decentralized customer-oriented service businesses. As a result, new business models are emerging. Possibilities for developing local manufacturing of energy products and local energy service providers are increasing. These in turn become significant employment and income-generating activities in the demand markets, and help secure the financial basis for further energy service development. New systems of concessions and partnerships between the public and the private sector are expanding. Today's clients of the energy industry include a wide range of actors from individuals and local communities to central government, and which must work in partnership with public policy makers and institutions and private service providers.

New financing options are emerging. The old debate on 'subsidies' is progressing, with an increased recognition that there is an economic justification for certain types of subsidies, either from a welfare perspective, or to assist with transition situations, as in the economies of Eastern Europe and Central Asia. A key issue remains how to target subsidies to the poorest. For example, when subsidies are granted to a concessionaire for rural electrification, are we subsidizing the poor rural consumer or the manufacturer in the industrialized country?

With these emerging trends, three basic observations are important:

- First, the poor are willing to pay for energy, in particular in the less-served countries. The poor spend up to one third of their disposable cash income, i.e. US\$10, for poor quality lighting mostly, when they earn US\$1/day, US\$30/month. Some purchase lighting at the equivalent of US\$35-45/kwh;
- Second, the poor are part of the solution: Even when the poor have low levels of education, they can quickly acquire manufacturing, technical, and management skills, and themselves become energy service providers; and
- Thirdly, we need to be realistic: We have a very complex agenda. If traditional network exten-

sions have failed to deliver sustainable energy services to the poor, decentralized systems work but are not easy to set up.

Continued effort is needed to improve the policy and regulatory frameworks. New efforts are necessary to engage the poor as key partners and to work in tandem with other sectors such as health and education. Solving the problem of indoor air pollution is as much an issue of liquid fuel pricing policy to enable fuel substitution as it is an issue of market adaptation of improved stoves.

ESMAP and Energy Poverty

During the 2000-2001 period, ESMAP began to respond to the trends in the global energy and development arena. The expansion of energy access and reduction of energy poverty were supported by developing new institutional and financing models for rural service delivery, fostering a more holistic approach to rural electrification focusing on its role in rural development, quantifying the links between energy service delivery and development outcomes, and developing participatory processes as vehicles for developing and propagating sector strategies that can be implemented by a multiplicity of stakeholders. During this period, the energy market development agenda has moved beyond the tools and mechanisms for sector reforms and towards ensuring the sustainability of reform through greater consensus-building for reform and mitigating the social impact of reform. Stronger linkages were forged between the local and global issues concerning the environment, including indoor and outdoor air pollution as well as the reduction of greenhouse gas emissions and climate change impacts.

ESMAP Business Plan 2002-2004

With the approach of the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa, in the fall of 2002, in which energy will figure prominently, the ESMAP Business Plan 2002-2004 has been developed and has

gained the endorsement of ESMAP's donors. This Business Plan identifies the business lines which constitute the framework for ESMAP activities. The Plan will also define ESMAP's priorities in the initial years of implementation of the Summit's outcomes.

The business lines which are already active and will continue to receive ESMAP support are:

- service delivery mechanisms for rural energy access;
- gender and energy;
- strengthening reform;
- regional energy market integration;
- energy and environment reviews; and
- mitigation of social and environmental impacts.

New business lines which will form the core of ESMAP's work are:

- Global Village Energy Partnership;
- energy-poverty linkages;
- impact of reform on the poor;
- indoor air pollution;
- methodologies for monitoring and evaluation of multi-sector programming, and
- knowledge transaction and dissemination.

Business lines which will be gradually developed in the ESMAP portfolio are:

- peri-urban energy access;
- governance and revenue distribution; and
- local and global environmental synergies.







2

PRODUCTS AND SERVICES

PRODUCTS AND SERVICES

ESMAP's mandate has evolved over time to meet the changing needs of its clients. ESMAP has operated in over 100 countries through over 520 activities covering a broad range of energy issues. At ESMAP's inception in the early 1980s, these activities were almost exclusively Country Energy Assessments that served to fill the knowledge gap on the energy demand-supply balance in specific countries, and provide options to address priority energy issues in an environment of high energy price volatility.

ESMAP provides technical assistance which helps design and build consensus on policies for the sustainable development of energy services. This technical assistance is directed to a wide-range of stakeholders: governments, NGOs, public and private institutions in developing and transition economies.

ESMAP's Technical Assistance, Strategic Advice, Pre-investment Work, Lessons Learned, and Best Practice include:

- Specific Studies
- Advisory Services
- Pilot Projects

ESMAP's interventions are positioned at two points in the policy and project cycle: (1) upstream (pre-investment) on issues that have a clear potential for key policy formulation and innovative energy investment, and (2) downstream (ex post) through the evaluation and distillation of emerging best practice, followed by aggressive knowledge dissemination.

ESMAP's Knowledge Dissemination Instruments include:

- Printed publications, including activity final reports and a Technical Paper series
- Two-pagers: Highlights from ESMAP Projects
- The annual Energy Development Report (EDR), in collaboration with The World Bank Group
- The ESMAP Annual Report
- Publications jointly published with other organizations
- Electronic downloadable publications at www.esmap.org
- Publications stored in searchable CD ROMs
- International or regional conferences and roundtables
- Training: Regional or national workshops and seminars
- Brown Bag Lunch seminar series in The World Bank Group

ESMAP will maintain these three main categories of products and services to deliver its 2002-2004 business plan.





3

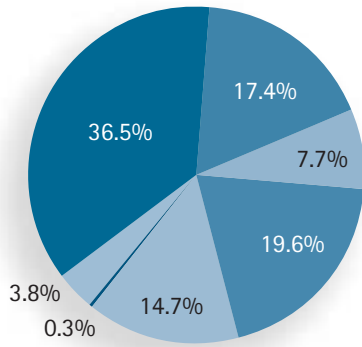
PORTFOLIO AT A GLANCE 2000-2001

PORTFOLIO AT A GLANCE 2000-2001

PORTFOLIO AT A GLANCE AS OF DECEMBER 31, 2000

Breakdown by Thematic Area

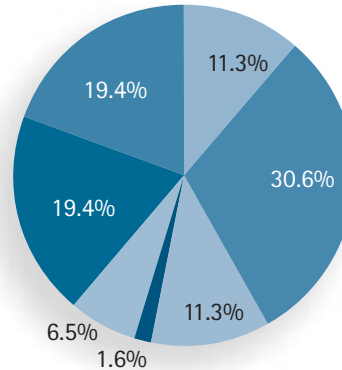
(as a % US\$ Value)



Rural & Peri-urban 36.5%
Sector Reform 17.4%
Energy Deficiency 7.7%
Environment 19.6%
International Trade 14.7%
Other 0.3%
Renewables 3.8%

Number of Projects

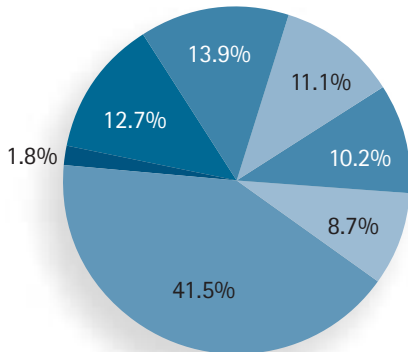
by Thematic Area



Rural & Peri-urban 19.4%
Sector Reform 19.4%
Energy Deficiency 11.3%
Environment 30.6%
International Trade 11.3%
Other 1.6%
Renewables 6.5%

Breakdown by Geographic Area

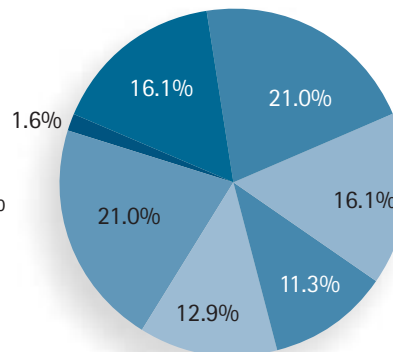
(as a % US\$ Value)



Middle East and North Africa 1.8%
South Asia 12.7%
Africa 13.9%
East Asia and Pacific 10.1%
Eastern Europe and Central Asia 10.2%
Global 8.7%
Latin America and Caribbean 41.5%

Number of Projects

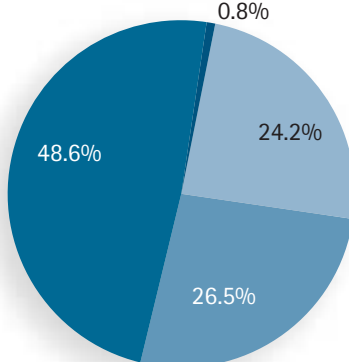
by Geographic Area



Middle East and North Africa 1.6%
South Asia 16.1%
Africa 21.0%
East Asia and Pacific 16.1%
Eastern Europe and Central Asia 11.3%
Global 12.9%
Latin America and Caribbean 21.0%

Breakdown by Strategic Area

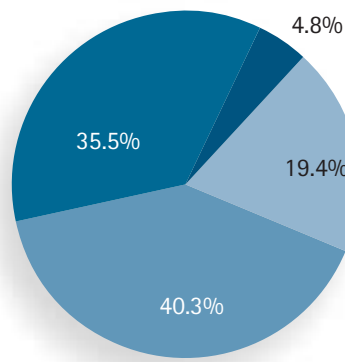
(as a % US\$ Value)



Market 48.6%
Other 0.8%
Access 24.2%
Environment 26.5%

Number of Projects

by Strategic Area

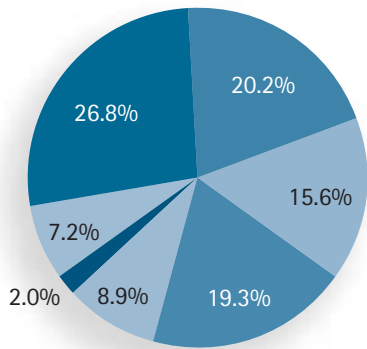


Market 35.5%
Other 4.8%
Access 19.4%
Environment 40.3%

PORTFOLIO AT A GLANCE AS OF DECEMBER 31, 2001

Breakdown by Thematic Area

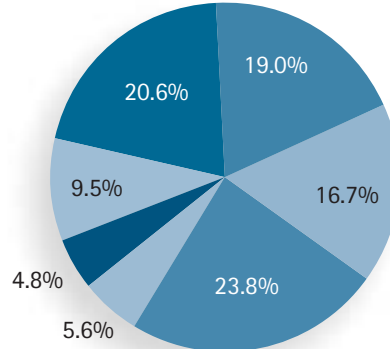
(as a % US\$ Value)



Rural & Peri-urban 26.8%
Sector Reform 20.2%
Energy Deficiency 15.6%
Environment 19.3%
International Trade 8.9%
Other 2.0%
Renewables 7.2%

Number of Projects

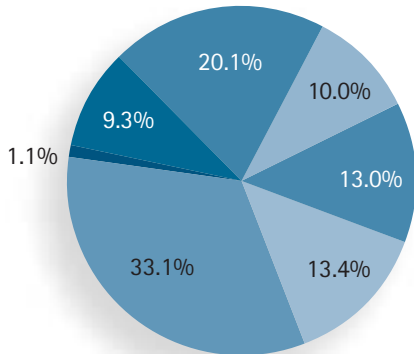
by Thematic Area



Rural & Peri-urban 20.6%
Sector Reform 19.0%
Energy Deficiency 16.7%
Environment 23.8%
International Trade 5.6%
Other 4.8%
Renewables 9.5%

Breakdown by Geographic Area

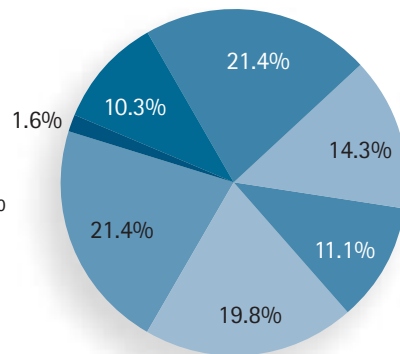
(as a % US\$ Value)



Middle East and North Africa 1.1%
South Asia 9.3%
Africa 20.1%
East Asia and Pacific 10.0%
Eastern Europe and Central Asia 13.0%
Global 13.4%
Latin America and Caribbean 33.1%

Number of Projects

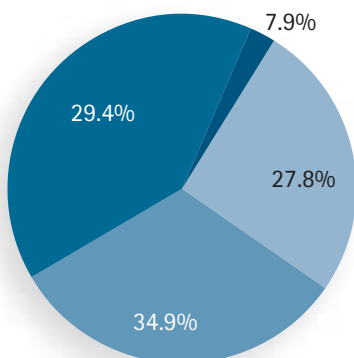
by Geographic Area



Middle East and North Africa 1.6%
South Asia 10.3%
Africa 21.4%
East Asia and Pacific 14.3%
Eastern Europe and Central Asia 11.1%
Global 19.8%
Latin America and Caribbean 21.4%

Breakdown by Strategic Area

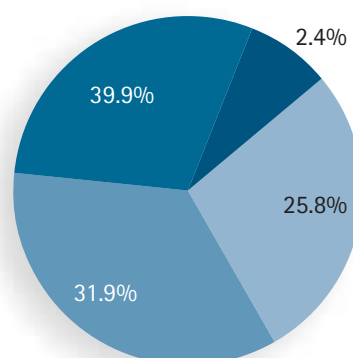
(as a % US\$ Value)



Market 29.4%
Other 7.9%
Access 27.8%
Environment 34.9%

Number of Projects

by Strategic Area



Market 2.4%
Other 39.9%
Access 25.8%
Environment 31.9%



OPERATIONAL REVIEW

4

OPERATIONAL REVIEW

This chapter presents the trends in the composition of the ESMAP portfolio during 2000 and 2001 in the context of the 1999-2001 Business Plan period. It also presents successes achieved through the use of seed funding, the status of project entry and exit processes, and closes with a presentation of the portfolio's disbursement patterns.

Evolution of the ESMAP Portfolio

The 1999-2001 business plan launched a period of greater activity for ESMAP. As Figure 4.1 shows, ESMAP activities at year-end grew from an average of 24% from 86 activities for the 1996-1999 period to 112 activities for the 1999-2001 period. Similarly, the ESMAP portfolio at year-end grew 18% from an average of US\$22.4 million for 1996-1999 to an average of US\$27.4 million for 1999-2001 (see Figure 4.2). The greater increase in the average number of activities than the portfolio value brought the size of the typical activity down slightly during the 1999-2001 period. However, the typical activity's size remained in the vicinity of a quarter of a million dollars (see Figure 4.3).

Through the 1999-2001 period, ESMAP has also launched more activities every year. The average number of new activities rose 28% from an average of 24 new activities added annually in 1996-1999 to an average of 33 new activities

launched annually in 1999-2001. A peak of 52 new projects were added to the portfolio in 1999 at the beginning of the 1996-1999 business plan period to foster portfolio renewal. As discussed later in this section, project closings have not kept up with the greater number of additions.

Figure 4.1
Activity Count at Year-end 1999-2001

(1996-1999 average indicated as blue line)

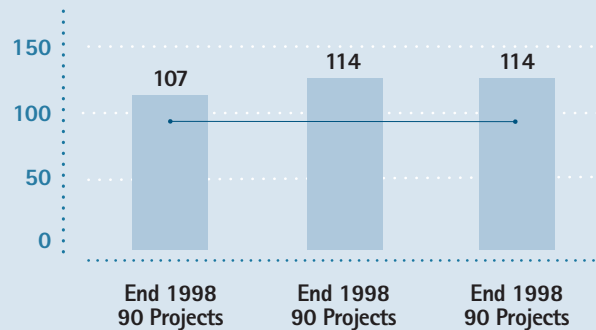


Figure 4.2
Total Year-end Values of Portfolio 1999-2001

(1996-1999 average indicated as blue line)

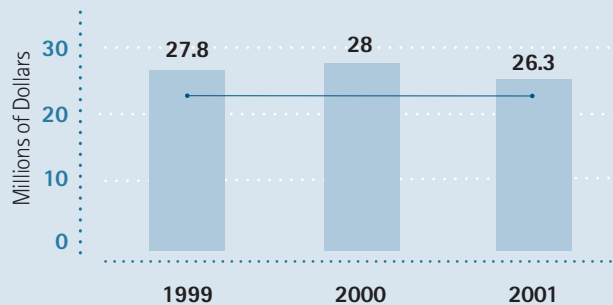
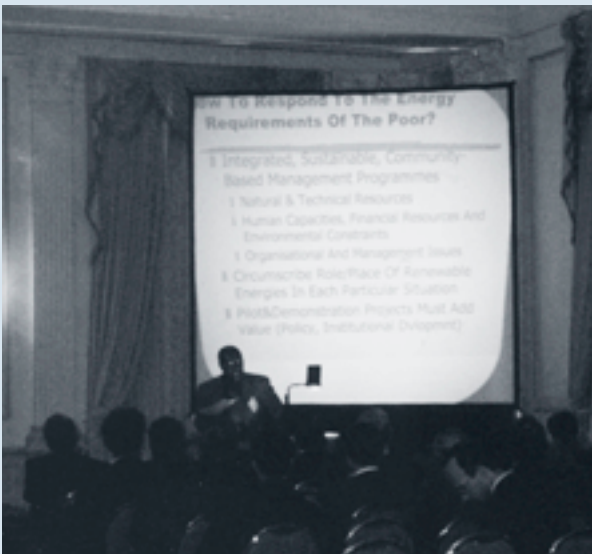
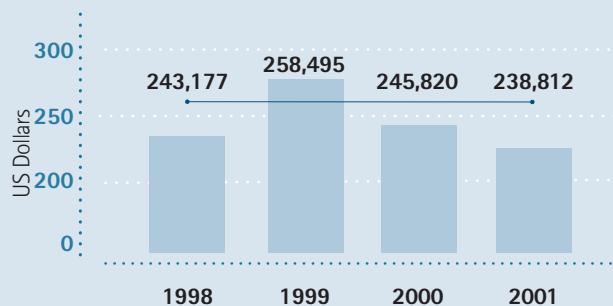


Figure 4.3
Average Project size

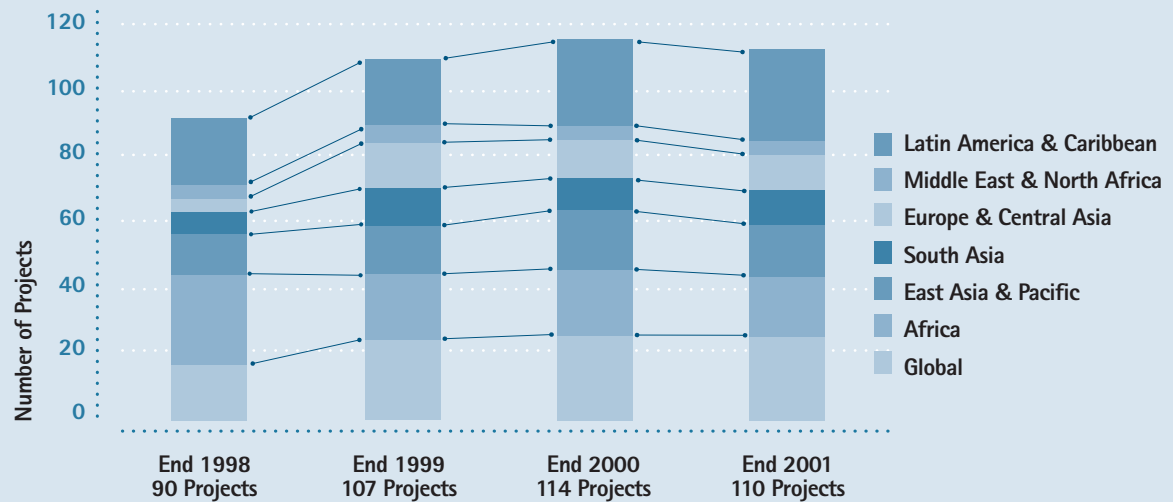


EVOLUTION OF ESMAP PORTFOLIO (1998-2001)

REGIONAL DISTRIBUTION OF PORTFOLIO 1998-2001

By Number of Projects

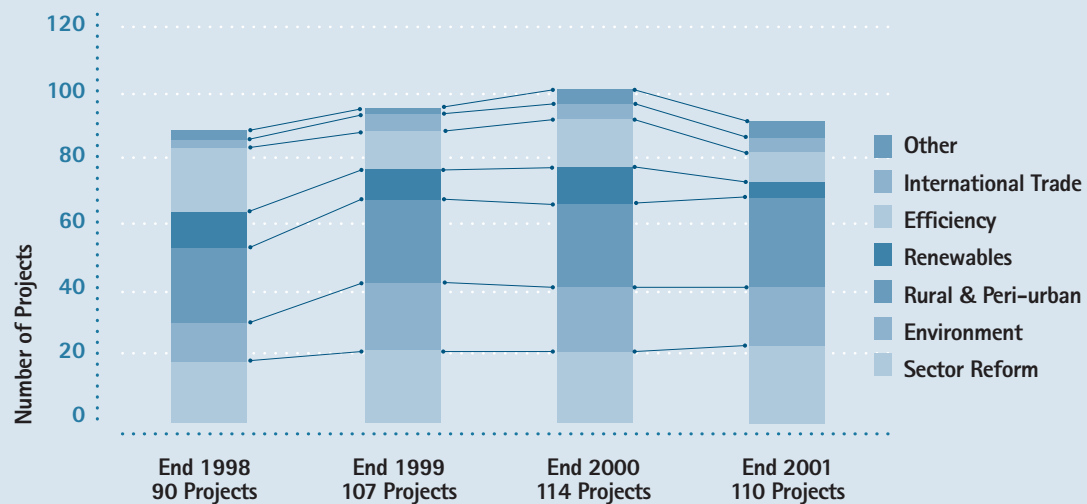
Figure 4.4



THEMATIC DISTRIBUTION OF PORTFOLIO 1998-2001

By Number of Projects

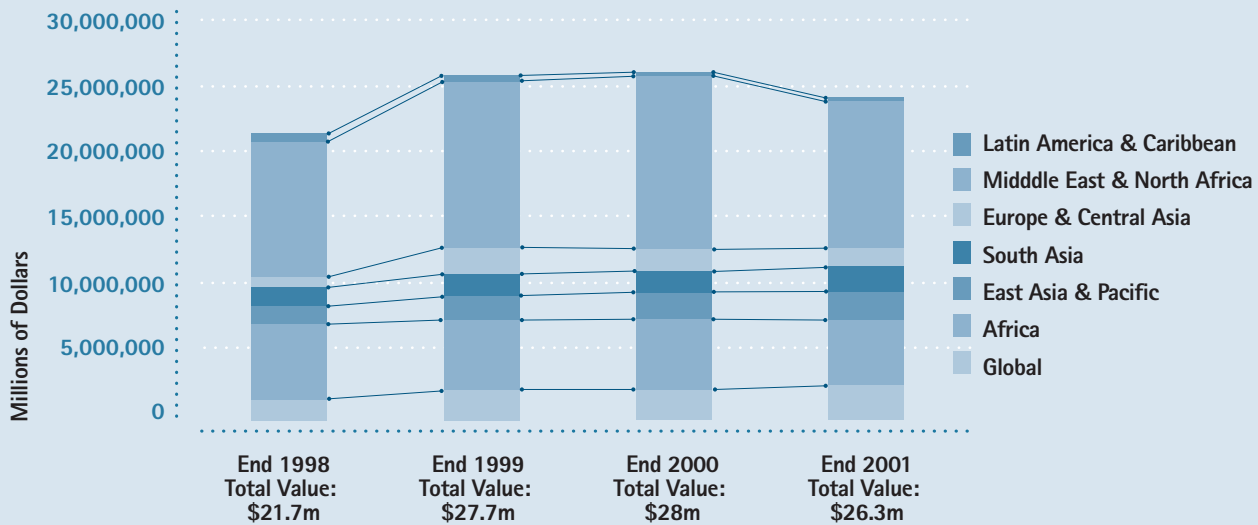
Figure 4.5



REGIONAL DISTRIBUTION OF PORTFOLIO 1998-2001

By Value of ESMAP Funding

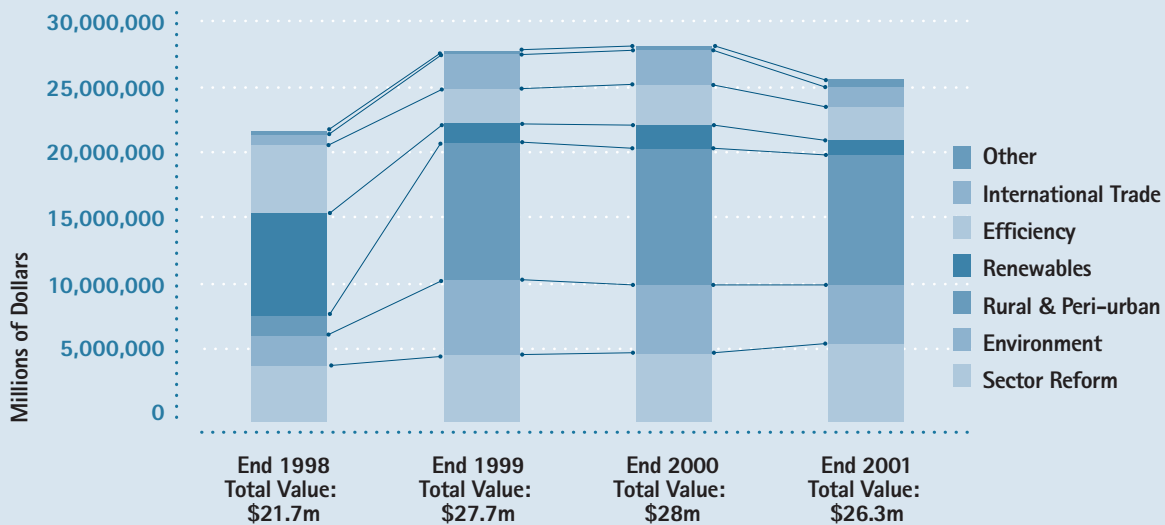
Figure 4.6



THEMATIC DISTRIBUTION OF PORTFOLIO 1998-2001

By Value of ESMAP Funding

Figure 4.7



Portfolio Overview

The distributional graphs show the evolution of the ESMAP portfolio, by value and number of projects over the 1999-2001 period, with the 1998 figures presented as the base. At the aggregate level, the ESMAP portfolio retained a consistent profile in the 2000-2001 period. The total year-end activity count was 116 projects for 2000 and 114 for 2001 (see tables 4.1 and 4.2) and the US dollar value of the portfolio remained in the same vicinity: US\$27.7 million at the end of 1999, US\$28 million at the end of 2000 and US\$26.3 million.

ESMAP's Latin America activities have accounted for the greatest share of the portfolio hovering at a third of its overall value during the 1999-2001 period. The Africa cluster of the portfolio followed constituting a fifth of the portfolio. Among the thematic areas, the rural/renewable energy activities dominated the portfolio constituting about a third of the portfolio's value. Following this cluster of activities were the energy-environment and market development clusters each constituting a fifth of the portfolio value through the 1999-2001 period.

Seed Funding

One of ESMAP's challenges is to keep exploring cutting edge issues and approaches and encourage innovation. Therefore, in late 1998, ESMAP opened a "seed funding" window to allow potential proponents to explore new ideas by researching what has already been done and carefully design activities in consultation with possible partners in innovation. This window is also used to develop proposals showing high promise after the first stage of screening (see Format of ESMAP Call for Proposals in the Governance and Management section). This "seed funding" window offers up to US\$15,000 which are granted either on the basis of short proposals outside of the regular cycle or after the first proposal stage. Reporting obligations on the use of fund are based on a clear understanding of what background research and consultation will be conducted before submission to ESMAP.

Table 4.1

Activity count during calendar year 2000	
Ongoing projects on 1/1/00	107
New projects launched	20
Projects completed	11
Projects cancelled	4
Not included earlier	4
As of 12/31/2000	116

Table 4.2

Activity count during calendar year 2001	
Ongoing projects on 1/1/01	116
New projects launched	27
Projects completed	3
Projects cancelled	0
Completed projects not yet closed	26
As of 12/31/2001	114

The seed funding window has found many initial successes. Following the successful implementation of ESMAP's Energy Efficiency Operational Exchanges program, a proposal for developing financial intermediation mechanisms for energy efficiency projects in Brazil, China and India received seed funding. The task manager used US\$10,000 (allocated in October 2000) to develop a proposal which has already secured over US\$2 million from the United Nations Foundation, nearly US\$700,000 from the UK Department for International Development (DFID) through ASTAE and US\$300,000 from ESMAP.

The links between governance and the distribution of revenue from hydrocarbon resources in developing countries falls under the governance and macro/fiscal stabilization strategic areas of the World Bank Group's energy strategy and has been identified as one of ESMAP's business lines under its 2002-2004 business plan. A proposal for compiling best practices in this area of scarce analytical depth was developed with US\$6,000 in seed funding (allocated in May 2001), and has already secured US\$225,000 from CIDA.

The impact of sector reform on the poor is an issue of great concern but few analytical tools exist to gauge this impact. With US\$10,000 in seed funding from ESMAP, a proposal was developed for a major undertaking: the development and testing of a template for measuring the impact of energy sector reform on the poor which is to be applied to countries just starting the reform process. This proposal has secured US\$430,000 in support from DFID.

Some ideas that have received ESMAP seed funding and are currently in process are: Energy efficiency in water utilities, LPG sector improvement for domestic use in Nigeria, an assessment of the poverty alleviation impacts of rural electricity access in Mozambique, and a study and pilot for mitigating injuries from burns in households in Egypt.

Entry and Exit of Activities from the Portfolio

Efficient management of the ESMAP portfolio requires smooth entry of new activities and gradual exit of activities once concluded. ESMAP has improved its input process over the 2000-2001 period through deeper engagement of proponents before they submit concept notes and full proposals. The pre-submission feedback provided by ESMAP management to proponents has helped reduce the number of iterations involved in fine-tuning the proposal to meet ESMAP standards as well as donor expectations.

The exit process has not improved as smoothly. The reconciliation of projects at the close-out stage has been slower than expected. This problem is further compounded by the departure of a number of ESMAP task managers from the World Bank. Good progress on this problem of slow close-outs is expected during 2002.





PORTFOLIO HIGHLIGHTS

5

PORTFOLIO HIGHLIGHTS

ENERGY ACCESS IN A CHANGING RURAL LANDSCAPE

The rural energy landscape has been changing rapidly through the 1990s. The key drivers of change have been the reform of centralized electricity sectors into decentralized systems, the increasing introduction of private participation (commercially oriented as well as community-based) in electric service delivery. These changes have necessitated not only the development of new service delivery models but also new approaches to rural energy investments, in particular for electricity. However, the overall picture still is bleak: about half of the population in developing countries continues to rely on traditional biomass for its heating and cooking needs, and the majority of the world's poor do not have modern lighting nor any affordable source of power.

At the onset of the 1999-2001 Business Plan, ESMAP was also confronted with the lingering negative legacy of previous rural electrification programs whose progress over the preceding decades had not given the development community very much to celebrate about. This was evidenced in a 1995 review of the World Bank's rural electrification projects in Asia (1975-1995) by the World Bank's Operations Evaluation Department which concluded that the "economic returns [of these projects] have been considerably lower than expected and a wide range of expected indirect and external benefits have not materialized"⁸. Two of the key problems were identified as (i) purely government- or donor-run supply-driven programs resulting in unsustainable energy service delivery systems; and (ii) insufficient attention to inputs other than energy resulting in low development impact.

ESMAP is therefore focusing on providing pragmatic intellectual leadership in this changing sector concentrated in four broad areas during 2000-2001:

- developing new institutional and financing models for rural service delivery;
- fostering a more holistic approach to rural

electrification focusing on its role in rural development;

- quantifying the links between energy service delivery and development outcomes; and
- developing participatory processes as vehicles for developing and propagating sector strategies that can be implemented by a multiplicity of stakeholders.

Innovative Institutional and Financing Mechanisms for Sustainable Rural Service Delivery

Given the geographical diversity and varied institutional capacities in developing countries, a wide range of institutional and financing mechanisms are needed for expanding access to modern energy services. In some locations, the grant of concessions (as adopted for off-grid power in Argentina) may be more suitable, while in others it may be better to help build capacity among communities which express a strong interest in installing power systems themselves. ESMAP supported the development of the latter approach in Laos⁹ where small rural communities are very widely dispersed. Rural communities and entrepreneurs who make a decision to electrify, can avail of the technical assistance and business development services provided by an off-grid electrification unit of Electricité de Laos.

Another approach, based on micro-finance, was successfully piloted by ESMAP for increasing access to solar electric equipment in Kenya. Rural consumers were invited to organize for group loans. Capacity was built among rural credit providers and private equipment suppliers who had been invited to become financing and technical partners of the project. The loan groups were then able to purchase bulk packages of solar electric equipment through the group loans¹⁰.

⁸ World Bank. 1995. Rural Electrification: a hard look at costs and benefits. Operations Evaluation Department, Précis Number: 90. Washington, D.C

⁹ This experience is recorded in the ESMAP publication Laos: Institutional Development for Off-grid Electrification, No. 215/99

¹⁰ The experience is documented in the ESMAP publication Kenya: Implementation Manual – Financing Mechanisms for Solar Electric Equipment (No. 231/00) complete with sample loan agreements and after-sales service contracts.

¹¹ The experience is documented in the Vietnam Renewable Energy Action Plan report published jointly by ASTAE, ESMAP, the Ministry of Industry of the Democratic Republic of Vietnam and EVN, the state power utility.

In Peru, technology transfer, local capacity building and awareness building were tied to the establishment of a *revolving fund* for implementing small hydro power plants in remote communities. A consulting group offered not only technical assistance and loans but also made a strong awareness building effort to convince remote communities of the value of this offering. More than US\$2.5 million was leveraged for the 1.2MW of micro-hydro installations established under this activity. More than 15,000 people gained electricity access. The contrast of this approach with the typical public sector-run programs in Peru is clear in Table 5.1.

To continue innovation in this area, ESMAP is currently supporting pilot projects for two new energy service delivery mechanisms for rural areas. These are (i) the women's energy enterprise in Char Montaz (a coastal island of Bangladesh) and (ii) the village power fund and incubator service for renewable energy enterprises in the Philippines.

The Char Montaz activity (outlined in Box 5.1) involves the establishment of a women's energy enterprise through capacity building and micro-enterprise development. In September 1999, ESMAP commenced support for a pilot project

Box 5.1 Access: The Char Montaz Experience – A Women's Energy Service Enterprise

Char Montaz is a rural island in the Bay of Bengal off the Bangladeshi coast. The electricity grid is six hours' boat-ride away. The main economic activity on the island is fishing.

After a survey and an interview process, PSL, a Dhaka-based development consultancy, selected thirty-three women for training in basic technical skills (soldering, lamp assembly, operation of a battery charging station, quality control, etc.), business and marketing skills. Some of the women were given accounting and book-keeping training. Within a few months, a women's co-operative was operational, offering its own brand of basic fluorescent lamps, the 8V or 12V re-chargeable batteries which power the lamps, solar home systems, electricity through a diesel-generator micro-grid and basic electrical goods.

The first year of operation has seen the women of the co-op sell 770 lamps (with a one-year service warranty) and 235 batteries, establish two battery-charging stations in locations convenient to their customers and establish a sales network among the area's shop-keepers. The women employed by the co-op have experienced a major transformation in their self-esteem and the gender roles in their households, not to mention a US\$2 increase in their average daily incomes. The community has benefited from the simple lamps through an extension of their work hours: for tailoring, retailing and fishing at night. Lamps in households allow school children to study after dark. "Street lighting" is provided at the market place in a unique way: as all the shops are contiguous and each has its own lamps (at times more than one) and, as the quality of the lighting is exceptional, the whole market area is lighted.

The Char Montaz women's energy co-op has demonstrated that rural women of less than high school level education can participate in the provision of modern energy services, with the right investment in their capacities. The co-op has also provided the first test of a model that may be replicated in other parts of the world for refinement and, subsequently, presented for scale-up.

Table 5.1 Peru: Comparison of Approaches to Micro-hydro in Remote Areas		
	Failed Public Sector Approach	Successful Community Approach
Subsidies	100%	For local Gov't: 70%–75% For Privates: 0%
Technical Aspects	High Standards Imported Equipment Limited or no community participation	Appropriate Standards Low cost technology Local manufacturing Community participation
Promotion	No promotion (top down plans)	Promotions critical (requires a lot of effort)
Cost	High investment costs No transaction costs	Low investment costs High transaction costs
Unit Cost	US\$4,000 to 6,000 per kW installed	US\$2,000 to 3,500 per kW installed

with a Dhaka-based development consultancy, Prokaushali Sangsad Limited (PSL), to incorporate issues of energy access, micro-enterprise development, income generation and gender in an innovative model. The objective was to build capacity among the community's women to establish and run their own energy service micro-enterprise and become energy equipment manufacturers, i.e., to become 'energy service providers' on the coastal island of Char Montaz. A second phase of ESMAP financing was approved because the enterprise has not yet reached full financial sustainability and is expanding into solar energy. The enterprise's business plan document will be used for raising the funds.

The dual services of a revolving fund (for delivering financing) and an 'incubator service' (to deliver capacity building) to help develop rural energy enterprises are being combined in two barangays of the Philippines. These sites, selected after market surveys, are: the towns of Rapu Rapu (in barangay Binowawan) and Roxas (in barangay Bagongbayan, Palawan). With ESMAP support, a Village Power Fund has been

established. It is intended to develop (a) financing guidelines, (b) project evaluation criteria, (c) fund design and mechanics, and (d) a pilot revolving fund for community-based energy projects. The "incubator" team first undertook consensus building in the communities about the planning and execution of the pilot projects. Gradually, it has begun training of the community in the basics of project evaluation and development (technical, financial, economic and management skills). Feasibility studies and environmental assessments for the two sites have also been conducted.

A multiplicity of models led by non-public actors in the electricity sector were brought together at the Nicaragua Workshop on Private Sector-led Mechanisms for Rural Energy Service Delivery supported by ESMAP (See Box 5.3).

Three important features emerge across these activities. The first is the importance of robust financial planning at the project preparation stage and of tight financial management during the course of the activity. The financing mechanisms can be considered successful only if the

enterprises and funds they are establishing are financially sustainable.

Another feature is that linking the new electricity supply to productive uses, whether commercial or public, is crucial to the success of these pilots. If attention was not paid to the uses of the electricity supply, the sustainability of the commercial- or community-driven supply would have been compromised.

Lastly, these activities were dependent on the existence of local technical and financial expertise which could be transferred smoothly to the target communities. Local consulting firms and service entities were instrumental in the success of the Peru, Kenya, Bangladesh and Philippines activities. Efforts to expand rural electricity delivery need to leverage the availability of such capacity in developing countries. Beyond the technical know-how transfer, such local consulting firms bring indispensable knowledge of the sociology and/or political reality of rural communities, without which it is not possible to introduce innovation.

Emphasizing the Role of Energy Services in Transforming Rural Areas

ESMAP has been supporting activities that help propagate a new vision for the role of energy in development. The emerging vision is focused on energy's role as an input to development rather than an output in itself. This view has most notably been articulated as 'Energy for Rural Transformation' by the Africa Rural and Renewable Energy Initiative (AFRREI) managed by the World Bank with trust fund support from Denmark and Norway. For electricity services, this involves a shift in focus away from the kilowatts, poles and wires which used to be considered the end products of electricity supply in rural areas. Electricity is an input to rural clinics for providing safe child deliveries or other medical interventions, to the pumping of clean water, to the motorization of small and medium enterprises, and lighting to households for night-time

study and commercial activity, etc. As this view of energy becomes the norm, the provision of energy services will increasingly be considered part of the overall development package, integrated into sectoral activities in areas such as agriculture, education, health, telecommunications, water supply, small- and medium-size enterprise development, etc. In this sense, it is becoming more and more accepted that the provision of modern energy services is key to achieve the Millennium Development Goals.

The Village Power 2000 conference (see Box 5.2) was perhaps the most high profile development event to have focused on emphasizing this vision of the role of energy services in development. Following the conference, ESMAP and Winrock International have spearheaded the development of a Global Village Energy Partnership (an expanded version of the Village Power Partnership) which focused on developing tools and services to help achieve the Millennium Development Goals.

ESMAP's support to key national workshops in South Africa (the People's Power Workshop, September of 2000) and in Nigeria (Energizing Rural Transformation Workshop, March of 2001) has helped stress the view of modern energy as an enabling and transforming input rather than an end in itself. Both workshops were conducted by AFRREI staff and led to quick follow-ups involving policy advice by the World Bank Group to the governments of South Africa and Nigeria.

Quantifying the Benefits of Rural Electrification

ESMAP has also supported the development of analytical methods that help establish the value of rural electrification for development.

Traditionally, the benefits of rural electrification have been quantified in terms of how far the demand for electricity (measured in lumens) is satisfied and how far costs are saved by using electricity productively.

The focus of the Village Power 2000 conference was on exploring ways to advance rural transformation by improving access to sustainable modern energy services for: income generation, community needs in health and education, and home use. The conference and workshops took place December 4-7, 2000 at The World Bank Group headquarters in Washington, D.C., U.S.A. It was attended by 600 participants from 52 countries representing international financing institutions, intergovernmental organizations, governments, non-governmental organizations, and business and industry.

During Village Power 2000, participants met in plenary and break-out sessions to hear presentations and discuss issues including: a new vision for rural transformation and poverty alleviation, renewable technologies for global markets, the linking of energy and rural development, the scaling-up of rural energy services, traditional fuels and household energy, methods to ensure equitable benefits from rural energy services, and specific issues related to gender and energy.

Village Power 2000 also included specialized workshops that addressed a variety of issues related to renewable energies and sustainable development, including: micro-enterprise and introduction of technology to indigenous peoples, rural telecommunications and digital technologies, village power models and computer-based analysis for rural energy development, long-term world energy scenarios and the role of renewable technology, gender in energy, small wind energy, clean water delivery, and energy and poverty.

James Wolfensohn, President of the World Bank, addressed conference participants and inaugurated a solar village set up in the World Bank atrium in conjunction with the Village Power conference. The conference closed with a call for commitment to scale up the delivery of modern energy services to the rural poor. This was summarized in a Village Power 2000 Communiqué which attracted the support of more than 30 organizations represented at the conference. The Communiqué called for the formation of a “Village Power Partnership” to achieve the following outcomes by the Year 2010 that would contribute to the Millennium Development Goals:

- 30 countries have national-scale renewable energy based rural development programs;
- 300 million people previously un-served have access to modern energy services;
- over 50,000 new community systems have been installed (schools, hospitals, clinics); and
- improvements in productivity, income, environment and quality of life from rural energy services are documented

The event was sponsored by ESMAP, the World Bank’s Rural and Renewable Energy and Rural Development Thematic Groups, Winrock International, the U.S. Agency for International Development, and the National Renewable Energy Laboratory, with Astropower, Bergery Windpower Company, Honeywell and Ormat as corporate partners. Coverage of the conference and workshops can be found at: www.iisd.ca/sd/vp2k/

These measures ignore the intangible benefits of electrification such as the ability to study better, the quality of life improvements that come from entertainment (from video, TV, etc.), and improved health (from heat for cooking, space heating/cooling, etc.).

ESMAP has supported the development of a more thorough methodology for measuring the benefits of rural electrification. The study conducted surveys of 2,000 households in four barangays of the Philippines and attached dollar values to the benefits enjoyed due to the introduction of

Box 5.3 **Nicaragua: Workshop on Private Sector-led Mechanisms for Rural Energy Service Delivery**

The ESMAP workshop on private-led rural electrification for off-grid areas was held in Playa Montelimar, Nicaragua, November 28-29, 2000. It was jointly sponsored by ESMAP, The World Bank, the Comisión Nacional de Energía (CNE) and Winrock International. A total of about 50 participants from Nicaragua and other Central American countries attended the 2-day event, including potential private sector service providers, potential investors, equipment suppliers; key government officials involved in rural development and energy; micro-credit and other rural financing institutions; and NGOs. At the event's conclusion, there was consensus that the workshop was successful in its objective of facilitating information exchange on the relatively new topic of off-grid national electrification programs, the changing roles of government and private sector in the implementation of sustainable rural electrification projects and prospects for renewable energy technologies as environmentally benign least cost solutions for remote off-grid areas.

The workshop featured presentations from international experts & practitioners in private sector led off-grid electrification mechanisms, such as representatives from Soluz (Solar Home System Service provision in Dominican Republic and Honduras), EJSERDA (off-grid concessionaire in Jujuy, Argentina) and ITDG (Peru), amongst others. Also included were presentations by delegates from Costa Rica, Guatemala, Honduras, El Salvador and Panama on the rural electrification programs of their respective countries.

The workshop very effectively complemented the ongoing funded study on market-based options for rural electrification of off-grid areas in Nicaragua being carried out by The World Bank in collaboration with CNE. This study is intended to be a precursor to a potential Bank rural infrastructure operation. Accordingly, preliminary results of the INEC Surveys in the selected pilot cities were presented at the workshop, as well as the outlines of a project concept for private sector-led off-grid electrification in Nicaragua. Options such as potential off-grid projects, as well as the next steps that would need to be taken by all stakeholders were discussed during the workshop. GON representatives highlighted that rural electrification is a high-priority area for the government. A project is being prepared for The World Bank/GEF financing initiative.

Since this workshop, ESMAP has sponsored an activity involving a World Bank team's support to CNE aimed at developing a policy and strategy, for mainstreaming renewable energy with requisite capacity building at CNE.

Contributed by Kilian Reiche

cheaper electricity as well as improved electricity services. The activity concluded that, under the assumptions of the survey, the total net benefit of providing electricity to a typical, un-electrified rural Philippine household would be between US\$81 and US\$150 per month, depending on the household's number of wage earners and whether it runs a home-based business.

ESMAP is supporting the further development of this groundbreaking work to include the impact of electricity on women's time use, their burden of household chores, and other socioeconomic factors. A project to develop a complementary approach to project monitoring and evaluation, with special reference to gender issues, has been commissioned. The methods being used under this project involve both quantitative techniques to assess the benefits of energy projects (paying particular attention to rural electrification), and participatory approaches for project development and monitoring that are integrated into all stages of project development and implementation.

Participatory Processes and Consensus-building

With the increasing decentralization and private participation in the delivery of energy services, many more stakeholders are involved in the expansion of access than before. This requires new ways of strategy-building and decision-making. ESMAP has attempted to enrich the available experience in this area joining forces with The World Bank-managed Asia Alternative Energy (ASTAE) program.

The Object-Oriented Project Planning methodology was chosen for the development of the Vietnam Renewable Energy Action Plan to ensure strong stakeholder participation. This methodology is designed to identify the key barriers to (renewable energy) development by eliciting ideas from stakeholders during brainstorming, create consensus among the stakeholders during workshops, establish problem trees on the basis of the discussions, and maximize the capacities and experience of all stakeholders involved for the

shared goal of renewable energy development. The process identified 21 options for developing renewable energy and selected four preferred options. The process also identified over one hundred barriers to the development of renewable energy resources in Vietnam. This demonstrated that the multiplicity of perspectives among the different stakeholders can lead to the development of a more robust strategy than what would have been possible if only leading national decision-makers, World Bank staff and international consultants were involved. The participatory approach has been highly successful in securing the interest of all stakeholders with enthusiastic support from the government¹¹. It is now being replicated in Cambodia to develop the Cambodia Renewable Energy Action Plan.

DELIVERING ENVIRONMENTALLY SUSTAINABLE ENERGY

The "mainstreaming" of the environment agenda in development assistance for energy was one of the key desired impacts of the World Bank Group's Environmental Strategy for the Energy Sector, published in June of 2000 under the title of *"Fuel for Thought."* The ESMAP Energy and Environment Review (EER) initiative both anticipated the *"Fuel for Thought"* agenda and is currently spearheading its implementation. Energy and environment has been the fastest growing segment of the ESMAP portfolio since 1999, now accounting for over 30 activities and 32% of the active portfolio by value.

Early concerns that the EER initiative would not be client/demand driven and would be implemented through a World Bank-led "push" were, in hindsight, unduly pessimistic. ESMAP's commitments made over the 2000-2001 period showed that there is no shortage of demand for energy-environment work amongst our clients. To a greater extent than assumed, governments are aware of the environmental problems

¹¹ The experience is documented in the Vietnam Renewable Energy Action Plan report published jointly by ASTAE, ESMAP, the Ministry of Industry of the Democratic Republic of Vietnam and EVN, the state power utility.

associated with energy production and use and have a corresponding set of priorities – the chief barrier to action in many cases is lack of human and financial resources. In other words, client governments do not just want to study energy-related environmental problems, they want to move quickly to solve them too. This had led to a change – compared to early expectations – in the character and composition of the EER portfolio. While there is still a need in a number of instances for multi-sectoral comparative assessments to set priorities, the greater demand has arisen for targeted interventions focused on specific and known but heretofore unaddressed problems. On March 14, 2000, ESMAP conducted an in-house consultation with World Bank Group environment professionals about ESMAP's experience with EERs. The issues raised at this event are summarized in Box 5.4.

Tackling Local-to-Global Pollution Problems: Common Themes

ESMAP's energy-environment work has spanned three broad themes: (i) indoor air pollution, (ii) urban and outdoor air quality, and (iii) greenhouse gas emissions and climate change. Perhaps not surprisingly, the majority of EERs emphasize local issues with direct environmental health and poverty impacts. But the underlying analytical challenges are similar across the range of activities and comprise:

- Assessing in a credible and quantifiable way the relative importance, in terms of environmental health and poverty impacts, of various pollution exposure patterns.
- Tracing and apportioning among various sources the cause of the pollution problem: For indoor air the chief problem is normally smoke from cooking with low quality biomass but health damages are increasingly associated with sources like kerosene lamp fumes; evaluating urban air quality involves tracking a host of emissions to their source, including road dust and vehicle tailpipe emissions, industrial boilers and processes, and pollutants associated with the coal-power chain.
- Making the poor – those who suffer most from emissions exposure – become aware of the causal relationships between pollution and their bad health. This is key to implementing solutions at the end-user level – be they improved cookstoves (as in Nicaragua) or quality 2-stroke engine lubricants (as in Bangladesh).
- Designing robust and often cross-sectoral based intervention strategies that maximize cost-effectiveness and target the welfare of the poor.
- Evaluating the synergies and trade-offs between local and poverty-targeted pollution control measures on one hand, and strategies that are aimed at reducing the global carbon emissions intensity of energy use on the other.

Indoor Air Pollution

Figure 5.1 illustrates that the relative health threat due to various forms of air pollution (from Lvovsky, based on WHO and World Bank estimates) vary widely across ESMAP client countries. Expressed using Disability Adjusted Life-Years as a measure, the disease burden in Sub-Saharan Africa is high and principally attributable to environmental risks from traditional fuels use. While these traditional hazards are not as well catalogued in Africa as in other regions such as South Asia, a forthcoming ESMAP assessment suggests that indoor air pollution in Africa ranks with water- and vector-borne diseases as a public health threat – perhaps surprising in view of the common notion of Africans cooking in wide open spaces, but this simple view ignores the high smoke exposure rates of (principally) women tending inefficient open flames.

A similar heavy weighting on traditional environmental health risks prevails in India and much of the Asia-Pacific region. Cooking smoke exposure patterns are driven by the characteristics of the traditional housing stock and cooking appliances, and population pressures on limited biomass resources that have precipitated a movement down the household fuels ladder toward straw, dung and other forms

of low-quality biomass fuel. In this admittedly uncertain analysis, only when one gets to China does the impact of modern fuels – coal is the main culprit – begin to exceed the hazards emanating from the traditional sector. By contrast, in Latin America modern pollution phenomena primarily associated with road transport and urban development dominate. However, there are pockets of exceptions including in parts of Central America and the Andean countries where there remains a high dependence on woodfuels in poor households.

The ESMAP India: Household Energy, Air Pollution And Health project (see Box 5.5) is representative of a new generation of ESMAP activities designed to tackle the indoor air pollution (IAP) problem. Now in its second year of implementation, the project uses household survey and rapid appraisal techniques to develop a picture for energy and health policy-makers of the significance of the IAP problem. A second component of the activity has been a re-evaluation of the

federal government's improved stoves program, in this case focused on the effectiveness of various stove designs in improving indoor air quality and not just for their wood conserving attributes. Another component evaluated the operation of an innovative targeted-subsidy scheme to promote the use of clean burning LPG by low income households. This work has served as an entrée for a follow-on ESMAP project in India now well underway, the Access of the Poor to Cleaner Household Fuels project. The ESMAP study has broadened the dialogue with Indian energy and hydrocarbons sector authorities on a whole range of fuels pricing and inter-fuel substitution issues, including the national voucher subsidy schemes on kerosene and leakage effects into upper-income households, and diesel fuel adulteration with subsidized kerosene.

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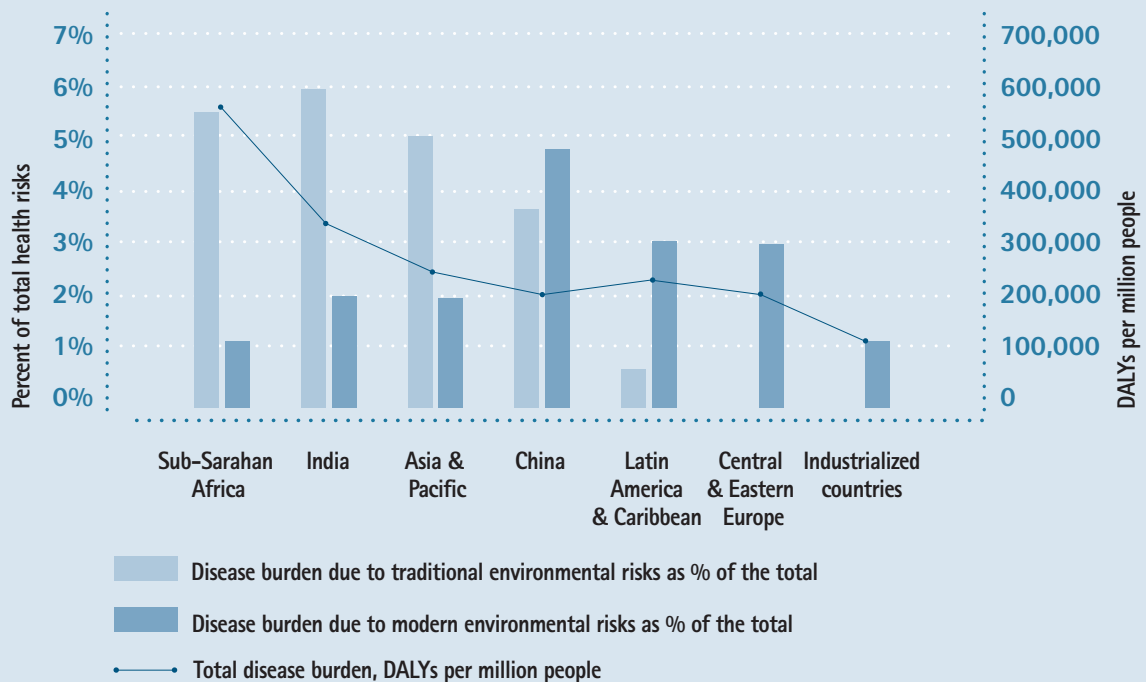
Woman making lamps in Bangladesh.

tics of the traditional housing stock and cooking appliances, and population pressures on limited biomass resources that have precipitated a movement down the household fuels ladder toward straw, dung and other forms of low-quality biomass fuel. In this admittedly uncertain analysis, only when one gets to China does the impact of modern fuels – coal is the main culprit – begin to exceed the hazards emanating from the traditional sector. By contrast, in Latin America modern pollution phenomena primarily associ-

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Figure 5.1 Global Pattern Of The Disease Burden Due To Air Pollution



Traditional charcoal burning.

Energy Environment Reviews (EERs) were conceived to specifically address the environmental impacts associated with energy production and consumption and occurring at the local, regional and global levels. Through the upstream analytical focus, EER work aims to:

- ensure that fuel and technology choices are considered before they are “frozen” in the context of specific project designs;
- maximize cost-effectiveness by examining pollution prevention/reduction options across the fuel supply and consumption chain, complementary to mitigation and end-of-pipe solutions;
- expand local participation and capacity building among analysts and decision-makers;
- stimulate the enactment and enforcement of effective environmental regulations; and
- catalyze investment in both cleaner means of energy production and environmental mitigation.

The objective of a stock-taking workshop held on March 14, 2000, was to assess the work performed by ESMAP and partners since the EER concept was designed in 1998 and to give recommendations on what should be done in the future.

EER Status

A snapshot of the ESMAP portfolio revealed that energy-environment work constitutes a significant and growing fraction of analytical assistance to clients – about 30% of ESMAP’s activities now have a primary energy-environment focus. However, not all of this work was conceived or packaged as fitting the original EER concept of a large-scale and comprehensive environmental review. EERs can thus be broken down into three categories:

- “Full-scale” EERs
- Rapid Energy/Environment Assessments
- Targeted Intervention EERs

Presentations of on-going and completed work first covered the genesis, the key questions to be addressed and the methodologies. The material and discussions also turned to the institutional arrangements, on the involvement of key stakeholders, on the results obtained, and finally on the dissemination plans.

Future Directions

Two main characteristics of EERs have proved efficient and thus should remain in the future as part of the EER strategy: First, stemming from the broad scope of options analyzed in each country, it seems that the choice of not following the “one size fits all” approach was the right one. Second, it also seems that EERs should stay on course as a vehicle for upstream work and avoid slipping too far downstream.

However, many questions were raised at the workshop. Among them the issue of how to assess demand: ESMAP must be responsive to the clients’ specific demands for assistance, rather than try to fit EERs into a Bank framework (such as the Poverty Reduction Strategy Paper process). Only in that way will the country be able to maximize benefits from EER work. It was felt that aligning EER work with client-expressed priorities would in fact help in better targeting EERs towards poverty alleviation, one of the Bank’s key challenges.

In addition, there has been an obvious move away from central planning towards scenario analysis. This move is closely linked to the emphasis laid on the privatization process. So one question which is raised is: How to direct environmentally-friendly investment in a privatizing energy sector?

While EERs enable the discussion of environmental options analysis to commence in a country, the expectation is that investment will be taken by the private sector within a market framework. It is therefore incumbent to assess the responsibilities of environmental regulatory agencies. It must also be borne in mind that planning is still needed (of course, the degree of planning and intervention depends on the country): EERs should perhaps work at rehabilitating the environmental planning dimension in a reforming world. These factors could also be an answer to the question “Why do EERs?” even when there is no specific energy investment project planned in the country.

Contributed by Helene Stephan

Box 5.5 India: Household Energy, Air Pollution and Health

Recent studies have shown an extraordinarily heavy burden on public health—especially of children and women—of indoor air pollution (IAP) due to the use of traditional (biomass) cooking fuels. ESMAP's India: Household Energy, Air Pollution and Health activity that aims at identifying policies and interventions to alleviate the problem.

What is the program expected to achieve?

- Facilitate political commitment to mitigating environmental health damages from household energy use and assist in the formulation and implementation of action programs in India at the local, state and national levels.
- Enhance knowledge and create greater awareness amongst government officials, non-government organisations including those working with grassroots groups, scientists and professionals of the magnitude of the health damages from indoor air pollution and mitigation options.
- Contribute to developing practical tools for measuring and predicting the levels of exposure and health impacts from household energy use that can be applied in program/policy analyses.

Why is this program being carried out?

Biomass fuels such as wood, crop residues and animal dung account for half of India's total energy supply, including more than 80 per cent of household energy. Women exposed to biomass smoke during cooking inhale large quantities of harmful pollutants and suffer from alarming health problems. In fact, the health burden arising from the use of traditional household energy in India is among the largest in the world, accounting for an estimated 500,000 premature deaths in women and children. Developing and implementing national and state policies to address this problem requires an assessment of a variety of intervention measures across several sectors as well as efforts to sensitise the governmental and non-governmental sectors to take up appropriate action programs.

Program components *The program consists of four components:*

Exposure assessment and modelling

Data on actual exposure levels to indoor air pollution in rural households are very limited and costly to obtain. Developing low-cost tools to estimate exposure levels (and the associated health effects) could help in designing effective action programs. Household surveys to collect key socio-economic data as well as fuel use patterns, and monitoring of ambient concentrations of air pollution in the same households, have been carried out in Andhra Pradesh. An attempt has been made to develop a model to predict exposure to indoor air pollution using the survey's information.

Examination of improved stove programs

The vast majority of rural households in India rely on traditional biomass as a primary cooking fuel and will continue to do so for a long time. The Government of India's National Program of Improved Cookstoves introduced some 33 million biomass-based improved stoves into rural areas during 1984–2000. This component has examined best performing stove programs in six selected states with a view to drawing lessons and recommendations for designing future programs at the national or state level.

Evaluation of the Deepam scheme

In July 1999, the State of Andhra Pradesh launched an innovative targeted subsidy scheme to promote the uptake of LPG by low income households. Under the Deepam scheme, the connection fees for LPG are waived for participants of women self-help groups who belong to households classified to be below the poverty line. The program has focused especially on the rural poor. A detailed evaluation of the Deepam scheme was carried out involving focus group discussions and individual interviews.

Public awareness raising and dissemination activities

The program co-sponsored participation of Indian experts in the two international conferences: International Conference on Environment, Occupational and Respiratory Diseases held in Lucknow in October of 2000; and the International Conference on Biomass-based Fuels and Cooking Systems held in Pune in November of 2000. A series of newsletters highlighting various dimensions of indoor air pollution and mitigating strategies have been issued and circulated to researchers, academics, non-governmental organisations, grassroots groups and government officials in India and worldwide. A number of working group meetings and workshops have also been held to review and discuss study progress, findings and recommendations. As part of the program, a distance learning training course on indoor air pollution for policy makers and government administrators is being developed in collaboration with the World Bank Institute.

Contributed by Kseniya Lvovsky



Traditional indoor wood cooking, India.

of implementation, the project uses household survey and rapid appraisal techniques to develop a picture for energy and health policy-makers of the significance of the IAP problem. A second component of the activity has been a re-evaluation of the federal government's improved stoves program, in this case focused on the effectiveness of various stove designs in improving indoor air quality and not just for their wood conserving attributes. Another component evaluated the operation of an innovative targeted-subsidy scheme to promote the use of clean burning LPG by low income households. This work has served as an entrée for a follow-on ESMAP project in India now well underway, the Access of the Poor to Cleaner Household Fuels project. The ESMAP study has broadened the dialogue with Indian energy and hydrocarbons sector authorities on a whole range of fuels pricing and inter-fuel substitution issues, including the national voucher subsidy schemes on kerosene and leakage effects into upper-income households, and diesel fuel adulteration with subsidized kerosene.

Urban Air Pollution

A key message often lost in the process of attacking urban air quality problems is that gross fuel consumption or even volumes of emissions are not the indicators of primary importance in judging pollution severity; rather it is exposure and resulting health impacts that matter. The most critical pollutant in most of Asia in terms of public health impacts is fine particulate matter. Fine particles have been shown in studies in a number of cities around the world to have serious health effects, including premature mortality and such nonfatal effects as respiratory symptoms, exacerbation of asthma, and changes in lung function.

Recent examples of ESMAP work to improve outdoor air quality in Asian cities have focused on two-stroke engine vehicle fleets. While accounting for only a fraction of total transport fuel consumption, the two- and three-wheelers are ubiquitous and account for 50 to 60 percent of the total vehicle population. Emissions of fine

particulates from these vehicles is particularly harmful because they occur near ground level, close to where poor urban dwellers live and work. Among the poorest and most impacted by this pollution are the vehicle operators themselves. Surveys conducted in the course of the Bangladesh activity (see below) revealed that a large proportion of the vehicle drivers had never received formal medical attention, and were not aware that their poor health was linked to vehicle emissions. Yet the emissions performance of their vehicles is critically influenced by maintenance practices and decisions that the operators and their mechanics take on a daily basis, often on the basis of incorrect beliefs about trade-offs between vehicle efficiency and air emissions.

The *ESMAP Thailand: Motorcycle Fleet Upgrade to Reduce Air Pollution in Bangkok* project aims at reducing local air pollution from motorcycles in the Bangkok Metropolitan Area -- two-stroke engines have been found to contribute up to 40 percent of the urban population's exposure to damaging fine particulates. The activity focuses on upgrading/replacing the most polluting motorcycles in use, through a "rebate voucher"/ repair program. A clinic held in October of 2000, attracted some 300 motorcycle owners interested in the prospect of obtaining tune up and maintenance advice. Parallel work on analysis



Motorcycle being tested at Bangkok clinic.

of air quality is providing policy recommendations to the government on engine and lube oil standards, vehicle taxation and fuels pricing. An US\$8 million World Bank loan project has been prepared as a means to scale-up the techniques demonstrated through the ESMAP activity.

The *ESMAP Bangladesh: Reducing Emissions from Three Wheeler Two-Stroke Engine Taxis* project has identified over-application of low-grade and adulterated two-stroke lubricating oils as a major cause of high tailpipe emissions, and has led to quick action (See Box 5.6). Bangladesh has recently banned the sale of straight mineral oil for use in two-stroke engines, as well as inferior lubricants for gasoline and diesel vehicles that have long been banned in the West. This is a major legal breakthrough, and happened at lightning speed. A number of factors contributed to this turn of events, most recently the ESMAP-funded mechanics training/ auto-clinic/ lubricant-gasoline quality seminar, one of the most important recommendations of which was to ban straight mineral oil.



Reducing emissions from baby-taxis in Dhaka.

Box 5.6**Pollution prevention training clinics for Dhaka's baby taxi mechanics**

As part of a broader effort to reduce pollution in the Bangladeshi capital, about 400 baby taxi mechanics have been trained under the ESMAP Reducing Emissions from Three Wheeler Two-Stroke Engine Taxis project. The half-day training clinics included: engine maintenance, repair, and how to advise drivers on proper quality and quantity of lubricant oils to dramatically reduce emissions. The clinic is being conducted by the Society for Urban Environmental Protection, an environmental NGO, and Uttara Motors.

There are an estimated 50,000 auto rickshaws in Dhaka, most of them using two-stroke engines. While these vehicles contribute to approximately 35 percent of particles and nearly half of hydrocarbons emitted by all vehicles, it is not feasible to ban two-stroke engine baby taxis overnight.

The training of mechanics seeks to help reduce emissions from baby taxis sustainably and the burden of air pollution on the poor, who are most exposed to it. Those who suffer the most are baby taxi drivers, who spend 10-15 hours a day on the streets in open vehicles, and are literally using their lungs to clean the air. The importance of having well-trained and informed baby taxi mechanics cannot be over-emphasized. The mechanics are the “gurus” to whom baby taxi drivers turn for advice on how to operate and maintain their vehicles. The mechanics are therefore in an excellent position to convince baby taxi drivers to follow good maintenance and lube oil practice, and point out that they can be part of the solution instead of contributing to the problem.

The economic cost of health damage caused by emissions from baby taxis has been calculated to roughly Tk 60 crores (about US\$12 million) a year. Good inspection and maintenance practice can help address the problem by reducing emissions by up to 35 percent. Another mitigation measure which need not cost any more to drivers is the use of the correct amount of lubricant designed for two-stroke engines. Currently baby taxis typically use as much as 10 percent four-stroke engine oil with their petrol. By using only 3 percent of quality two-stroke engine oil, they could even save money and at the same time reduce emissions significantly.

Contributed by Jitu Shah and Masami Kojima

Greenhouse Gas Emissions and Global Climate Change

While the majority of EER work to date has been motivated by local environmental concerns, the global environmental concern of greenhouse gas emissions and climate change is also well represented in the portfolio. Significantly, a good number of activities simultaneously address local, regional and global effects. In retrospect, the highly visible and at times acrimonious “local vs. global” debate has been shown to have overstated the conflicts in practice. The ESMAP *Turkey: Key Aspects of Energy-Environment/GHG Strategy* activity, for example, was largely motivated by a desire among decision-makers to compare different options to mitigate GHG emissions, and to examine the nature of commitments which Turkey might agree to take on in the context of accession to the UNFCCC and the Kyoto Protocol. However, the modeling undertaken in the completed second phase has also provided specific

guidance on least-cost sulfur and particulate emissions control strategies for the power sector. Equally, the embedded hydropower expansion analyses have provided a forum for public debate on project siting and social impact mitigation measures. The third phase, presently on-going, examines the specific investment potential in seven environmentally beneficial energy sub-sectors, including demand-side management energy efficiency and renewable energy. The latter pre-investment study is expected to lead to a Bank-financed wind, mini-hydro and biomass energy project, the first of its kind in Turkey.

The ESMAP Central Asia Clean Transportation Fuel Program for Air Quality Improvement activity approached energy-transport-environment interactions from the local side, but the outcomes will have important long-term impacts for climate change. The regional study examined the inter-linkages between vehicles, fuel quality and air quality in the eight countries of Central Asia

and the Caucasus. The ESMAP co-financed effort undertook detailed analyses of air quality, the current air quality monitoring system, characteristics of the vehicle fleet, projections of transport fuel consumption, and the downstream petroleum sector. The study makes recommendations for improving air quality and vehicular emission monitoring systems, and for adopting improved fuel quality regulations and control in the coming decade, with a particular emphasis on rapid phase out of lead in gasoline and the possibility of harmonizing fuel quality requirements in the Region. The fuel quality upgrade measures will have a direct impact on the speed of introduction of modern high-compression vehicles in the region, and hence will strongly affect future auto engine efficiency and CO₂ emissions. The early results from the initiative were featured at the IMF/The World Bank Group Annual Meetings in Prague in September of 2000.

Dialogue on energy-environment issues has led to a re-building of links to basic and large-scale policy issues, such as sector reform. The ESMAP

Mexico: Environmental Strategy for the Energy Sector project has aimed at assisting in the development of a bottom-up energy supply and demand forecast model and in the identification of the links to a CGE macro model. Using the bottom-up model, the ESMAP team has worked with the Ministry of Energy to follow through on their interest in the identification of pricing policy options in order to eliminate subsidies in the power sector, *inter alia* to evaluate impacts on GHG emissions. Using the CGE model, the Environment Ministry has concentrated on vehicle emissions standards and the improvement of vehicle emissions performance. The EER has served as a means to improve communication between Mexico's energy and environment ministerial authorities. And, significantly, it has served to open the Bank's previously very limited dialogue on some key energy sector issues.

In retrospect, the 2000-2001 period was a time of growth and maturation for ESMAP's energy and environment portfolio. With the emphasis placed by ESMAP on energy and environment

Cairo's mix of air pollution and morning haze is a sight often repeated in many developing country cities.



sector work, it may be argued that environment has crossed the threshold from being viewed simply as an additional safeguard policy “constraint” on The World Bank Group’s energy work to a new business development opportunity. The realization that the ability to provide solutions at the energy-environment interface is a source of comparative advantage in development assistance is fully reflected in The World Bank Group’s Energy Business Renewal Strategy, and energy-environment is an anticipated growth area for the Group’s energy practice.

Last this assessment become too optimistic, it is worthwhile recalling that real progress in energy and environment will only be measured by the policy changes enacted and the investments catalyzed, and their effect on the quality of natural systems and the social milieu – air, land, water and the human environment. The lag time for these downstream effects to begin to take hold may be significant, perhaps 3 to 5 years. And a related challenge is to get conventional energy financing sources to take on an increasing share of the support for EER-type work. But, if past trends regarding ESMAP’s long-run influence repeat, the forecast is for a decided up-turn in the energy-environment portfolios of our clients and partners.

DEVELOPING SUSTAINABLE ENERGY MARKETS

During the 2000-2001 period, ESMAP gradually moved beyond the tools and mechanisms for the sector reform process and started supporting the sustainability of reform. It began to leverage its participation in processes of market-oriented reform to put the social impacts of reform on the agenda. It has also supported the crucial consensus-building work that needs to take place for sustainable market development. With these new facets in its market development work, ESMAP also continued to support innovation and intellectual leadership in market design, particularly in wholesale markets. This section discusses the contours of this work and then presents a model

for ESMAP’s sustained engagement with receptive client countries for maximizing follow-up activity and impact of ESMAP work.

Mitigating the Social Impacts of Reform

In the 1990’s, ESMAP underwrote a great deal of the build-up of knowledge capital on the sector reform agenda. As this body of knowledge has gradually been mainstreamed into the energy and development community, ESMAP has chosen to push the envelope in the new directions outlined in the ESMAP Business Plan 2002-2004: particularly the impacts of reform on the poor, and the mechanisms for mitigating adverse social and environmental impacts. The key questions include: how will then restructuring process affect those who currently enjoy service but will lose service due to constrained access and/or affordability during restructuring and beyond? Does the reform process include the right social and environmental safeguards? Will the policy-makers and implementers in the reforming sector have the capacity to deliver on poverty-related objectives?

Leveraging Support for Social Impact of Reform: Azerbaijan

The World Bank has been supporting Azerbaijan’s ongoing reform of the electricity sector. ESMAP was approached for support in developing a natural gas sector reform strategy which complements the electricity sector’s reform. ESMAP leveraged this opportunity for participation in the Azeri gas sector to introduce the following components to the activity:

- assessment of social and poverty impacts of gas tariff reform;
- identification and planning of alternative fuel strategies for the rural poor, to whom it is no longer economic to supply natural gas (as was provided in Soviet times), and who will need to switch to such fuels as LPG, kerosene, electricity and renewables, or back to woodfuels;
- identification of solutions to the problem of supplying gas to refugees (currently 12%

of the population—1 million people—are Internally Displaced Persons); and

- assessment of environmental impacts of increased natural gas use, and identification of priority areas for conversion (e.g. fuel oil in power, biomass in residential heating).

Vietnam

A similar leveraging process took place at the advent of ESMAP's *Vietnam Policy Dialogue and New Mining Code activity*. ESMAP agreed to finance a request for assistance initiated by the Government of Vietnam. A new mining law was to be prepared with a view to supporting the sustainable development of the mining industry. The key objectives were: greater private investment, promotion of environmentally sound minerals production (to arrest mining-related environmental degradation), and mitigation of the damage caused by the use of rudimentary and inadequate

technology by state-owned mining enterprises. Through intensive consultation with the project team, ESMAP was able to leverage its support for these objectives to include environmental regulations for mining, including provisions for mine closure, community consultation and mitigation systems for the social impacts of mining.

Building Consensus for Market Development: *Consensus for Power Sector Reform in Bangladesh*

Through the 1990s, the Bangladesh electric power sector has faced a number of fundamental technical, institutional and commercial challenges. The performance of the electric power sector constituted a brake on economic development; first, through the extremely high cost to the economy of energy not delivered (due, in particular, to low efficiency); and second, due to the extremely low degree of access to

Box 5.7 Building Consensus Among Stakeholders for Reform

Workshop on Power Sector Reform in Bangladesh

A workshop on Power Sector Reform was held in Dhaka, Bangladesh from September 30 to October 2, 2000. In addition to key sponsorship from ESMAP, the workshop was also supported by Trade New Zealand, USAID and the World Bank Institute. Some 150 participants from Bangladesh attended the workshop representing the Government, the power industry, energy companies, academia, consumer organizations, as well as the media. Distinguished civil servants chaired the various sessions. In addition to a representative from the International Labour Organization (ILO), experts from Bangladesh, Australia, Canada, Chile, India, Malaysia, New Zealand and the United States presented views on the sequencing and timing of reform, perspectives of stakeholders (particularly service providers) on reform as well as the international experience in market design, privatization, and competition in the power sector.

Panel discussions gave stakeholders the opportunity to raise their concerns about reform. A full day was devoted to the financial, institutional and technical challenges confronting the power sector in Bangladesh where various stakeholders shared their views on the issues. During the second day, following a general presentation on the power reform process, the experience of various countries was discussed in terms of restructuring, unbundling and privatization together with their impact particularly on labor, service quality and tariffs. A special session was devoted to the various forms of regulation, and what Bangladesh's options are in this respect. Labor issues in the reform process—a real concern in Bangladesh—were discussed on the third day by representatives of labor organizations from Bangladesh and abroad including the ILO.

The stakeholder consensus resulting from the workshop was manifested in a recommendation adopted at the workshop's conclusion calling, *inter alia*, for the institution of a competitive generation market, together with regulated transmission and distribution activities within a twelve-year period. The workshop was well covered by the written and electronic media, and made a genuine contribution to furthering power sector reform in Bangladesh as recognized by the participants who, in the final session, invited the decision makers to act.

Contributed by Marc Heitner

supply by the vast majority of the population. The World Bank supported the development of a private power policy, a partial-risk guarantee for an IPP, and has worked closely with the Asian Development Bank and other donors on sector restructuring. While the government had made progress on IPPs, consensus had yet to be developed on the scope of power sector reforms. In this context, the government requested ESMAP assistance to organize a technical workshop on power sector reform for high level government officials as well as stakeholders from the labor unions, academia, and consumer groups. Box 5.7 summarizes the workshop's contribution to bringing international expertise and best practices to Bangladesh for stakeholder consensus-building for Bangladesh's power sector reform process. Following the workshop, the Government of Bangladesh approached the World Bank for a technical assistance project for power sector reform. The processing of this TA slowed down during the election period of Fall 2001 but has resumed with a renewed Bangladeshi expression of interest.

Developing Consensus for Regional Power Markets

The regional integration of power markets can potentially provide significant operational and investment savings, improved quality of service, and reduction in local and global environmental impacts. In South America alone, the reduction of operating cost resulting from an integrated operation could be about US\$1,080 million per year for the period 2001-2015.

However, interconnection does not come easily, as it requires harmonization of contractual, commercial and regulatory regimes. The barriers to power market integration have to do with policies (such as national self-sufficiency policies, inadequate treatment of international trade in local legislation), technical issues (lack of regional transmission planning, lack of protocols), institutional issues (national utilities not keen to trade) and commercial/financial issues (inadequate

tariff schedules, uncertainties on taxes royalties, accounting costing, and risk assessment).

Therefore, despite the significant mutual long-run benefits, a "market failure" prevails in the development of regional power markets because the costs for each individual party to take the lead in developing a regional market on everyone's behalf are too high. Since ESMAP is particularly well-positioned to address such inter-country "market failure" due to its global mandate, it has taken the initiative in facilitating inter-country stakeholder consensus-building through discussions and knowledge generation in four parts of the world. In cooperation with other development partners, (USDOE, USAID, UNDP, ADB, CIER, etc.) regional banks and economic integration organizations, ESMAP has been supporting regional integration activities in South America, the Mekong Delta, the Nile Basin and West Africa. Three of these are presented here.

The South America – Regional Electricity Markets Interconnection activity has been a collaboration between ESMAP, USAID and CIER (Regional Electric Integration Commission) and has conducted a two-phase study covering ten countries: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela. The first phase has analyzed and shared the current restrictions to the development of interconnections and international power trade amongst the countries of the region. The second phase has developed options for removing such restrictions and recommended to the stakeholders an action plan towards the establishment of a competitive regional power market. A third phase is being commenced to (i) review the regulatory and commercial regimes in each Mercosur and Andean country, (ii) draft legal documents for harmonized legal, regulatory and commercial regimes, and (iii) develop a draft agreement, MOU and terms of reference for the design of a regional market.

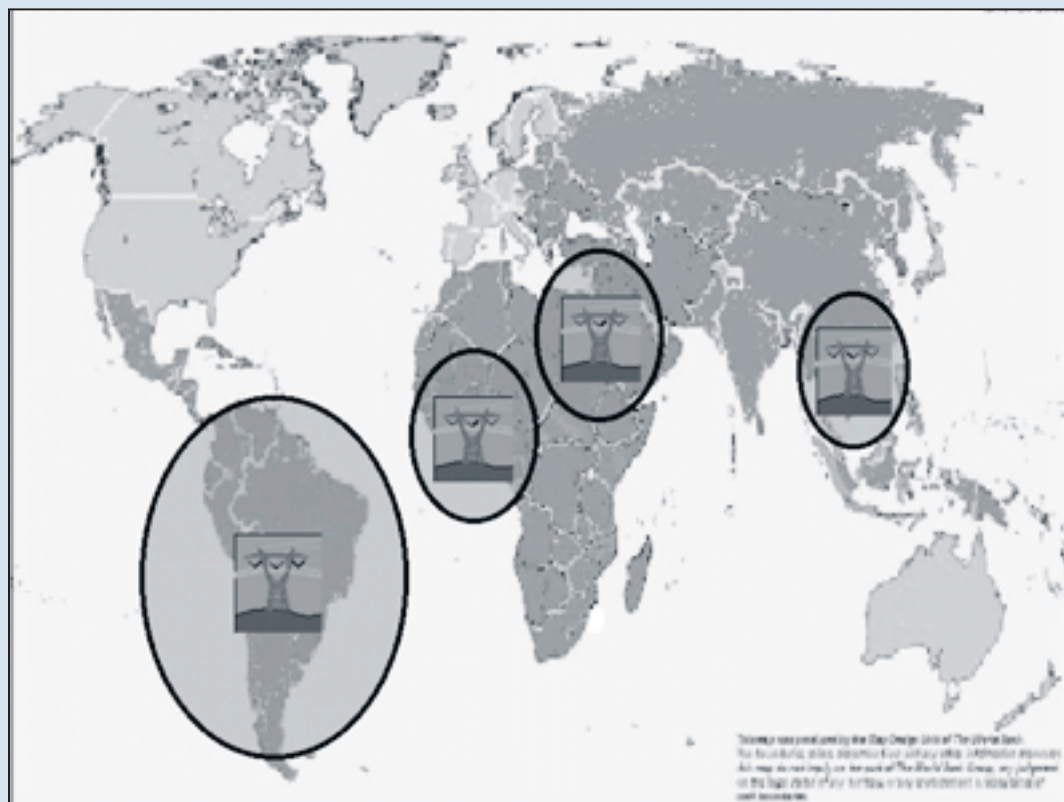
The *Greater Mekong Sub-Region (GMS)* includes Cambodia, the Lao PDR, Myanmar, Thailand,

Vietnam, and the Yunnan province in China. Some preliminary estimates indicate that optimization at a regional level would result in reduction of costs of about US\$10 billion for the period 2000-2002. In collaboration with the Asian Development Bank, the ESMAP *Development of a Regional Electricity Market in the Greater Mekong Sub-Region* project has shared knowledge and experience related to international trade with the country representatives and started a process to eliminate the barriers. Workshops have been conducted to build consensus towards power trade, present the regulatory, commercial, and technical issues to decision-makers from the participating countries. During the fall of 2001, an Inter-Governmental Agreement was developed for signature by the ministers of the participating countries.

The ESMAP Nile Basin Power Trade activity was conceived as a part of a larger development effort, the Nile Basin Initiative, and is being carried out with the participation of ten riparian countries (Burundi, D. R. Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and

Uganda). The first phase of the activity generated knowledge that demonstrated how, under current conditions, the best opportunities for power trade primarily exist at the sub-basin level, particularly in the Nile Equatorial Lake region and the Eastern Nile. This knowledge was leveraged to bring the stakeholders to the discussion table. The second phase of the activity is aimed at establishing a Regional Power Forum and to create an enabling environment for power trade and identify specific investments that can be realized at sub-regional levels. This knowledge, generated with a high proportion of ESMAP support, has already become the basis for some significant fund-raising by the Nile Basin countries under the broader Nile Basin Initiative.

In June of 2001, the 10 Nile Basin states jointly called a meeting of donors and development agencies in Geneva to launch the International Consortium for Cooperation on the Nile (ICCON) and raise financial support for the Nile Basin Initiative. The donor community pledged US\$140 million in grants to implement a basin-wide program of research, capacity building and



technical assistance, and begin detailed planning of investment programs, the first of which is expected to amount to about US\$3 billion. The donors will work with the Nile states to secure the financing for this and future phases of investment.

In September 2001 and January–February 2002, the Nile Council of Ministers met and agreed on a series of actions that has given impetus to launching the sectoral level activities. At the sectoral level, in the Nile Equatorial Lakes region and Eastern Nile regions, projects to foster the development of regional power trade will be implemented.

Designing Wholesale Power Markets

The design of wholesale power markets was the most visible frontier of power market development through the 2000–2001 period. The power crisis that hit California in the summer of 2000 brought not only wholesale markets but the entire power market deregulation agenda into question. Policy-makers in developing countries began to wonder whether the introduction of private participation in their power sectors was a recipe for greater difficulties than what their power sectors were already in.

The California Power Crisis: Lessons for Developing Countries

To address the question marks emerging from the California experience for developing countries, ESMAP and the World Bank's Energy and Mining Sector Board presented an analysis of the lessons of the California crisis for developing countries in a paper¹² published in April 2001. The paper argued strongly against the impression that power sector reform is too risky for developing countries and identified poor market design—rather than the very proposition of reform—as the Achilles heel of the collapsed California power market. Wholesale markets based on spot pricing are near-term options only for a handful of developing countries. Therefore, the paper lays out competitive market design options

relevant to most developing countries and then analyzes the California market design and the origins of the crisis.

Creative Adaptation of the Single-Buyer Model: China

In addition to the timely publication of the California paper, ESMAP also contributed to the development of an analytical foundation for fostering competitive markets in China. Over the past two decades, China has made impressive progress in reforming and commercializing its power sector. All provincial power companies have been corporatized and are operating as private businesses. Although most investments still require central approval, budget allocations have been phased out and subsidies eliminated. Electricity prices are generally in line with, or higher than, long-run marginal supply costs in most (notably the largest) grids. Private participation in the power sector has been introduced with some 40 projects involving private developers, with an installed capacity of 28 gigawatts (in China's 300-gigawatt system), operating or under construction at the end of 1999.

At that stage of reform, it was becoming clear in the late 1990's that the single-buyer dispatch mechanisms implemented at the provincial level had reached the limits of their usefulness, particularly in the more developed provinces. In essence, the Chinese power sector was entering the final phases of its shift to market principles. The identification of the path to be followed in these final phases required careful analysis of the system as well as the options available. ESMAP's *Designing competitive single-buyer market structures activity* provided support to the Government of China for guiding the power sector through its evolution from discrete provincial systems to a greater integrated market. A three-stage approach was identified for developing competitive inter-provincial pool markets

¹² The California Power Crisis: Lessons for Developing Countries. April 2001. The World Bank Energy and Mining Sector Board and ESMAP [www.worldbank.org/html/fpd/energy/calexp.html]

through the introduction of a mandatory competitive single-buyer market (stage 1), wholesale competition (stage 2), and retail competition making the market fully competitive (stage 3). The activity was focused on developing the conceptual design and analytic framework for different structural variants of the single buyer power market model as building blocks for the stage 1 competitive market.

The proposed three-stage approach (which carefully matches the evolution of the industry structure with that of the market structure) would be of interest to other countries interested in using the single buyer mechanism more creatively as a transition phase. The report introduces in detail issues faced by post-reform power sectors (such as planning, transmission tariffs, stranded costs, the long term take-or-pay contracts of many IPPs). It also describes the changes in the roles of the market participants and how the various functions are performed¹³.

Designing a Wholesale Power Pool for Thailand

In a similar vein, ESMAP supported the generation of knowledge and policy recommendations for the establishment of a wholesale power pool in Thailand. *The Thailand Power Pool Study* built capacity within the National Energy Policy Office (NEPO) to ensure that the design of the power market and industry structure is capable of achieving long-term operational and investment efficiency goals. ESMAP supported the development of a market and industry structure for a wholesale power market in Thailand. With the recommended blueprint for a future overall structure of Thailand's electricity supply industry (including detailed treatment of generation, distribution and supply, energy conservation, efficiency and diversity), a plan for transitioning to the new industry structure has also been recommended. As in the China case, these materials are also useful for decision-makers from other countries interested in identifying industry designs and reform steps suitable for their electricity industries.

Catalyzing Action through Sustained and Targeted Engagement

Changes in policies and drafting of decrees and laws require adequate resources and long term engagement—often not available together. Catalyzing such changes presents an even greater challenge for ESMAP. Given ESMAP's focus on poverty reduction and its three-pronged strategy of helping to reduce energy poverty, to develop energy markets and to ensure environmental responsibility, the effectiveness of ESMAP's policy advice activities often depends on targeted, sustained and coherent engagement of a client country's policy-makers and stakeholders. ESMAP's work in Vietnam is an example of this.

ESMAP's continued technical assistance to Vietnam through a host of activities in the 1990's has helped stabilize Vietnam's ability to attract investment for oil exploration, supported the development of indigenous gas resources for building a modern gas industry, and helped put the electricity sector on a path to becoming an effective and efficient input into Vietnam's growth. This continued and committed support has proved to be a crucial catalyst for policy action and investments in Vietnam's energy sector.

In late 1998, at a time of low petroleum prices, the Government of Vietnam sought ESMAP advice on what changes may be needed in Vietnam's petroleum contracts to maintain competitiveness for attracting petroleum exploration. The ensuing policy advice from ESMAP brought awareness to the Government about the competitiveness of the fiscal terms for petroleum activities and spurred the government to initiate a revision of the Petroleum Law. A decision by the Prime Minister in June, 1999, established a Steering Committee and a Working Group for revising the Petroleum Law. The Government requested assistance from The World Bank/ESMAP

¹³ The policy discussions, technical studies, and market implementation trials that helped shape this advice are summarized in the report titled *Fostering Competition in China's Power Markets* (World Bank Discussion Paper No 416) which has been published as a joint ESMAP, World Bank and State Power Corporation of China report.



Traditional indoor cookstove in Mongolia.

for the revision of the Petroleum Law into a modern legal and regulatory framework for the petroleum sector and for enabling Vietnam to attract foreign investment to develop the hydrocarbon reserves. As detailed in Box 5.8, the Petroleum Law was amended with a number of ESMAP recommendations in mid-2000.

ESMAP's assistance in the gas sector has comprised several elements of support to the PetroVietnam Gas Company (PVGCC) including: (i) advice on the design of fiscal terms for oil and gas exploration and development, (ii) methods for enhanced reservoir management, and (iii) how to introduce gas in a safe and environmentally friendly way. On December 15, 2000, the Government of Vietnam signed ground-breaking contracts with a consortium of BP-Amoco, Statoil and ONGC for the development of the offshore Lan Tay and Lan Do gas fields and a 400 km submarine gas pipeline. At US\$1.8 billion, the project is the largest ever private sector investment in Vietnam's his-

tory, aimed at providing natural gas at the level of about 2.7 bcm/year for the next 20 years. This level of natural gas is sufficient for providing 3,600 MW of combined cycle power plants which represent about 60 percent of total power capacity in the country. ESMAP has played a catalytic role in advising and assisting the government of Vietnam, PetroVietnam and other agencies in resolving the complex issues involved in the development of this project.

ESMAP's contribution to Vietnam's oil and gas sector came at a time when other sources of funding were not available to support the sector's needs, particularly for tailor-made capacity building at PetroVietnam. The rapid response and continuity of engagement brought by ESMAP to this sector paved the way for significant co-operation between the World Bank and PetroVietnam, thus increasing the Bank's ability to give policy advice to the Government. At the time ESMAP support commenced, the World Bank lending to the energy sector in Vietnam was focused on the electricity sector with little leverage in the oil and gas sector.

ESMAP's support in Vietnam has also been critical for the preparation of a new electricity law intended to facilitate key structural, governance and regulatory reforms in the power sector. The principal objective of these reforms is to enhance the efficiency and effectiveness of the power sector to meet the needs of a growing economy and ultimately provide access to the entire population. Through the ESMAP Vietnam: *Power Sector Regulation and Electricity Law* activity, ESMAP and other donors worked with the government for nearly four years to build consensus for the draft law and secondary regulations, and for the implementation of separate arms length regulation for the power sector. Developing the consensus has required considerable effort and the use of innovative techniques that may be followed for other sectors. These included:

- a national steering committee with a clear mandate and a defined timetable for the preparation of legislation,

Box 5.8 Revision of Vietnam's Petroleum Law

Despite Vietnam's large potential for hydrocarbon production, the country has found it increasingly difficult to attract foreign investments in the upstream oil and gas sector after a peak in exploratory drilling in the early 1990s. The main factors contributing to this were understood to be (i) an out-of-date petroleum law, (ii) an inflexible fiscal system that did not adjust to lower international oil prices, (iii) inefficiencies in the bid award process, and (iv) delays in negotiating the first major gas deal.

ESMAP had been involved in financing technical assistance to the Government of Vietnam on the design of fiscal terms for oil and gas exploration and development. In March 1999, the Office of the Prime Minister made an urgent request to the World Bank for assistance in addressing the lack of investment in the petroleum sector. In June, 1999, the Prime Minister of Vietnam established a group, the Petroleum Law Committee, for the revision and supplementation of the existing petroleum law.

An ESMAP-IDA financed activity was developed and approved with the aim of addressing the first three factors identified above. ESMAP brought international expertise to this committee by October 1999 to develop a draft petroleum law and implementation decree, drafts of model contracts in accordance with international best practices, and a proposal for an improved award system for petroleum blocks. By January 2000, the steering committee had prepared a first draft of the revised petroleum law with the task team's assistance and stakeholder participation. In March 2000, the Standing Committee of the National Assembly of Vietnam decided to take up the Revised Petroleum Law for approval in the National Assembly meeting starting in May 2000. On May 17, 2000, the National Assembly passed 17 amendments to the country's petroleum law (including a substantial portion of the recommendations made by the task team) with the aim of attracting more foreign private investment to the sector.

Obtaining effective results for such an expeditious law revision required design and implementation of an activity that was integrated with the sectoral program, prompt response to client needs, and mobilization of quality professional resources.

Contributed by Anil Malhotra

- the use of a stakeholder roundtable, which was considered to be a breakthrough by all participants in clarifying underlying issues, and
- post-workshop meetings with the senior key stakeholders to help design next steps, and to address differing viewpoints, particularly within the government agencies.

out of Vietnam on July 1, 2001), and the ongoing support to the development of Vietnam's mining policy and commercial code make for a very successful ESMAP engagement in Vietnam. This targeted engagement may be seen as a model for high-impact involvement in demonstrably receptive ESMAP client countries.

These innovative techniques and the continued support were effective in bringing the best policy advice to Vietnam's electricity sector and to build consensus around this advice. However, the policy follow through has been less than smooth with the Government finding it politically difficult to implement the necessary rise in tariffs.

In addition to these activities, ESMAP's very successful *Vietnam Renewable Energy Action Plan activity*, the highly effective *Vietnam Lead Phase-out Initiative* (with a significant push from ESMAP intellectual leadership, GOV phased lead



6

IMPACT OF ESMAP ACTIVITIES AND KNOWLEDGE DISSEMINATION

IMPACT OF ESMAP ACTIVITIES AND KNOWLEDGE DISSEMINATION

DEVELOPING A FRAMEWORK FOR ASSESSING ESMAP'S IMPACT

ESMAP is a vehicle for combining new ideas with funding and expertise to generate and disseminate knowledge, develop capacity, provide technical assistance, build consensus, and acquire experience for improving the delivery of energy services to un-served and underserved populations in developing countries (see Figure 6.1).

The upstream nature of ESMAP work (see Figure 6.2) makes measurement of its impact difficult. The immediate products of ESMAP activities—knowledge and capacity, as shown in Figure 6.2—are difficult to quantify for judging ESMAP's success. The ultimate criterion for judging ESMAP's success would be that the proportion of the poor served with modern energy services would be substantially increased, and that, as a result, there would be a substantial improvement in energy-related poverty reduction indicators. Such indicators could include: improved vaccination as a result of cold-chain

vaccine availability; small and medium size enterprise income creation as a result of power or lighting availability; and reduced incidence of pulmonary or bronchial diseases as a result of reduced indoor air-pollution from improved stoves and/or substitution of traditional biomass by LPG. However, selecting these indicators and, more importantly, documenting them through monitoring systems and/or surveys is costly—both in terms of human and financial resources. Therefore, ESMAP management has been looking into documenting the impact of the programme in several ways, e.g., documenting indicative accounts; and assessing selectively the impact of ESMAP projects on policy development in some countries, on leveraging World Bank or other financing, and leveraging private sector investments.

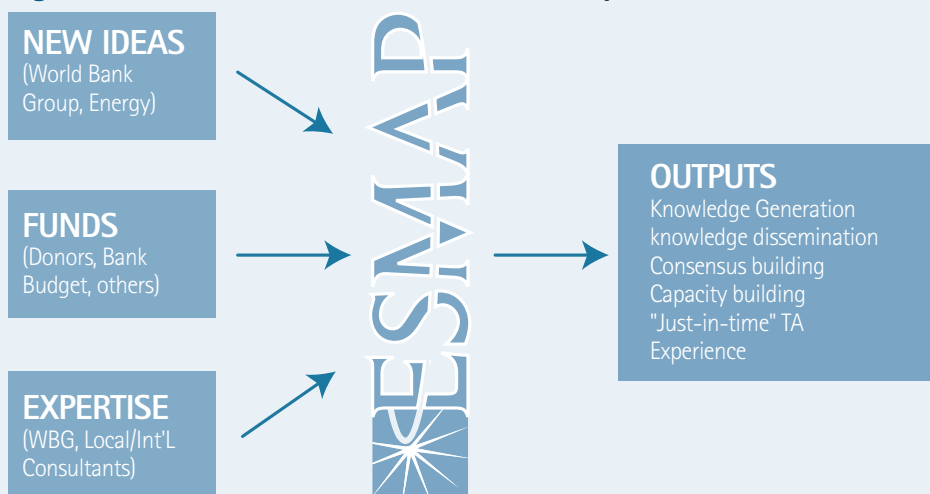
The framework for tracking ESMAP's impact

It is to be noted, however, that given the complex set of factors involved in creating the downstream activities related to ESMAP activities, it is usually difficult to claim that ESMAP

Figure 6.1 ESMAP: From New Ideas to Impacts.



Figure 6.2 ESMAP: From New Ideas to Outputs.



was solely responsible for World Bank Group or partner investment operations, policy changes or public/private sector investments related to its activities. Yet, in some cases, the connections between ESMAP activities and their downstream impacts are more easily discernible.

Documenting Indicative Stories: In 2000–2001, ESMAP attempted to meet the challenge of measuring its impact by collecting information from task managers of past ESMAP activities and energy sector operational managers about downstream activities that followed ESMAP work. The result is a collection of indicative stories that are now being categorized to form the basis of a more structured and systematic method of capturing the impact of ESMAP activities. These categories that have emerged to date and the stories associated with them are being presented in this section: swift, high-impact response to calls for technical assistance, knowledge generation and “venture capital” for promising new energy service delivery concepts, and intellectual leadership in energy and development.

Successful Technical Assistance

Uganda Energy Strategy: In 1999–2000, the Government of Uganda engaged in the preparation of its rural energy strategy. The key documentation available was the ESMAP Rural Electrification Strategy study which developed the rural energy consumption data and recommendations that formed the foundations of the rural energy strategy and the design of the Rural Electrification Fund.

In late 1999, ESMAP also funded a workshop (documented in the ESMAP technical report: Uganda Power Sector Reform and Regulation Strategy) which built the awareness and support among key policy-makers and parliamentarians for the sector reform strategy. The knowledge brought to bear at this workshop also increased the Ministry of Finance’s interest in the valuation of its liabilities, particularly guarantees, under the reform program. The demand-sup-

ply estimates developed under this activity was also used by private consultants (ERM, UK) for the market analysis feeding into the Bujagali hydropower project.

Leveraging Financing from the World Bank Group and Other Sources

Pre-investment Work for Renewables in India: On the request of the Government of India, ESMAP commissioned a strategy paper titled “Opportunities for Commercialization of Nonconventional Energy Systems” in 1988 for integrating renewables into the Indian power sector. As a follow-up to this activity, in 1991 GOI requested feasibility studies to be done for specific sites based on this strategy. In response, ESMAP commissioned two activities with the aim of making a significant number of mini-hydro and wind farm sites ready for investment consideration in collaboration with water and power state ministries in five Indian states. The ESMAP team developed standardized cost estimates for this cohort of sites. It also built capacity among ministry staff for computer-based analysis of cost data as well as water and wind flow data. The strategy paper and the pre-investment studies provided the conceptual basis and operational framework for a joint World Bank/GEF project in late 1992. The “India Renewable Resources Development Project” is implemented by the India Renewable Energy Development Agency (IREDA). Under this project, IREDA has sanctioned solar PV projects with a combined capacity of 4.2 MWp. Of this, nearly 1 MWp has been installed through some 40,000 individual systems. Fourteen wind power projects were financed through this project, with a total capacity of 49.9 MW. The project has directly financed 19 small hydro projects with a total capacity of 43.5 MW. Total World Bank/GEF support for the renewable energy components was US\$141 million.

The fact that knowledge generated by ESMAP was available for free circulation to all parties significantly brought down the barriers for stakeholder involvement in the project. The

private sector took ESMAP's work further and found over 100 possible sites for mini-hydrors, wind farms, and photovoltaics that were considered for investment. In addition, the ESMAP activity had a catalytic effect on the thinking of the energy policymakers of the Indian states, particularly the staff of the State Electricity Boards, which cleared the way for a major project focused on renewables.

Case Studies on Options for Renewables: In 1996, ESMAP funded case studies of options involving renewables for electric power in China. The wind and photovoltaics studies were used as the foundations of the US\$205 million China Renewable Energy Development Project including US\$13 million from the World Bank, US\$27 million from the GEF, and the balance from commercial banks and private investors.

Techniques for financing Photovoltaics: An ESMAP concept paper on techniques for financing photovoltaics (December 1996) elicited a US\$1.5m pledge from the World Bank and the Rockefeller Foundation leading to a pledged investment of US\$30 million for the Solar Development Corporation, which is a non-profit global investment fund run by a management consortium for investing in firms involved in rural PV in developing countries.

Power Sector Reform in Bolivia: In March of 1993, the Bolivian government sought ESMAP assistance in designing reforms for the electricity supply industry. By May of 1993, the ESMAP-funded activity had commenced with the first workshop for key electricity industry players and World Bank experts to review the situation and options for reform. In September of 1993, the draft electricity law developed by ESMAP-funded local and international technical experts was presented to the government and was passed by parliament in December 1994. The objectives of the law were to attract private sector capital and increase efficiency through competition. The Bolivian power sector has since attracted US\$250 million of private investment into generation

and US\$17 million into transmission, and the wholesale price of power dropped from US\$18/MWh in 1994 to US\$14/MWh in 2000.

INTELLECTUAL LEADERSHIP IN ENERGY AND DEVELOPMENT

Energy and Development Report 2001

The Energy and Development Report series, initiated in 1999 as a joint publication of ESMAP and the World Bank, has become a widely read "flagship" product and an effective means for disseminating ESMAP's knowledge and lessons learned. Because ESMAP has taken a leading role in the early implementation of *Fuel for Thought: An Environmental Strategy for the Energy Sector*, the Energy and Development Report 2001 will report on progress in implementing the energy-environment strategy paper's agenda.

Fuel for Thought was presented to the World Bank's Executive Directors on July 20, 1999 following an extensive period of consultation within the Bank Group and with external stakeholders. It examined the size and scope of the challenge facing developing countries – and the world at large – as continuing economic growth, and associated with it, energy consumption, led to increasing environmental impacts. In looking at the Bank's record, *Fuel for Thought* found that more time than initially estimated was needed to achieve results on environmental and social issues; that commitment from borrowers to stay the course to achieve real changes was often missing and that the Bank Group's commitment to energy efficiency and the environment was not what it should or could be.

Fuel for Thought identified six strategic objectives towards which the Bank would work, which were to:

- facilitate more efficient use of traditional fuels and their substitution by modern fuels in rural and peri-urban areas;
- protect human health of urban residents from air pollution due to fuel combustion in residen-

- tial, transport, industrial and power sectors;
- promote environmentally sustainable development of energy resources;
- mitigate the potential impact of energy use on climate change;
- develop capacity for environmental regulation, monitoring and enforcement across all levels of governance; and
- make the Bank more responsive to addressing the adverse environmental impacts of energy sector.

The basis of EDR 2001 will be The World Bank Group's management's report to the Bank's Executive Directors, submitted at the end of September 2001, combined with perspectives from informed outsiders on how they consider the Bank has performed since the publication of *Fuel for Thought*.

KNOWLEDGE DISSEMINATION

Consistent with both the guidance of the ESMAP donor community and the needs of our clients, the period of 2000-2001 saw the continued expansion of ESMAP's commitment to knowledge dissemination. ESMAP's dissemination strategy explicitly acknowledges ESMAP's dual role in both providing timely delivery of knowledge products tailored to a specific client's requirements, and its contribution to the build-up of the stock of global knowledge on energy and development. The strategy also recognizes the need to maximize cost savings and distribution efficiencies by increasing accessibility of electronic distribution channels. Developments have included the preparation of the first ESMAP knowledge product that will be disseminated in CD-ROM database format to complement traditional print means. In addition, ESMAP is preparing a compilation of all electronically available ESMAP reports on a master searchable CD-ROM. The CD will be distributed directly to end-users and intermediary institutions who then become re-printers and distributors of the products at the local level.

ESMAP Dissemination Mission

ESMAP's dissemination activities will identify and evaluate both ESMAP-generated and relevant external knowledge, with the aim of both contributing to the build-up of the global knowledge stock and to the timely delivery of specific knowledge products to those who will directly benefit. ESMAP will promote information/opinion exchange, and will facilitate reaching of consensus for follow-up action.

The World Wide Web offers an important means for ESMAP to disseminate its work and has increasingly proven to be the first point of entry to external first-time audiences. In the period 2000-2001, ESMAP published 33 reports totaling more than 240 reports in English, French, Russian, and Spanish, through three series: the annual Energy Development Report, the formal publications series, and the technical report series. Through this window, ESMAP is able to reach an array of client countries, other development institutions, NGOs, the private sector and communities at large.





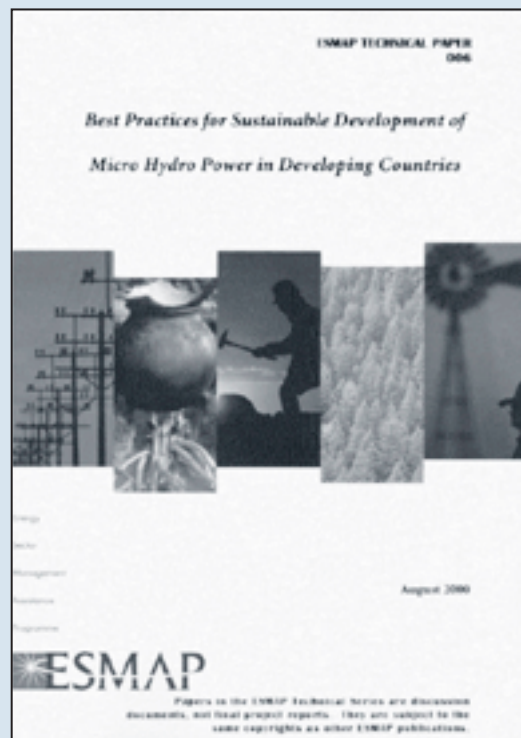
The Energy and Development Report 2000 (EDR): "Energy Services for the World's Poor," followed in the tradition established in the 1999 joint ESMAP/World Bank review of energy after the financial crisis. The EDR 2000 has been well received in the development community, and has served as a catalyst for re-directing energy development assistance towards the alleviation of energy poverty. The report brings together survey papers and case studies that focus on three broad themes: understanding the challenge of expanding access to energy for low-income households and communities; facilitating technological and commercial innovations in serving the poor, through market structure and regulatory reform; and reducing financial, legal, regulatory and tax barriers to better services for low-income households and areas.

ESMAP also intensified its outreach efforts most visibly through co-sponsorship of key conferences for the exchange of international experience and follow-up action planning. These included:

- Energy Efficiency Operational Exchange Workshops (April 2000, Washington, D.C., U.S.A.,

- and in October 2000 in Montevideo, Uruguay)
- World Energy Forum on Regulation (May 21-24, 2000, Montreal, Canada)
- Co-sponsored the Biomass Conference (June, 2000 in Sevilla, Spain)
- Distributed Generation (October 2000, San Diego, California, U.S.A.)
- Co-sponsored the Gender and Energy Workshop (December 2000, Durban, South Africa)
- Village Power 2000 (December 4-7, 2000, Washington, D.C., U.S.A.)
- Accelerating Grid-based Renewable Power Generation Conference (April 2001, Washington D.C., U.S.A.)
- Infrastructure Forum (May 2-11, 2001, Washington, D.C., U.S.A.)
- Africa Policy and Planning Workshop: Women in Energy Development (September 14, 2001, Washington, D.C., U.S.A.)
- Biomass Workshop (November 15-16, 2001, Washington, D.C.)

Expansion of the ESMAP web site, www.esmap.org, has grown apace with the ever-expanding demand for "just-in-time" information. The site now includes regular news features on results from ESMAP project field activities, and contin-



ues to update readers on the important ESMAP events such as the semi-annual ESMAP Call for Proposals and status of proposal evaluation. As of April 2002, formal ESMAP publications, technical papers, Semi-Annual Status Reports of Projects, and ESMAP Annual Reports are now available online in PDF format, and a number of them are also available on CD-ROMs. Links are now posted for easy access to the relevant web sites of ESMAP donor and other partners, and a number of partners have instituted reciprocal cross-links back to ESMAP.

In many cases, ESMAP support has gone beyond co-financing and has involved the active involvement of ESMAP staff and task managers in the conceptualization, design, organization and content delivery of the event. This active participation has enabled ESMAP to positively influence the agenda and substance, and has also raised the program's profile. ESMAP booths at the conferences are ready points of literature distribution, and also increase awareness and demand for ESMAP's knowledge outputs.

The ESMAP Technical Paper series was started in year 2000 as a service to the energy and development community. ESMAP Technical Papers are informal publications that are only lightly edited and are not subjected to detailed ESMAP peer review.

They are a vehicle for capturing and disseminating significant work – both by ESMAP and others – that might not otherwise become known. Examples include high quality consultants' reports which, as intermediate products, do not substitute for final ESMAP project reports but still deserve stand-alone distribution, as well as final outputs of work conducted by other multi-lateral or bilateral programs that warrants wider distribution. The current number of Technical Papers total over twenty publications in the period 2000-2001.

ESMAP's management recognizes that much is still to be done to improve knowledge dissemination. This is one of the business lines which will be pursued over the next business plan period.





7

GOVERNANCE AND MANAGEMENT

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 regions receiving ESMAP assistance.

Mr. Richard Stern, Chair of the CG since July 1997, retired as Chair on April 18, 2000 in preparation for his eventual retirement from the Bank at the end of the year. Ms. Nemat Talaat Shafik, Vice President of Private Sector Development & Infrastructure (PSI), succeeded him as Chair. In June of 2001, Ms. Shafik appointed Mr. Jamal Saghir, Head of the Energy Mining Sector Board and Director, Energy and Water Department, to act as Chair on her behalf until further notice.

There were no changes in the composition of the CG Members at Large. Mr. Rufino Bomasang, President & CEO of PNOG Exploration Corporation of the Philippines, and Mr. Kethane Sithole of Botswana, continued in this role.

The Annual Meetings of ESMAP’s Consultative Group were held on April 18, 2000, and May 8, 2001 at the World Bank’s headquarters in Washington D.C. An Interim CG meeting was held on November 8-9, 2001, in Lisbon, Portugal.

At the April 18, 2000 meeting, the CG reviewed the progress made in implementing the strategy outlined in the 1999-2001 Business Plan, which had been unanimously endorsed at the November 1999 Interim CG meeting. A Joint Roundtable Discussion preceded the CG meeting on April 13, 2000. This was a particularly significant roundtable as it brought together the partners of the four Bank-managed energy trust funded programs, which in addition to ESMAP are the Asia Alternative Energy Program (ASTAE), Africa Rural and Renewable Energy Initiative (AFRREI), and Regional Program for the Traditional Energy Sector (RPTES). The theme of the Roundtable was *Energy, Poverty and Environment*, and each program contributed significantly to the discussions. The Summary

Proceedings of the April 2000 CG are attached as Annex 1.

The World Bank’s Energy and Mining Sector Board commissioned an external review of the four above mentioned Bank-managed energy trust funded programs. The terms of reference instructed the reviewers to focus on the following key areas: (a) examine the effectiveness of the programs; (b) ascertain and confirm if the programs were properly coordinated and managed; (c) verify if the programs’ objectives were clear and in-line with the Bank’s evolving priorities in the energy sector and; (d) formulate recommendations to Bank management and donors on the continuation of these programs and on possible ways to improve their coordination and effectiveness.

The draft report of the study was submitted to the Energy and Mining Sector Board in mid-2000 detailing the need for greater collaboration among the programs. One of the study’s key recommendations was to combine the Consultative Group meetings of the respective programs. This recommendation was accepted by the Sector Board and led to the May 8, 2001 Joint Business Strategy meeting, where each program manager outlined the business strategy for the reporting period and demonstrated the programs’ funding needs. The Summary Proceedings of the May 8 meeting are attached as Annex 2.

On November 8-9, 2001, ESMAP held an interim CG meeting in Lisbon, Portugal. This meeting was held primarily to report on the delivery of the 1999-2001 Business Plan and to introduce the draft 2002-2004 Business Plan. Management provided an in-depth analysis of the 1999-2001 Plan by demonstrating how the Plan’s strategic framework on access-environment-market linkages helped refocus the Program on the sustainable energy-poverty reduction paradigm. ESMAP’s strategy was also recognized as highly influential in shaping The World Bank Group’s Energy Business Renewal Strategy. The CG commended ESMAP on achieving the overall objectives of the 1999-2001 Business Plan.

The draft 2002-2004 Business Plan was well received and the CG members discussed each proposed business line at great length as a prelude to prioritization of the business lines according to donor preferences. It was decided that each donor should rank the business lines according to their funding priorities. This identified strong support for the following themes: energy-poverty linkages, indoor air pollution, impact of reform on the poor, methodologies and M&E for multi-sectoral energy work, knowledge dissemination and program governance. After the round of comments and feedback by donors following the Lisbon meeting, the Business Plan has been finalized and published. The Summary Proceedings of the November 8-9 meeting are attached as Annex 3.

THE TECHNICAL ADVISORY GROUP (TAG)

The Technical Advisory Group comprised four members in 2000-2001: Messrs. Alfredo Mirkin (Moderator), Andrew Barnett, Youba Sokona and Jan Moen. The TAG's mandate is approved by the CG through the terms of reference for the TAG, and its line of authority is exercised through the Chair of the CG.

On October 11 of 2000, ESMAP Management submitted a letter to the CG requesting an amendment to the TAG's terms of reference to extend the maximum length of service from four to six years. This amendment was approved by the CG. Messrs. Barnett and Sokona, whose terms were scheduled to expire in November of 2000, agreed to continue as TAG members for a third term.

Another recommendation resulting from the review of the externally funded energy programs was to extend the mandate of ESMAP's TAG to ASTAE, AFRREI and RPTES. The Sector Board and Chair of the CG also agreed with this recommendation and on March 9, 2001, Ms. Shafik, CG Chair, forwarded a copy of the review and recommendations to the CG requesting their views on this recommendation. At the May 8, 2001 CG

meeting, the CG concurred with the Chair and Sector Board and agreed by consensus to the expanded role of the TAG. The TAG will act on its expanded role in 2002.

During the reporting period the members of the TAG maintained frequent contacts with ESMAP's management team, and held meetings with several task managers, providing advice and guidance. Mr. Jan Moen, completed his report on *Introducing Competition into the Electricity Supply Industry in Developing Countries: Lessons from Bolivia*, which was published in August of 2000.

ESMAP MANAGEMENT, STAFFING AND PROCEDURES

ESMAP's staffing policy in 2000-2001 has been focused on maintaining a highly skilled and efficient small administrative team while the project task management continues to be exercised by staff from all operational or research units of the Bank Group. The administrative team includes six full-time and two part-time staff. A Lead Operations Coordinator joined the team in January of 2000, with particular strengths in the energy-environment area, and a Team Assistant joined in July of 2000 to strengthen the administrative, portfolio reporting, and knowledge dissemination functions. ESMAP project task managers come from increasingly diverse units, which illustrates ESMAP's success in building up the complementarity between energy and other services such as health, water, and environment. During the period, the complementarity with other programs has also been strengthened, including the co-sponsorship of several activities: Biomass Conference in Sevilla, Spain, June of 2000; Gender and Energy Workshop in Durban, South Africa, December of 2000; Gender, Energy and Poverty Methodology, ASTAE-ESMAP, on-going.

IMPROVEMENTS IN ESMAP SYSTEMS AND BUSINESS PROCESSES

ESMAP Portfolio Management System

During the 2000-2001, ESMAP revamped the management of its portfolio with the roll-out of the ESMAP portfolio management system in mid-2000. By the end of 2001, the new portfolio management system had been mainstreamed into the ESMAP team's day-to-day work and has become a crucial tool for the delivery of ESMAP's services.

Objective and functionality. The key objective was to develop a system that:

- manages all relevant information about ESMAP-funded activities and trust funds;
- helps optimize ESMAP's business processes (including through improved information for management decision-making); and
- makes this information available to ESMAP partners in a user-friendly manner.

Between January and May of 2000, this system was designed in-house by the ESMAP staff and programmed by The World Bank Information Systems Group. Since roll-out in June of 2000, this system has become the ESMAP team's repository for all information relevant to any specific ESMAP-funded project (basic project information, financial data, implementation details, status of publication, original proposal process, etc.). Pertinent information on each trust fund (basic cataloguing info, details of all allocations and disbursements to projects, all received and expected tranches of funds, etc.) is also available. The system also provides up-to-the-minute aggregate snapshots of the project portfolio and of ESMAP trust funds at the touch of a mouse to the ESMAP team, task managers, and donors.

Instant monitoring tools. Riding on this information resource have come monitoring tools that allow ESMAP to more accurately gauge the progress of its projects as well as manage its own effectiveness as a trust-funded program. For

Project ID	Name	Country	Task Mgr	Approved	Allocated
P079802	Stimulating the market for family hydro for low-income households in Ecuador	Ecuador	Durand	\$141,000	\$141,000
P079804	Source Apportionment of Fine Particulates in Developing Countries	Global	Johnson	\$295,000	\$150,000
P078539	Village Power Partnership for Latin America and the Caribbean (VPP-LAC)	LCR	Rysankova	\$140,000	\$50,000
P078519	Policy & Strategy for the Promotion of Renewable Energy Resources in Nicaragua	Nicaragua	Tones	\$250,000	\$250,000
P078424	UK Core Child TF	Global	Lafement	\$148,286	\$75,000
P078351	Developing Mechanisms for Regional Cooperation on Oil Spill Management in the Caspian Sea	ECA	Carlberg	\$320,000	\$150,000
P078333	Pioneering New World Bank Approaches in Support of	Global	Davidson	\$210,000	\$35,000

example, status reports flag funding over-runs as well as implementation delays. ESMAP can also do much better financial planning with system reports that instantly provide a snapshot of ESMAP's financial position (with funds already allocated for projects, funds that will be required for approved projects in the future, tranches that have been received from donors and tranches that are expected from donors in the future). ESMAP can instantaneously generate a set of reports which buttress key management decisions such as how a new call for proposals can be designed based on the available and expected funding resources tied to thematic or geographic areas. Such simple monitoring tools were highly time-consuming exercises for ESMAP in the past.

Efficiency in producing standardized reports. In addition to these archival and monitoring capabilities, the system has reduced the time taken to compile standard reports such as the semi-annual updates of progress in each active project. The time taken to format, design and generate the semi-annual progress updates document (once all updates and financial information have been collected) has been reduced from weeks taken for the July-December 1999 and January-June of 2000 documents to 1 day taken for the documents July-December of 2000 onwards.

Gains from user-friendly information sharing. The ESMAP portfolio management system is not only constantly available for all ESMAP staff to access but is also available to all ESMAP task managers and any World Bank Group staff members who need to learn more about ESMAP's projects. This introduces efficiencies by reducing the time spent by ESMAP staff members responding to queries from task managers because task managers can access the information on their own screens. The same applies to new donors and World Bank Group staff members who want to learn about ESMAP: they are able to view the ESMAP portfolio in a comprehensive presentation through the system.

ESMAP donors have pass-worded access to the portfolio management system through the ESMAP website (www.esmap.org) from their respective countries. This feature was acclaimed as a very useful resource by donors at the Interim CG meeting held in Lisbon in November of 2001. The Summary Proceedings are attached as Annex 3.

One group that has gained particularly from the availability of this online information is the ESMAP Technical Advisory Group (TAG). The TAG is composed of four international experts located in the UK, Norway, Senegal and Argentina. The group presents its report on ESMAP performance to the CG at each meeting. For this purpose, it conducts consultations with ESMAP management as well as internal deliberations before CG meetings and twice during the rest of the year. This international collaboration has been rendered much more efficient due to the accessibility of very detailed ESMAP project and funding information on the World Wide Web.

Remaining link. Questions about the status of commitments and disbursements for a given ESMAP project have traditionally been a typical and frequent query from task managers to ESMAP finance and budget staff. The remaining part of this portfolio system's development is the smooth and accurate upgrade of disbursement and commitment info on a monthly basis. This main reason for this missing link is that the World Bank is still stream-lining the handling of information related to trust-funded programs on its institution-wide information system. The ESMAP team is committed to establishing this link during 2002.

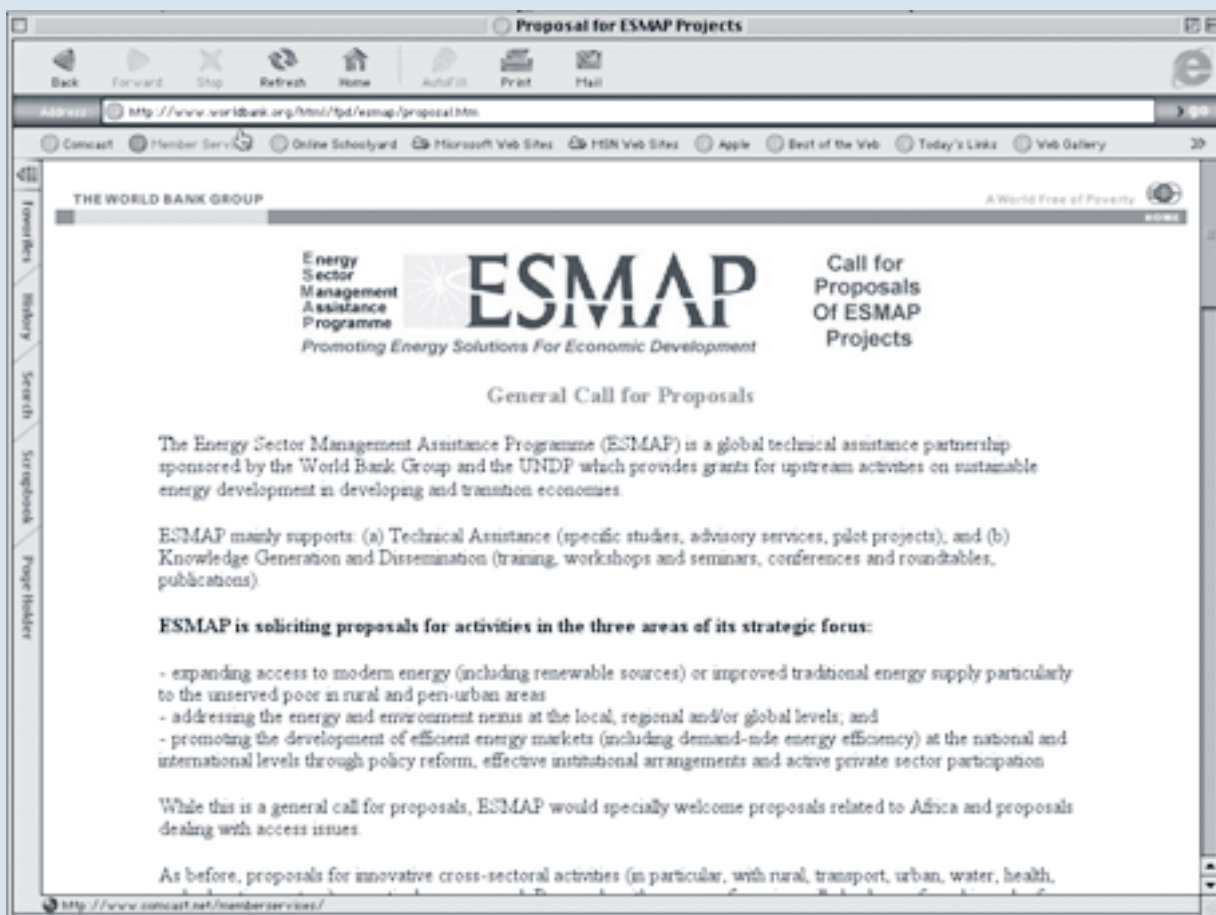
Change in the format of the Call for Proposals

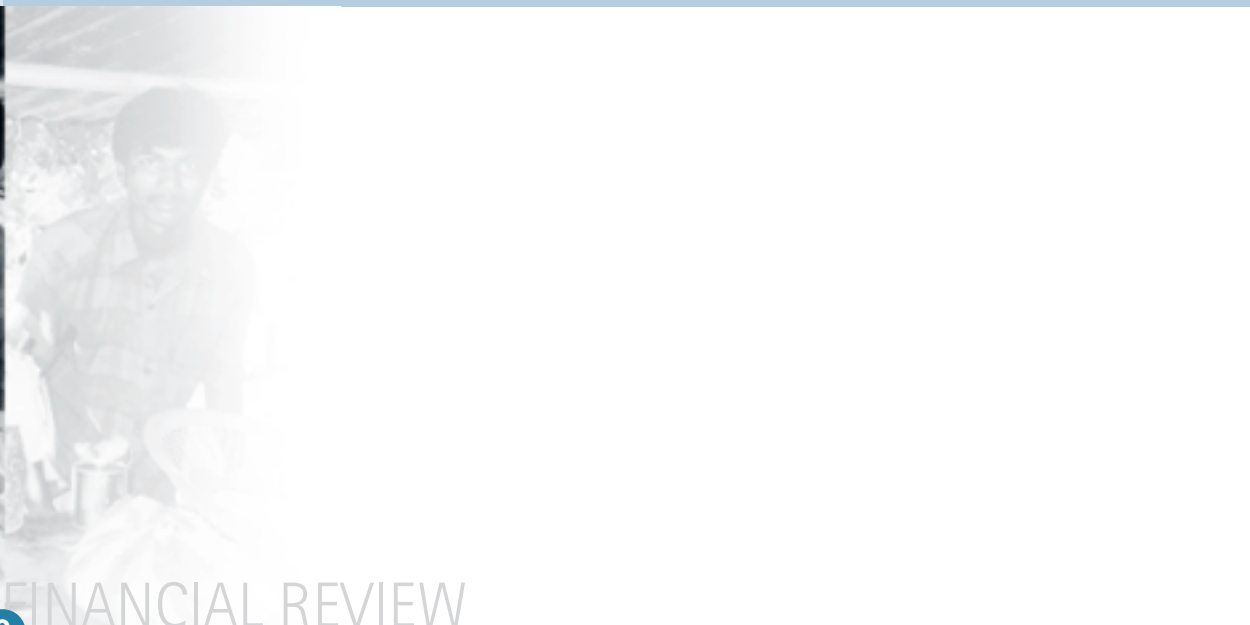
In response to feedback from proponents about the time and effort required for participating in ESMAP calls for proposals, ESMAP introduced an abbreviated format for the decision cycle for its November 2000 call for proposals. In the past, ESMAP's two-stage application process

invited short concept notes and log-frames in the first stage, delivered reviewers' feedback to proponents through decision memos and invited proponents of approved projects and good candidates (with design issues) to submit full proposals. Most often, the second stage had been a bottleneck because full proposals often did not fully take note of the key issues raised by the review panel in the decision memo. This caused delays and frustration among proponents who have often had to go through multiple iterations with ESMAP management before a proposal is considered ready for funding solicitation.

For the November 2000 Call for Proposals, the application process was streamlined to allow more effective delivery of feedback to propo-

nents. While the two-stage format was retained, one-on-one feedback sessions were conducted with proponents after the reviewers' feedback was published in the first decision memo. Ever since, the attempt has been to eliminate the mismatch between the review panel's expectations from a full proposal and the key messages understood by each proponent from the feedback provided in written form. Efficiency gains have been realized through this new format since the November 2000 Call.





8

FINANCIAL REVIEW

FINANCIAL REVIEW

CONTRIBUTIONS RECEIVED

ESMAP receipts from its donors totaled some US\$8.2 million in 2001 and US\$5.0 million in 2000. The contribution in 2001 marks an increase of about 63% from 2000 and about 81% compared to 1999. This year, eight donors, in addition to the World Bank made cash transfers to the Programme through trust funds. The World Bank's contribution of US\$1.0 million in 2001, an increase of about 21% compared to 2000 and decreased by 13% in 1999. The World Bank's share of total contributions, decreased by 12% compared to 1999 and increased by 26% compared to 2000. Table 8.1 shows actual receipts by individual donor for the period 1999-2001.

NEW DONORS

ESMAP management continued to pursue new opportunities to interest new partners notably from the private sector. A new private sector donor, Duke Energy International, L.L.C., from the United States joined the Programme in the year 2000. However, past donors from the private sector did not renew their contribution for the last two years. Discussions with other donors, notably the United States, explored possibilities of partnerships, including co-financing when no direct contributions could be foreseen. During the latter part of 2001, ESMAP management was able to finalize a commitment from the United Nations Foundation that they will become one of the ESMAP donors, channeling funds via their cooperation with the United Nations Environment Programme. Fund raising efforts will continue in the coming year with the objective of mobilizing the additional resources needed to implement ESMAP Business Plan 2002-2004.

CORE AND THEMATIC FUNDING

Core contributions from donors other than the World Bank totaled US\$2,420,100 in 2001 and US\$2,397,700 in 2000 including UNDP. There was an increase of US\$464,100 compared to the core resources mobilized in 1999. UNDP is in the

process of reimbursing the World Bank in 2002 for the Technical Advisory Group expenses incurred for the year 2000 and 2001 in the amount of US\$142,800.

As in previous years, contribution from the World Bank and from UNDP (US\$1,032,400 in 2001 compared to US\$877,500 in 2000) are considered as core, since they are not linked to any specific project. Including these, core contribution totaled about US\$3,452,500 in 2001, or over 42% of total receipts. Germany, Finland, Denmark, Norway, the new donor—Duke Energy International, L.L.C.—provided their entire ESMAP contribution as core funding. Sweden's contribution beginning 2001 are all core funds and Sida will continue to provide project-specific funding if funds are available. 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.

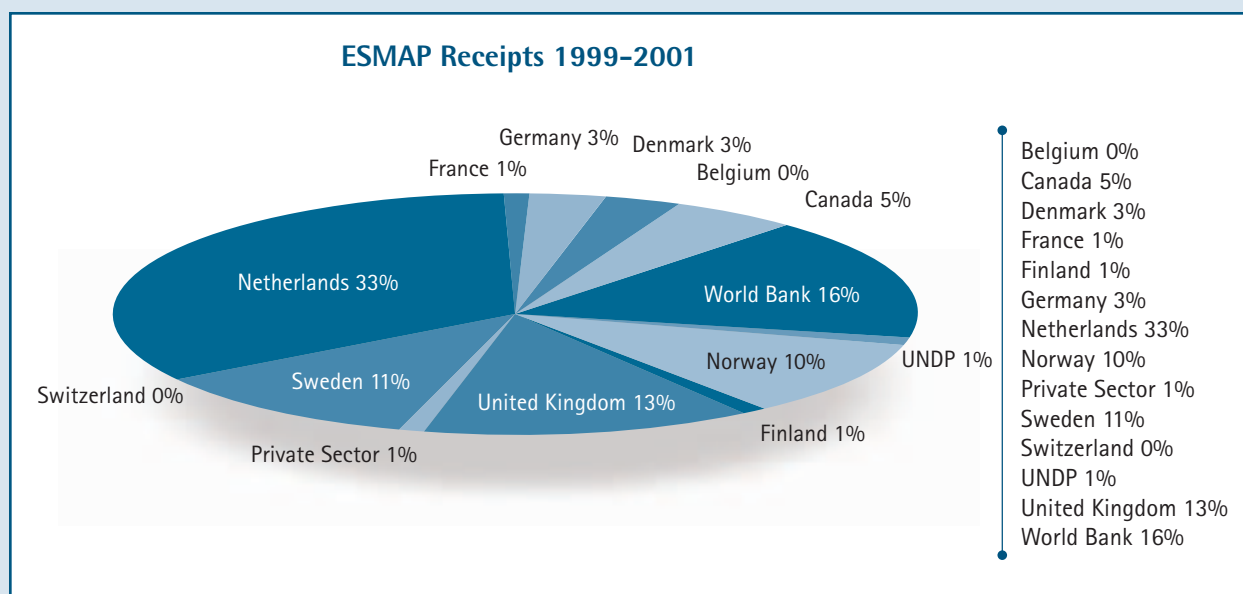


Table 8.1 ESMAP Receipts, 1999–2001							
	1999	2000	2001	Total	Of which Core Funding	Percentage of	
Donor	(US\$ '000)					Total Receipts	Core
UNDP	120.0	57.2 ^{1/}	0.0 ^{1/}	177.2	177.2	1.0	2
World Bank	1,172.0	820.3	1,032.4	3,024.7	3,024.7	17.1	30
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0
Canada	536.7	134.6	255.9	927.2	0.0	5.2	0
Germany	359.8	80.1	72.4 ^{2/}	512.3	512.3	2.9	5
Finland	90.0	0.0	168.7	258.7	258.7	1.5	3
Netherlands	413.1	1,008.6	4,468.8	5,890.5	0.0	33.3	0
Denmark	0.0	234.3	234.8	469.1	469.1	2.6	5
Norway	643.1	507.7	576.5	1,727.3	1,727.3	9.8	17
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0
Sweden	398.8	1,010.7	487.4	1,896.9	1,439.9	10.7	14
France	0.0	260.3	0.0	260.3	0.0	1.5	0
United Kingdom	587.0	856.1	880.3	2,323.4	2,132.1	13.1	22
Private Sector	190.0	45.0	0.0	235.0	235.0	1.3	2
Total	4,510.5	5,014.9	8,177.2	17,702.6	9,976.3	100.0	100

^{1/} Further payment of US\$142.8 against 2000 and 2001 TAG expenses expected in 2002.

^{2/} The received amount in 2001 may increase from US\$72.4 to US\$119.1 because of overpayment on the agreed contribution under the Letters of Agreement dated December 15, 1997 and December 28, 1998. The reason for the overpayment was that the payment of DM 396,000 made in December 16, 1998 was made to the Bank rather than to UNDP which should have been credited under the UNDP/ESMAP Project Document. The World Bank German Executive Director's office is assisting in resolving this issue.

Figure 8.1



Thematic contributions increased in 2001 to US\$4.5 million from US\$1, with all tranches received from the Netherlands. These contributions were from the four trust funds under the Bank/Netherlands Partnership Programme, Bolivia Country Programme Phase II, Bolivia National

Biomass Programme and Household and Rural Energy Activities Fund. Total core and thematic contributions, excluding contributions from the World Bank and the UNDP for 1999-2001 are shown in Table 8.2. Table 8.3 shows all contributions received in 2001 by type of funding.

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 (%)
1999	3.22	1.96	2.37	60.9%	73.6%
2000	4.13	2.40	3.41	58.1%	82.6%
2001	7.14	2.42	6.89	33.9%	96.5%
Total	14.5	6.8	12.7	46.8%	87.4%

a/ Does not include World Bank and UNDP.

Core and Thematic Funding

	Amount (millions US\$)
WB Contribution	1.032
UNDP	0.000
Core	2.420
Thematic	4.469
Project	0.256
Country Program	0
Total	8.177

PROJECT FUNDING

Project specific funding totaled US\$256,000 in 2001 compared to US\$731,100 in 2000. ESMAP is in dialogue with CIDA regarding finance for two activities: the Energy from Landfill Gas: Best Practice, Dissemination, and Future Program in the LAC Region and Petroleum Revenue Management at a total cost of about US\$1 million. 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 after they reached the necessary stage in the evaluation process.

EXPENDITURES

Expenditures in 2001 totaled US\$6.3 million, a decrease of US\$0.93 million over expenditures in 2000. Project funding decreased in 2001 by US\$1.25 million. Work program development costs were increased from US\$22,000 to US\$40,000. Program management costs, which were reduced by 65% in 1999, were further cut by 40% in 2000. This reflects to a larger extent a stricter accounting discipline under which staff from the ESMAP management team are able to charge their time to specific projects when working on the substance of such projects, and further administrative efficiency gains. The consultative group and technical advisory group had

a level of activity considerably lower in 2000 than in 1999 (one CG meeting instead of two, no in-depth review similar to the Bolivia program review in 1999). Consequently, governance costs were reduced by 46% in 2000. Dissemination costs decreased by US\$6,000 in 2000, despite an increased level of activity reflecting some increment of revenue from the sale of some ESMAP publications and increased in 2001 by 52% from in-house brown bag lunch conferences and a number of ESMAP reports published.

FUNDING NEW PROJECTS AND CASH BALANCE

During 2001, ESMAP approved 22 new projects with a cumulative cost of US\$2.7 million. Out of this total cost, ESMAP had provided funding of US\$2.4 million. Seven projects from the year 2000 were funded in 2001 with a cost of US\$1.2 million. There were projects whose budget costs

	(thousands US\$)		
	1999	2000	2001
Project Costs	5,059	6,698	5,445
Work Program Development ^{1/}	115	22	40
Program Management	557	334	425
Knowledge Dissemination	49	43	82
Governance	270	147	321
of which TAG	135	62	166
of which CG	135	85	155
Total	6,050	7,244	6,313
<i>of which funded by Donors</i>	<i>4,758</i>	<i>6,367</i>	<i>5,281</i>
<i>of which funded from World Bank budget</i>	<i>1,172</i>	<i>820</i>	<i>1,032</i>
<i>of which funded by the UNDP</i>	<i>120</i>	<i>57</i>	<i>0</i>

^{1/} Includes Review of Proposals.

have been decreased or dropped amounting to US\$1.1 million due to no project funding was raised from the donors or the further development of the project was terminated once it became clear that the objectives were no longer achievable.

During the year 2000, ESMAP approved 30 new projects with a cumulative cost of US\$5.2 million. Out of this total cost, ESMAP had provided funding of a total of US\$2.3 million.

ESMAP have approved projects that have not been fully funded in the previous years amounting to US\$930,000 and approved new projects in 2002 amounting to US\$2 million. Overall, there is a total of US\$2.9 million required to finance the remaining partially funded projects and new approved projects in 2002.

After taking into account, the expenditures and receipts, cash balances in ESMAP trust funds and UNDP accounts on December 31, 2001 amounted to US\$9.4 million (of which US\$101,024 in UNDP accounts) compared to US\$10.5 million in 2000 (of which US\$305,365 in UNDP accounts), and US\$13.1 million at the end of 1999 (of which US\$627,279 in UNDP accounts). The cash balance not allocated at the end of 2001 amounted to US\$3,868,503 of which US\$1,513,491 in core funds.

Of the US\$101,024 in UNDP accounts on December 31, 2001, about US\$91,000 will be returned to Denmark as these funds were the remaining contributions earmarked for the Danish Secondment Staff that were not utilize. The remaining balance of about US\$10,000 will be returned to Germany and Sweden. Ultimately, these UNDP accounts will be closed in 2002.



Manual Source of Energy.



ANNEXES

ANNEXES

Annex 1

SUMMARY PROCEEDINGS OF THE APRIL 18, 2000 JOINT DONORS' MEETING FOR TRUST FUNDED ENERGY PROGRAMS MANAGED BY THE WORLD BANK

Consultative Group

Ninth Annual Meeting – Washington, D.C., April 18, 2000

Summary Proceedings

The ninth annual meeting of the Consultative Group (CG) of the Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP) was held on April 18, 2000 at the World Bank Headquarters in Washington, D.C., under the Chairmanship of Mr. Richard Stern, Vice President of the World Bank. The meeting followed a joint donor roundtable of four energy programs hosted by the Bank: ESMAP, ASTAE¹, RPTES² and AFRREI³. The meeting also had an opportunity to discuss the project “Opportunity for Women in Renewable Energy Utilization” with Ms. Hasna Khan, the coordinator of this innovative ESMAP project in Bangladesh.

The agenda for the CG meeting and the attendance list are attached as Annexes 1 and 2. The report to the CG of the Technical Advisory Group (TAG) of ESMAP is attached as Annex 3. The presentation by ESMAP management team on ESMAP’s recent achievements and prospect is in Annex 4, and a discussion paper on climate change issues prepared by the Netherlands delegation is attached as Annex 5.

In his introductory remarks, after welcoming new CG members participating to the CG meeting for the first time (Ms. Ana-Liisa Korhonen from Finland, Mr. Jean-Marc de Comarmond from France, Mr. Olav H. Seim from Norway, Mr. Hans-Peter Egler from Switzerland, and Mr. Donald O’Leary from Siemens A.G), the Chairman introduced Ms. Frannie Léautier, Director of the Infrastructure Group of the World Bank, and as such in charge of supervising ESMAP. He also announced that Ms. Nemat Shafik, World Bank Vice President Private Sector Development and Infrastructure had agreed to chair the CG after the conclusion of the ninth meeting. In his introductory remarks, the Chairman noted that, from his point of view ESMAP had made substantial efforts during the year to make its work more directly relevant to poverty reduction. He remarked that, beyond direct poverty reduction, creating or strengthening a sound energy sector remains essential for economic growth--which, in turns, facilitates poverty reduction--and for addressing global environment issues in a sustainable way. He also remarked that present projections indicates that within the next 5 years more than 50 percent of the poor in developing countries will be living in urban areas. He suggested that ESMAP should focus not only on the rural poor, but pay as much attention to the provision of energy services to the urban poor. In particular pollution from energy production and use in urban areas have to be given more attention. As part of its work on poverty reduction, ESMAP, the chairman added, should continue to strengthen its activities on gender issues and look in more details at the social consequences of energy sector reform. He also estimated that, building on the useful role ESMAP already plays in disseminating the lessons from its activities, the Programme must now look at innovative ways to broaden the

¹ ASTAE : Asia Alternative Energy Program

² RPTES : Regional Program for the Traditional Energy Sector

³ AFRREI : Africa Rural and Renewable Energy Initiative

dissemination of its knowledge. In that vein, he suggested that, as discussed already at the donors meeting in November 1999, ESMAP should consider taking on the role of a global, professional secretariat for donors active in the energy sector. Concerning the administration of the Programme and its position with respect to other bilateral or multilateral energy development programs, the Chairman estimated that ESMAP should constantly assess its efficiency as a part of the Comprehensive Development Framework (CDF). Furthermore, ESMAP can take advantage of the re-organization of the Infrastructure Group of the World Bank—where it is now located—to better address cross-sectoral energy issues. Concerning funding, the Chairman stressed the importance of core funding for ESMAP activities. In order to strengthen the stable but limited amount of resources, ESMAP and its donors should focus on improving the way they work together, notably by sharing their knowledge and fostering joint ventures between ESMAP and bilateral energy programs. Finally, he noted that private funding for programs like ESMAP was a somewhat controversial question, but that under the right conditions a greater private sector participation in ESMAP should not be ruled out.

The UNDP representative updated the CG on UNDP's strategy under its new leadership. Poverty alleviation remains the overarching priority for the UNDP, with the objective to reduce poverty by 50 percent by 2015. He remarked that the World Bank has the same goal, links between the World Bank and UNDP might therefore be expected to tighten. UNDP has decided to focus on Renewable Energy and Energy Efficiency, fields where it has a comparative advantage. In recent months, the UNDP, the UN Department of Social Affairs (UNDESA) and the World Energy Council (WEC) have worked together on the World Energy Assessment to analyze the linkages between energy and major global issues. The UNDP representative stated that intellectual collaboration between UNDP and ESMAP is continuing, even if it is financially at a minimum. He remarked, however, that the visibility of UNDP's partnership with ESMAP remains limited within both the UNDP and the World Bank, and suggested a special effort to improve it. Failing to do so may make it difficult to maintain the partnership at its present level in the wake of a 20 percent UNDP staff reduction by June 2001.

The Moderator of the TAG reported that ESMAP had succeeded in bringing its portfolio of projects closer to its strategic view, especially in terms of knowledge dissemination. But, from the TAG's viewpoint, there were seven issues that still deserved attention. In particular, there is a need:

- for better forms of regulation to protect consumers interests, as energy markets are changing;
- to focus on best practices for multinational and large corporations to be socially, environmentally and politically more responsible;
- for new mechanisms to improve poverty reduction and environmental impacts of energy sector restructuring;
- for better trade-offs between policies to protect the environment and the ones to provide energy access to poor;
- for new mechanisms to improve energy access to the poor;
- for ESMAP to be involved in cross-sectoral activities (such as the energy components of health or education projects); and
- for ESMAP to help with the “motorization” process—notably in Sub-Saharan Africa—to accelerate sustainable development.

The Moderator of the TAG noted that Bolivia had requested the continuation of ESMAP's assistance during the transition to full competition in the energy sector. The TAG estimated that ESMAP work in Bolivia could help address key issues related to the impact of sector reform on the poor and recommended that ESMAP continue to be active in this country.

Following the introductory remarks by the Chairman, the UNPD Representative and the TAG, the meeting was organized in two main parts. The first part, which included short introductions by donors, discussed ESMAP strategic priorities and partnerships. The second part reviewed ESMAP achievements during the previous year and a revised business plan for the period 1999-2001.

ESMAP Partnerships and Strategic Priorities

As poverty reduction has become the first priority for the World Bank and most bilateral donors, the role of energy in the development process is often blurred. Several donor representatives stated that conventional energy projects were apparently disappearing from the World Bank and other donors operational agenda, but energy as a whole was not, and should not, as it remains essential to economic development. While all donors are strongly committed to poverty reduction, several speakers commented that in donor countries or organizations there is a need to strengthen the political support and convince policy-makers that energy projects are still relevant for sustainable development, as well as for economic and social progress and good governance. Several speakers suggested that to be more easily understood and appreciated ESMAP should put more emphasis on innovative approaches that links energy activities directly to poverty reduction objectives. One way to achieve this objective is exemplified in the Sustainable Framework Approach of DFID in the UK. In DFID's approach, all projects must have a poverty reduction objective, either by being *focused, enabling or inclusive*--the provision of sustainable energy services corresponding to one of the three characteristics.

The Director of the World Bank Infrastructure Group indicated that, by the end of 2001, the World Bank is expected to have prepared Poverty Reduction Strategy Papers (PRSP) for 40 countries. Energy will be a required focus for each of these countries. She noted that an assessment of the linkages between energy and poverty reduction--as an input to PRSPs--was to be completed by the end of June 2000. In addition, she pointed out, an urban strategy paper was also in preparation. It will review the links between urban development, energy and poverty alleviation with a particular emphasis on health issues related to indoor air pollution, and mobility capacity for poor households in urban areas.

ESMAP's progress in reorienting its activities towards more focused and strategic areas was welcome by several donors. It was noted that this reorientation was a necessary condition to provide the long-term commitment required for sustainable development in recipient countries. One delegate suggested ESMAP could consolidate this progress by strengthening its visibility.

Several donors expressed interest in a better coordination of the energy-related programs hosted by the World Bank, notably ESMAP, AFRREI, RPTES and ASTAE. It was noted that too many small programs do not offer the broad approach needed by both donors and developing country communities. One delegate stressed that a better coordinated approach would also help bilateral activities and should be an incentive for donors to increase their participation in those programs. It was also noted that ESMAP's elaborate evaluation process and governance--including the CG and the TAG--could benefit other programs.

Concerning possible partnerships with private sector donors, several delegates endorsed the concept in principle as a way to mobilize additional funding. It was pointed out, however, that such partnerships should be fully open and transparent. When funding are targeted to specific themes or activities, partnerships with private corporations should preserve ESMAP poverty reduction objective, integrity and independence, and avoid any possible conflict of interest. It was also noted that partnerships with

private entities should not be considered solely from a funding perspective, but as a way to access new insights on the energy sector and share additional knowledge.

It was suggested that ESMAP investigate the possibility to work with foundations to leverage its own resources. Several speakers remarked that, in their experience, dealing with foundations often entail high transaction costs which may make it difficult, if not impossible, for ESMAP to conclude such partnerships. It was noted that foundations are also important complementary sources of knowledge that ESMAP should not pass by as it becomes more active in disseminating best practices and lessons of experiences.

ESMAP Business Plan and Work Program

In presenting the updated business plan for fiscal years 2000-2002, the Program Manager stressed the need to continue the work on poverty reduction, and notably, to better understand the needs of the poor and their benefits from energy services. This work would build upon and amplify what has already been done by ESMAP on poverty and energy linkages. The Program Manager also stressed the necessity to look at projects with a view on their replicability and bring the benefits of such projects to additional regions and countries.

With an emphasis on improving access to energy for the poor and providing environmental-linked technical assistance, the Operations Coordinator of ESMAP outlined the following challenges the Programme is facing in the coming year:

- Expanding the portfolio of projects directly facilitating access to energy services by the poor and moving into peri-urban areas. The Program Manager noted that access to energy cannot be considered in isolation anymore. To be sustainable, access must not only be based on the right technology and delivery mechanisms but it must also correspond to economic, social and cultural needs cutting across a wide array of sectors. ESMAP has already positioned itself within such an approach and should be able to take advantage of an emerging consensus on this issue.
- Strengthening the energy and environment portfolio. Responding to the concerns of several donors that ESMAP's action still looks timid with respect to climate change, the Operations Coordinator agreed that the Programme could be more present in the climate change debates. It was noted that one difficulty ESMAP is facing is that energy specialists seem to have only a marginal role in the climate change debate which is dominated by environment and foreign affairs administrations.
- Reevaluating the demand for work related to the oil and gas sector.
- Increasing the quantity and the quality of the African portfolio.
- Improving the dissemination of ESMAP work.

The Operations Coordinator presented new portfolio and funding databases developed at the beginning of year 2000 to complement the World Bank's information and management system. The new databases present interactive features which will greatly facilitate the monitoring of ESMAP projects and financial flows. All stakeholders in ESMAP operations will not only have access to the appropriate part of the portfolio database, but they will also be able to directly provide inputs to relevant parts of the system. When the system becomes fully operational, the reporting process to donors should also be notably enhanced and performed with shorter delays.

Concerning the availability of resources, the Donor Relations Administrator reported that during calendar year 1999, total financial transfers from donors to ESMAP decreased by 45%. This decrease is

for a part the result of a tighter cash management, which avoided calling funds from donors unless these funds were immediately needed for commitment on projects. The sharp decrease can also be explained by the absence of exceptionally large projects last year, as it had been the case in recent years. However, one positive development during the year was an increase in core funding. Concerning the applications of funds, project disbursements increased by some US\$300,000 in FY99, a positive indication of ESMAP's ability to implement projects despite reduced cash transfers. Governance costs were relatively higher in FY99 because of a more substantial work program on the part of the TAG (including a major review of ESMAP activities in Bolivia) and the organization of two CG meetings. Yet, governance costs were less than 4.5% of total disbursements; and management costs, which have been reduced by 54% compared to the previous fiscal year were under 10% of total disbursements. However, the Donor Relations Administrator estimated that this was not a time to be complacent, as ESMAP will have to mobilize some US\$11 million per year over the next two years to be able to implement its prospective business plan.

On the business plan and the funding strategy, the Program Manager underlined that ESMAP, adding to its current public and private donors base, had started to develop promising new partnerships with professional organizations and foundations. She confirmed the point discussed earlier that attracting new partners to mobilize additional resources also expands ESMAP's knowledge base. Already, ESMAP is increasingly transacting knowledge and experience from non-ESMAP activities to disseminate relevant lessons.

Several donors expressed their satisfaction with ESMAP efforts on knowledge dissemination and recognized that ESMAP could also help disseminate information from the donors' own energy programs. The Manager of the Programme mentioned that a good starting point would be to create links on the ESMAP web site to access donors web sites, a possibility which has been used by only one donor so far. Concerning knowledge dissemination, the suggestion to organize an ESMAP symposium in Africa on access to energy was welcome. The representative from the UNDP suggested to organize such a symposium jointly with the African Development Bank.

Following the presentation of ESMAP business plan and work program, several donors indicated that they would like ESMAP to become more involved in governance issues, for example to assess the transparency of commercial transactions or by addressing the problem of corruption, especially in the process of privatization. One donor suggested to set up a special initiative on "good governance and energy" with a medium-term commitment to provide assistance in this area.

Further evidence of the leading role of ESMAP in fostering the integration of poverty reduction in the energy agenda was showcased with a presentation and discussion of the ESMAP project *Opportunity for Women in Renewable Energy Technology Utilization in Bangladesh*. Prokaushali Ltd. (PSL), a local organization conducting the ESMAP project, has selected and trained unemployed women to manufacture direct current (DC) lamps in a new micro-enterprise which also markets the lamps locally. This project includes many innovative features. It not only creates jobs and generates incomes for women, but it also introduces an efficient affordable lighting technology which considerably improves the lives of local households and small merchants. It has the potential to be easily replicated in other parts of the country and benefit another 10,000 households in the islands of the Gholachipa Thana region where it is implemented, not mentioning further possible extension in other parts of Bangladesh and beyond.

Conclusions

The consensus of the meeting could be summarized as follow:

- ESMAP donors confirm their support as well as the Programme's focus on poverty reduction as a first priority, in line with their own development assistance priorities.
- ESMAP should continue to strengthen the dissemination of its work and explore ways to enlarge the scope of this dissemination by exploiting resources available from bilateral development programs, notably—but not only—by creating appropriate links between the ESMAP web site and donors own web sites.
- ESMAP should be more involved in Climate Change issues, particularly with respect to capacity building efforts geared at utilizing emerging mechanisms such as the CDM. A discussion paper prepared by the Netherlands was welcomed as a tool to focus on on-going discussions among donors and identify concrete actions for ESMAP in this field.
- ESMAP should continue to explore ways to play a useful coordinating role for energy development bilateral and multilateral programs, beyond disseminating lessons, notably by bringing to the fore key common issues and stimulating discussions on these issues.
- ESMAP should recognize the importance of good governance issues in its strategy, particularly in the context of sector reform.
- ESMAP should continue to facilitate a more coordinated approach with other energy programs hosted in the World Bank.
- ESMAP could benefit from accessing more private funds, including funding from private foundations and professional organizations, but the Programme should remain cautious in its partnerships, to avoid possible conflicts of interests and ensure that all partners are benefiting from the partnerships without introducing distortions in the playing field.
- ESMAP is encouraged to organize a major symposium in a developing region, particularly Africa, to increase the dissemination of its work. Such a symposium could take place in conjunction with the next meeting of the ESMAP Consultative Group in 2001.

ANNEX 2

SUMMARY PROCEEDINGS OF THE MAY 7-8, 2001 JOINT DONORS' ROUNDTABLE MEETING FOR TRUST FUNDED ENERGY PROGRAMS MANAGED BY THE WORLD BANK

ESMAP/ASTAE/AFRREI/RPTES⁴

Joint Donors' Roundtable & Business Meetings

Summary Proceedings • Washington, DC, USA • May 7-8, 2001

Donor representatives from 11 countries met jointly for the first time on May 7-8, 2001, at the World Bank headquarters in Washington to bring greater coherence to the work of the trust-funded energy programs managed by the World Bank. These donor meetings were chaired by Nemat Shafik, World Bank Vice President for Private Sector Development and Infrastructure.

On May 7, a joint donors' roundtable was convened with modules focusing on the future of the global energy business, results from the World Bank's energy activities, and ways of achieving scale-up. On May 8, joint business meetings of each trust-funded program were conducted with presentations by each program's management about its respective achievements. The donor meetings concluded with a discussion on the governance of these programs. The agendas for both days and all presentations made at these meetings are available at www.esmap.org.

Joint Donors' Roundtable

The Vice President for Private Sector Development and Infrastructure, welcomed the participants to the roundtable. She stated that access to sustainable energy is central to the World Bank Group's commitment to poverty reduction and growth and recognized that it is a central component of many bilateral aid programs. She noted that energy is a part of the foundation of development and the new focus of the Bank's energy practice will be about what is to be built on the foundation, not just the foundation itself.

Richard Jones of the UK Department for International Development presented a donor's perspective of energy and development. He posited that energy is a means for development, not an end in itself. He observed that despite the lack of clarity on this approach to energy in the past, the donor community and the World Bank have significantly transformed their outlooks to energy in this direction. The task now, he said, is to get this message across to development practitioners in other sectors. He pointed out that the timing and the environment for this message is ripe with energy appearing on the development agenda through the G8 renewable energy task force, CSD9, the UN Ad-hoc Panel on Energy and Sustainable Development and other such initiatives.

Jamal Saghir, World Bank Director for Energy & Water, presented the World Bank's Energy Business Renewal Strategy⁵. The energy business of the Bank will be renewed such that the focus of activities will be on maximizing the energy sector's contribution to poverty alleviation. The selection of finan-

⁴ ESMAP is the Energy Sector Management Assistance Programme. ASTAE is the Asia Alternative Energy Program, AFRREI is the Africa Rural & Renewable Energy Initiative and RPTES is the Regional Program on the Traditional Energy Sector.

⁵ All presentations made at these meetings are available at www.esmap.org

cial instruments and advisory services will be improved to match client commitment and risks while new ways of leveraging the Bank's comparative advantage will be explored. The energy group's capacity and reputation for quality advice will be strengthened by enhancing in-house skills and knowledge. This work will be executed through four lines of business: helping the poor directly, improving macro/fiscal balances, promoting good governance and private sector development, and protecting the environment. He also outlined how each regional and thematic energy team at the World Bank is developing its portfolio targets according to the relevant client needs while keeping this business renewal strategy as the institutional envelope.

Ian Johnson, World Bank Vice President for Environmentally & Socially Sustainable Development, emphasized the relevance of the triple bottom-line of sustainable development—stakeholder value, ecological responsibility and social responsibility—and added that economic growth is the most crucial driver for poverty alleviation. He observed that his group sees energy and agriculture as the two vital sectors for development and growth in the future. He remarked that placing these sectors firmly on the development agenda is the current challenge. Kristalina Georgieva, World Bank Director for Environment, presented the World Bank's environment strategy with references to the linkages between the Bank's energy and environment activities.

The sessions on the results from the implementation of the World Bank's energy projects focused on success/constraints and the impact on the poor. Anil Cabraal, Teo Sanchez and Willem Floor presented project examples from Asia, Peru, and Mali respectively to illustrate success stories and implementation constraints from the World Bank's energy activities. Dominique Lallement, ESMAP Manager, outlined the challenge of energy service delivery to the poor through data illustrations. Khaliq-uz-Zaman, Aleta Domdom and Koffi Ekouevi presented the results of poverty-focused projects from the portfolios of trust funded energy programs from Bangladesh, the Philippines, and Senegal, respectively.

Presentations about project examples illustrating the scaling-up of community involvement in energy service delivery (South Asia), cross-sectoral energy projects (Uganda), and renewable energy (China) were made by Alastair McKechnie, Arun Sanghvi, and Susan Bogach, respectively.

ESMAP Business Meeting

Minoru Takada, the UNDP Representative stated that the UNDP welcomes the opportunity to participate in the combined CG for all externally-funded WB energy projects, which will promote exchange of information and synergies among the programs. In this spirit, UNDP wants to commend the World Bank's initiative of undertaking an external evaluation (the Caruso report). The UNDP agrees with the evaluation that the WB/UNDP ESMAP has been highly valuable and would like to continue to strengthen its partnership with ESMAP through the support to the ESMAP Technical Assistance Group (TAG). As UNDP aggressively moves to decentralize its technical capacity to the field, it also hopes to expand relations with ESMAP and other WB programs at the country level to pursue common objectives of poverty reduction through energy intervention.

In its annual report to the ESMAP (CG), the TAG gave ESMAP a "clean bill of health" and commended its efforts to reduce overhead, increase transparency and restructure the portfolio. The TAG pointed out that it stands by for any instructions from the CG to follow-up on the recommendations of the Caruso report.

The TAG recommended that new thematic categories be developed for classifying ESMAP activities. It also recommended improvement in gauging the impact of ESMAP's work at the project as well as

the thematic level. The TAG reported that ESMAP's financial position has improved significantly since last year although it is still far below the strategic target level set by ESMAP management. The TAG also recommended possible ESMAP priorities for the future: sector reform phase II (the impacts and sustainability of sector reform), viability of medium-scale hydro, energy inputs into productive uses ('motorization' of development), implementation of new models, options other than renewables, and the limits on energy options resulting from climate change. Several donor representatives commended the TAG's 2001 report as one of its best to date.

In response to donor questions, the TAG posited that the upstream-downstream as well as thematic division of labor between ESMAP and the other programs represents a valuable complementarity for addressing the multifarious development needs in Africa. Therefore, it recommended that ESMAP should increase its involvement in Africa. Donor representatives expressed their interest in the TAG's recommendation to consider private sector participation but pointed to the difficulties in operationalizing such participation.

In presenting the implementation of ESMAP's 1998-2001 business plan, ESMAP's Manager pointed out that the Bank's energy business renewal strategy is in line with ESMAP's business strategy for 1998-2001 and this brings ESMAP greater opportunities to generate and transact knowledge. Charles Feinstein, ESMAP's Lead Operations Coordinator outlined the trends in ESMAP's portfolio over the 1998-2001 period as well as a broad progress report on ESMAP's main areas of focus. He pointed to the need for reducing the lead time in matching proposals to funding. Henri Bretaudeau, ESMAP's Donor Relations Administrator presented a financial review of ESMAP for the 1997-2001 period noting that: total contributions to ESMAP and disbursements rose in 2000 after a major slump in 1999, core funding has risen slightly over this period, project- or country-tied financing has declined, ESMAP's management costs have continued to decline, ESMAP's current funding gap is expected to be bridged by existing funding commitments for calendar years 2001 and 2002. The ESMAP Manager presented a proposed next-generation agenda for ESMAP. Several donors expressed their interest in this agenda and decided that it should be discussed over email.

Donors expressed their readiness to move forward with the Village Power Partnership (VPP) concept but underlined the need for more significant follow-up. The Director, Energy & Water, clarified that since December, the VPP concept had been presented to the Development Grants Facility within the Bank but had not met support there.

ASTAE Business Meeting

Yoshihiko Sumi, ASTAE Manager, presented ASTAE's strategy and business plan for 2001-2006. He asserted that ASTAE has been successful in its principal objective of mainstreaming alternative energy into the World Bank's Asia energy portfolio with over 15% of the Bank's Asia power sector lending dedicated to renewables in FY97-00. He underscored that ASTAE products are inputs to high quality lending operations of the Bank rather than stand-alone lending operations themselves. Since 1992, ASTAE has utilized US\$22.4 million of its own resources to leverage US\$3.5 billion in alternative energy project costs. With this goal achieved, ASTAE's challenge for the next decade is to mainstream alternative energy into national energy programs in Asia. ASTAE's approach to meeting this challenge shall be to move away from stand-alone projects, establish country presences in countries that exhibit the greatest receptivity and reach beyond the energy/power sector to implement alternative energy options. The ASTAE Manager outlined a combined FY02-FY04 ASTAE program budget of US\$17.1 million.

AFRREI Business Meeting

In presenting the Bank's energy strategy for Africa, Ananda Covindassamy, World Bank Energy Sector Manager for Africa, emphasized that the focus on poverty alleviation and the rural approach to energy are more prominent than ever before in Africa with the Africa energy group moving towards placing as much as 50% of its resources into rural energy. Empowering the poor through community-driven development of energy services, financial intermediation for rural energy service delivery to the poor and a multi-sectoral approach for infrastructure services will be among the guiding principles of the Bank's energy work in Africa. He pointed to the rise of rural energy lending from 5% to 9% as a percentage of the Bank's energy lending volume in Africa since 1997. This proportion will see a strong upward trend in 2000-2004 given projects already identified. The Sector Manager recognized the strengths of AFRREI (innovative instruments) and RPTES (decentralized coverage) as crucial to implementing this energy strategy. The skill mix available to the Africa energy team, in-house as well as outside, will be garnered according to the above objectives.

Arun Sanghvi, AFRREI Manager, presented AFRREI's strategy of using energy for rural transformation by facilitating demand-driven, commercially-oriented rural electrification that meets local priorities, working with other sectors and developing partnerships for increased development impact. He outlined AFRREI's first phase (1998-2001) as dedicated to developing the "next generation" of rural electrification projects in selected African countries. The second phase (2001-2004) will be focused on mainstreaming this product into the Bank's energy portfolio with its refinement through operational experience. He presented the Uganda Energy for Rural Transformation project as an example of the multi-sectoral product developed in cooperation with the client government and with other sectors. He also presented a business plan for the second phase and a three-year budget with AFRREI expenditures maintaining a level of US\$2 million annually.

RPTES Business Meeting

The RPTES Manager highlighted the program's structure, its vantage point with reference to the environment-poverty nexus and the place of traditional and bio-mass energy in the energy matrix. He reported the establishment of an inter-ministerial and interdisciplinary energy planning team in RPTES countries, the establishment of a regional network for traditional and biomass energy, and capacity building and institutional strengthening in RPTES countries. He outlined the establishment of a policy/investment dialogue between donors and RPTES countries on the traditional and biomass sector. He presented a detailed description of RPTES' acclaimed Millennium Gel Fuel initiative.

General Discussion on the Governance of Energy Programs

The donor representatives came to the following conclusions while discussing governance-related issues as well as the recommendations of the External Review of Donor-funded Energy Programs (the Caruso report):

- that a joint roundtable of donors of trust-funded energy programs was very useful as an informally constituted body to exchange program strategies, lessons learned and emerging practice in the global energy sector. This forum also allows a view of the World Bank Group's energy work and the coordination and coherence among the trust-funded programs,
- that more comprehensive business meetings with each respective program are needed than were possible in this year's format. The World Bank will propose some format options to donors for next year,

- that there is no need for a combined consultative group (in the form of a unified, formal, top-level management body) exercising oversight over the four trust-funded energy programs,
- that there is no need for a common program coordination unit for the trust-funded energy programs,
- that the World Bank will propose options for implementing the concept of a ‘professional secretariat to donors’ aid’ with minimum incremental costs,
- that information, papers and briefings should be sent to donors in advance to allow for adequate preparation on key issues at the meetings. Also, new CG members should be briefed about each energy program in advance,
- that the skill mix and membership count of the ESMAP Technical Assistance Group (TAG) needs to be increased and its mandate should be expanded to cover the other three programs as well. A concept note on an expanded role for the TAG and a revised terms of reference document for it will be developed by the World Bank for donors,
- that the World Bank will propose options to donors about where and when to hold the next CG meeting,
- that the multiple donor-funded energy programs focused on Africa should continue to operate for a few years and then evaluated for complementary achievements,
- that the ESMAP Program Manager should allocate US\$60-70,000 from ESMAP core funds to preparatory work for the Village Power Partnership (VPP),
- that, by June 15, 2001, donors will communicate their comments and expressions of interest in making VPP a part of their future funding allocations.

The meetings concluded with a tribute and a vote of thanks from donors and World Bank staff to the ESMAP Donor Relations Administrator (due to retire in September 2001) for his ten years of hard work and commitment to excellence.

ANNEX 3

SUMMARY PROCEEDINGS OF THE NOVEMBER 8–9, 2001 INTERIM CONSULTATIVE GROUP MEETING, LISBON, PORTUGAL

ESMAP Interim Consultative Group Meeting Lisbon, Portugal • November 8–9, 2001

The interim meeting of the ESMAP Consultative Group (CG) was held at Lisbon, Portugal, on November 8–9, 2001. Mr. Jamal Saghir, World Bank Director for Energy and Water and Chair of the World Bank Group Energy Sector Board, chaired the meeting on behalf of Ms. Nemat Shafik, World Bank Vice President for Private Sector and Infrastructure and Chair of the ESMAP CG. This document presents a summary of the meeting's proceedings.

Introductory Remarks

Mr. Saghir welcomed the CG adding that Ms. Shafik had requested him to chair the meeting and brief her on any issues that the CG may wish to communicate to World Bank senior management. Mr. Saghir recognized the Government of Portugal's support in arranging the meeting and acknowledged participants attending their first CG meeting: Messrs. Michel Labrousse and Dominique Richard from France, Mr. Hannu Euroala from Finland, Mr. Yongping Zhai from the Asian Development Bank and Ms. Johane Meagher from the E7.

Mr. Saghir reiterated the strength of ESMAP as one of the longest running partnerships between the donors and the World Bank Group. He stressed that the poverty agenda is also at the core of the Bank Group's energy business agenda and cited ESMAP as a potential source of intellectual leadership in establishing the linkages with other sectors. He stated that the main objectives of the interim CG meeting were to discuss the results of ESMAP's 1999–2001 business plan and analyze the draft 2002–2004 business plan.

Changes in the Global Environment that Predicate ESMAP's 2002–2004 Business Plan

Client Perspective: Mr. Alfredo Mirkin of the ESMAP Technical Advisory Group (TAG) emphasized the necessity of analyzing the link between energy and sustainable development given that energy is not a goal in itself but a contributor to sustainable development. He recommended that the replicability of energy strategies be very carefully analyzed for customizing strategies to national political, social and cultural circumstances. Capacity building and knowledge dissemination can be key drivers of such work. Mechanisms that guarantee the proper allocation of financial resources for energy investments, particularly private investments, and the mitigation of the impact of economic crises are critical. While there are success stories about reforms supporting economic development, deeper analysis is required to evaluate reform impact on poverty mitigation. Second stage reform may be necessary to meet the poverty reduction targets. To meet the challenge of supply to dispersed rural areas, different approaches including efficient subsidy policies will be necessary. Reform must also consider environmental issues while analyzing the trade off between climate change and economic development. He observed that national and regional energy market integration holds the promise of expanding energy delivery in Latin America with its highly diverse primary energy resources.

Client Perspective: Mr. Youba Sokona, also a TAG member, raised four key points about why African populations are not enjoying the fruits of the continent's plentiful energy resources. He discussed the contrast between international energy discussions focused on the energy-climate nexus and Africa's needs focused on the energy-development nexus. He also noted that competition between development projects is restraining initiative in the region and ESMAP needs to help move the agenda from a project focus to a policy focus in Africa. He advised that the limits of the development impact of renewables need to be recognized. To help African governments define their role in a changing energy sector, a long-term commitment to capacity building is needed in the areas of policy, research, and project formulation/implementation simultaneously.

Client Perspective: Mr. Rufino Boomasang, ESMAP CG Member-at-Large, outlined the PNOC-Shell Palawan Natural Gas Development project as an example of a major public-private partnership in which the private sector has provided 95% of the financing. This is a US\$4.5 billion off-shore gas development project in the Philippines. Mr. Boomasang emphasized that this project not only had sectoral impacts but also macro-level impacts since the natural gas industry is hoping to serve beyond the power sector. It also illustrates the private sector's possible role in developmental and environmental initiatives. Mr. Boomasang urged the CG to consider the relation between terrorism and poverty and give more priority to the energy-poverty agenda after the events of September 11, 2001.

Donor Perspective: Mr. Dick Jones of the Department for International Development (DFID), UK, emphasized that the key challenge for practitioners of energy in development is to demonstrate energy's direct and indirect links with the Millennium Development Goals (MDGs) which enjoy unprecedented support. He pointed out that, in his view, there is no need for adding any energy-specific goals to the MDGs because energy contributes to all the current goals. Recognizing the need for placing energy on the international development and poverty reduction agenda as a theme rather than a sector, DFID has established a Working Group on Energy for Poverty Reduction (EnPov). He reiterated that DFID intends to play a leading role in developing an understanding of the energy-poverty link and bringing organizations together around this understanding. He observed that ESMAP is the most suitable body for consolidating knowledge around this understanding and put energy back on the development agenda. He recommended that the ESMAP further strengthen the business plan's emphasis on energy as a contributor to poverty reduction and treat energy as a theme rather than a sector.

Donor Perspective: Mr. Jean-Paul Laude of the Ministry of Foreign Affairs, Denmark, supported Mr. Sokona's suggestions about ESMAP's role in strengthening the implementation of development ideas in Africa particularly in helping move stakeholders' project-focus to a policy-focus. He noted that the limited appreciation among donor decision-makers that energy is a cross-sectoral theme needs to be addressed. He suggested that ESMAP build on its strengths in sector reform to tailor reform strategies customized to each client country's needs. He pointed to the possibility for ESMAP to provide strong monitoring and feedback systems for the rural transformation programs being launched by the Bank in Africa and elsewhere. He also emphasized the need to build capacity in developing countries for negotiating meaningfully in mechanisms like CDM. He commended ESMAP's effort in making information available to its donors, particularly through the donors' section of its website. He recommended that donors should also strengthen the networking among themselves through such tools.

UNDP Perspective: Ms. Susan McDade of the UNDP stated that the UNDP is maintaining its focus on energy through a phase of transition. She outlined UNDP's recently decentralized organizational structure. Energy and environment is one of UNDP's six worldwide thematic practice areas and two

trust funds, one for energy and the other for environment, have been established in this area. The main UNDP service lines under the energy trust fund shall be (i) strengthening national policy frameworks to support energy services, (ii) promoting rural energy services to support growth and equity, (iii) clean energy technologies for sustainable development, and (iv) capacity building on new energy financing mechanisms including those related to Kyoto Protocol.

The View of the Private Sector: Ms. Jan Murray of the World Energy Council (WEC) outlined the three key themes that emerged at WEC's 18th World Energy Congress held in Buenos Aires in October 2001. First, there was broad consensus about the importance of market reform with a recognition that reform interventions have to be appropriate to the stage of an energy market's development. Second, the dominant position of fossil fuels will not be displaced by any other technology for 3-4 decades. And, third, there was consensus that market-based incentives (provided they include all energy sources) are the most suitable way to contain the environmental impacts of energy use. Informally, the recurring theme was "energy for people and energy for peace". She also reiterated WEC's commitment to working with ESMAP and the World Bank to expand access to energy.

World Bank Perspective: Mr. Jamal Saghir informed the meeting that World Bank senior management supports a renewed role for the World Bank Group in energy. He commended how ESMAP's three-pronged strategy—markets, environment, and access—has been helpful in refocusing the program on sustainable energy and poverty reduction. It has also shaped the Bank's and donors' thinking with its flagship knowledge work. He also recognized ESMAP's key role in the preparation of World Bank Group's Energy Business Renewal Strategy, particularly in focusing it on energy poverty. He stated that ESMAP's reduction of overhead costs and its productivity gains are impressive but, to deliver more, the program needs greater human and financial resources. He pointed out that ESMAP needs to concentrate further on energy's linkages with other sectors and on defining its role in implementing the World Bank Group's Energy Business Renewal Strategy.

Discussion: It was pointed out that, in an atmosphere of decreasing investment in developing countries, there are nevertheless some success stories of private sector participation in the developing world including the Palawan gas project in the Philippines presented by Mr. Boomasang and that it would be important to understand the reasons behind this success. With lower rates of foreign direct investment, working with local and regional, rather than international, investors was suggested. The international private sector's sustained participation in Africa's extractive industries was mentioned as another success story but the investment of the revenues from these industries, particularly of rent to governments, to development was recognized as the key question. In this context, the need for illuminating the linkages between energy-related investments and poverty reduction was highlighted. The need to pursue the social objectives that are not addressed by the private sector was cited as an entry point for multi-lateral development banks like the World Bank and the Asian Development Bank (ADB). 'Smart subsidies' were mentioned as a tool for addressing social objectives but it was added that, for sustainable results, the funds for such subsidies would best come from the host governments themselves, not from international donor agencies, and the political driver for them would most suitably come from non-energy sectors. The CG was urged to ensure faster detection and response to changes in the global energy business. It was also noted that the global development environment has not changed completely since energy is being acknowledged at key forums including the CSD-9 agenda and the UNFCCC. ESMAP needs to build on this trend.

Mr. Jorge Borrego of the Ministry of Economy and Energy of the Government of Portugal, welcomed the ESMAP CG on behalf of his government. He signaled that Portugal was considering joining ESMAP as a partner to contribute its energy and development experience from Africa and South America, in particular. He stressed that it is crucial to build capacity in developing countries to enable them to adapt rather than adopt solutions.

Retrospective Review: Evaluating the Execution and Relevance of the 1999–2001 Business Plan

ESMAP Presentation on Evolution of the 2002–2004 ESMAP Business Plan: Mr. Charles Feinstein, ESMAP Lead Operations Coordinator, outlined the environment in which the 2002–2004 business plan has evolved. He elaborated on external factors including the issuance of the Millennium Development Goals (MDGs), the recent downward trend in private participation in infrastructure, the World Commission on Dams recommendations and the climate change negotiations. He also outlined internal World Bank factors: the PRSP process, the implementation of *Fuel for Thought*, the external review of the Bank's trust funded energy programs, the development of the World Bank Group's Energy Business Renewal Strategy, the Bank's environment strategy and the Extractive Industries Review.

ESMAP Presentation on the 1999–2001 Plan's Implementation: Ms. Dominique Lallement, ESMAP Manager, introduced a stock-taking of the 1999–2001 plan's implementation by stating that the Access-Environment-Market strategic framework had helped refocus the program on the sustainable energy-poverty reduction paradigm. She observed that the thematic areas adopted under the business plan had been less useful as an intellectual framework. She emphasized that ESMAP had contributed to the consensus that the global challenge of delivering sustainable energy services to the poor requires the combination of multiple institutions, financing mechanisms, efficient markets and a variety of technologies to work in efficient markets. Among areas of strength in the plan's implementation, she counted the refocusing of the ESMAP portfolio onto the strategic priorities mentioned above; *engendering* of the portfolio; the enhanced relevance of ESMAP work to World Bank Group operations; the managerial effectiveness and transparency achieved during the plan period. Among areas of weak performance, she mentioned the effective brokerage of ESMAP-generated knowledge; capacity building through ESMAP projects; systematic capture of innovative ideas; restructuring and expansion of the Africa portfolio; greater outreach through partnerships; and constrained resource mobilization.

TAG Commentary: On behalf of the TAG, Mr. Andrew Barnett endorsed the retrospective review presented by ESMAP management. He commended the business plan document as a sourcebook for new members of the CG for its comprehensiveness and its frankness about areas of strength and weakness in ESMAP's performance. He pointed out that ESMAP's positioning among the other trust-funded energy programs needs to be made clearer to the Bank's clients. He voiced concern about the lack of progress on the Africa portfolio and about ESMAP's wide reach restricting its ability to deliver focused impact. The TAG recognized ESMAP's restrictions as: a low level of funding (currently around US\$8 million annually), project-tied funding and the consideration of proposals mainly from World Bank task managers. The TAG emphasized that it values ESMAP very highly, however, and sees the ESMAP CG as one of the few forums at which energy donors meet. On this basis, the TAG recommended that the knowledge partnership of the CG be strengthened through information sharing about the bi-lateral activities of each CG member. Ideally, the CG could represent a multi-lateral knowledge broker about energy and development. It recommended that the dissemination of ESMAP knowledge be targeted to a differentiated audience (policy-makers, consultants, community leaders, etc.) while underlining that

this is not possible without additional resources from the donors. The TAG also pointed out that the ESMAP CG, and the development business at large, need to respond to changes in the global energy business more swiftly.

In the ensuing discussion, donors commended ESMAP for its transparent treatment of its own work. Donors placed very high emphasis on the need to clarify the links between energy and development to non-energy decision-makers, particularly in the context of the International Development Goals. ESMAP was acknowledged as the most suitable source for such work. The need to develop measures for improving the quality of ESMAP's Africa portfolio was acutely highlighted. ESMAP management pointed out that the strategic alignment and internal coordination among ESMAP's Africa activities is more the issue than the quality of Africa-related proposals. While the limited financial benefit that CDM can bring to Africa was acknowledged, its spin-offs effects (particularly capacity building of analytical skills that have multiple uses) were recognized. ESMAP was commended for having achieved a significant impact on the World Bank's energy practice but its marginal influence on the country level operations of the UN agencies and on intergovernmental processes, e.g., CSD-9, was pointed out. The CG recognized the need for better networking among the CG members to share knowledge about their bi-lateral activities in developing countries and allow better co-ordination with ESMAP work.

Immediate Deliverable:

ESMAP will develop a 10-20 page document that concretizes the links between energy and poverty reduction in the context of the Millennium Development Goals.

Developing the 2002-2004 Business Plan: Prioritization and Financing

ESMAP Mission Statement: The CG discussed how to make ESMAP's mission statement more relevant to the current political environment. Consensus developed around the following draft:

ESMAP promotes the role of energy in poverty reduction and economic growth in an environmentally responsible manner. Its work applies to emerging and transition economies and contributes to the achievement of internationally agreed development goals.

Duration of Plan Period: The CG agreed that the business plan should span three years.

The Proposed Business Lines: The CG members discussed each proposed business line at length, and sought clarifications where necessary, as a prelude to a prioritization of the business lines according to donor preferences. The results from this discussion are summarized in the business lines matrix (Annex 1). Some key conclusions are stated here. There was consensus that ESMAP can provide intellectual leadership and initiative in the Village Power Partnership (VPP). Donors emphasized the need for further defining this role before funding pledges can be made. ESMAP has a limited role in direct CDM capacity building. DFID suggested that as part of the development of ESMAP as a source of knowledge on energy issues, a specific component of this be to follow up the recommendation of the G8 Renewable Energy Taskforce to improve the sharing of information on renewables. There was no support from other donors on any G8 link. There was general agreement of the importance of developing the role of ESMAP as a source of knowledge and communication between donors. ESMAP needs to conceptualize the specific products that can be used to deliver these business lines with particular focus on Africa where possible. The market development business lines enjoy broad donor support. Gender

should be subsumed as intrinsic capacity building work under all the business lines. The secretariat function does not have to be restricted to the G8 taskforce follow-up. ESMAP has to continue its role as a source of knowledge but also of communication between donors about their bi-lateral activities.

Regarding the need for mechanisms to include non-World Bank Group proposals and, possibly, task managers in the mainstream ESMAP proposal process, the CG requested that ESMAP propose some options to the CG.

Financing Priorities of Donors: In presenting the trends in donor contributions, Mr. Feinstein pointed out that contributions to ESMAP had climbed back to the US\$8m per year level in 2001. As donors indicated their planned contributions to ESMAP for the 2002-2004 period, the tally summed to US\$18 million (with a possibility of increasing to US\$23 million considering indications of donors not present at the CG) against the business plan's revised cost of US\$35 million. It was decided that each donor should rank the business lines according to their funding priorities for this US\$18 million. This identified strong support for the following themes: energy poverty linkages, indoor air pollution, impact of reform on the poor, methodologies and M&E for multi-sectoral energy work, knowledge dissemination and governance.

Participation of the Private Sector in ESMAP: Mr. Saghir presented an overview of trends in the global energy business particularly the downward trend of foreign direct investment and the uncertainty felt by major energy companies many of which are reconsidering their investments in developing countries. He also pointed out the need to understand the impact of new developments such as the emergence of multi-utilities and the issues related to their regulation. He said that the signal from international energy firms is that there is a greater need for communication between them, the World Bank and the donor community. In the ensuing discussion, the need for collaboration between the private sector and the development community on issues of investment climate and risk was highlighted. Many of these issues (including governance, payment systems, political risk, etc.) were recognized as broader than the energy sector and also applicable to the local private sector in developing countries. The potential of local private firms for small-scale energy service provision was recognized as untapped. Caution was recommended regarding fund mobilization from the private sector for ESMAP core funding but there was consensus that creative mechanisms should be contemplated for rules of engagement with the private sector without raising conflict of interest issues. The CG expressed interest in learning more about the World Bank's experience with the private sector.

Immediate Deliverables:

- By end-January, ESMAP will arrange a meeting of at least 10 key VPP stakeholders to define the long-term business plan and governance for VPP and to test commitment to a substantial capital fund for VPP.
- The World Bank will present a report about developments in the global energy-related private sector at the next CG meeting.
- ESMAP will propose options for including non-World Bank Group proposals and, possibly, task managers in the ESMAP proposal process.
- The CG members will provide their comments on the discussion draft of the business plan to ESMAP by December 15, 2001.
- ESMAP will update the business plan according to these comments and will circulate the final version for 'no-objection' by the end of December, 2001.

In the absence of any objections, the business plan will be considered final by January 15, 2002.

Governance Issues

Extended Terms of Reference for the TAG and possible new members: The draft terms of reference (TOR) for an extended TAG were circulated by the TAG. The TAG recommended that a new TAG member should be selected as soon as possible to allow for sufficient overlap among outgoing and incoming TAG members. The CG expressed its support for extending the TAG according to the circulated TOR but pointed out that it is crucial to maintain explicit complementarity between ESMAP and the other trust-funded programs. The CG also recommended that a gradual, phased approach be taken if the creation of a common CG for all trust-funded programs is envisaged. UNDP reiterated its commitment to finance the TAG's ESMAP activities, however, it will not be supporting TAG's activities related to other trust-funded programs. The donors supporting the other programs agreed with the principle that the respective TAG expenditures be supported by each program. It was concluded that ESMAP will continue to provide logistical support to the TAG's additional activities.

Immediate Deliverable:

The CG members will provide their comments on the above-mentioned TOR to ESMAP by December 15, 2001.

Frequency and Location of CG Meetings: The CG decided that the joint meeting of the trust funded energy programs should be held annually and should not last longer than three days. Each program should present its progress report at the CG in separate business meetings and, in a year or two, there could possibly be only one consultative group on energy. The CG also expressed its preference for creatively sharing knowledge among donors about bi-lateral energy-related activities in developing countries. The next joint meeting of the trust funded energy programs will be held in May of 2002, in Copenhagen.

An informal farewell was given to Ms. Lucie Bertrand of the E7 as this was her last ESMAP CG meeting before her retirement.

ANNEX 4

ACTIVITIES COMPLETED, LAUNCHED AND ON-GOING IN 2000-2001 (BY REGION)

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
AFR (18)					\$3,302,800	\$3,302,800	\$103,000	\$1,548,000	\$2,125,300	\$7,079,100	
Africa	Cote d'Ivoire	P077534	Workshop on Rural Energy and Sustainable Development	Feinstein	\$10,000	\$10,000	\$0	\$0	\$0	\$10,000	Under Implementation
Africa	Mozambique	P076783	Assessing the Poverty Alleviation Impacts of Rural Electricity Access - SEED Funding	Sakairi	\$3,500	\$3,500	\$0	\$15,000	\$0	\$18,500	Under Implementation
Africa	Nigeria	P077061	LPG Sector Improvement	Belguedj	\$7,500	\$7,500	\$0	\$50,000	\$0	\$57,500	Under Implementation
Africa	Nigeria	P073965	Initiating the Bank's Peri-Urban/Rural and Renewable Energy Activities in Nigeria	Sanghvi	\$45,000	\$45,000	\$18,000	\$10,000	\$133,000	\$206,000	Under Implementation
Africa	AFR	P073936	CDM-Assist: A collaborative Program to Build CDM Capacity in Africa	Hoskote	\$50,000	\$50,000	\$0	\$200,000	\$400,000	\$650,000	Publication in Process
Africa	AFR	P070940	Power Trade in Nile Basin Phase 2	Hoskote	\$504,000	\$504,000	\$0	\$30,000	\$82,000	\$616,000	Under Implementation
Africa	AFR	P070684	Clean Air Initiative in Sub-Saharan African Cities	Reliquet	\$210,000	\$210,000	\$0	\$1,243,000	\$1,480,300	\$2,933,300	Under Implementation
Africa	AFR	P070054	Environment and Health: Bridging the Gaps (Phase IV)	Gulstone	\$54,681	\$54,681	\$0	\$0	\$0	\$54,681	Publication in Process
Africa	Nigeria	P069382	Petroleum Sector Review	McPherson	\$59,664	\$59,664	\$0	\$0	\$0	\$59,664	Publication in Process
Africa	AFR	P068875	Development of a Regional Power Market in West Africa	Mikhail	\$257,558	\$257,558	\$0	\$0	\$0	\$257,558	Under Implementation
Africa	AFR	P064935	Opportunities for International Power Trade in the Nile River Basin I	Hoskote	\$515,915	\$515,915	\$0	\$0	\$30,000	\$545,915	Publication in Process
Africa	South Africa	P063180	South Africa Workshop - People's Power Workshop	Sanghvi	\$35,000	\$35,000	\$85,000	\$0	\$0	\$120,000	Under Implementation
Africa	Ghana	P052260	Corporatization of Distribution Concessions through Capitalization	Hoskote	\$133,186	\$133,186	\$0	\$0	\$0	\$133,186	Publication in Process
Africa	AFR	P048500	Petroleum Transportation Corridors	Alba	\$150,659	\$150,659	\$0	\$0	\$0	\$150,659	Under Implementation

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
Africa	Malawi	P044764	Rural Energy Development	Hoskote	\$322,554	\$322,554	\$0	\$0	\$0	\$322,554	Publication in Process
Africa	AFR	P044440	Regional Electricity Demand Management TA – Phase II	Savary	\$101,823	\$101,823	\$0	\$0	\$0	\$101,823	Publication in Process
Africa	Cameroon	P044275	Decentralized Rural Electrification	Masse	\$249,999	\$249,999	\$0	\$0	\$0	\$249,999	Publication in Process
Africa	Zambia	P023879	Energy Sector Restructuring	Savary	\$591,761	\$591,761	\$0	\$0	\$0	\$591,761	Publication in Process
EAP (19)					\$3,125,263	\$3,372,204	\$1,804,095	\$425,000	\$1,017,703	\$6,619,002	
East Asia & Pacific	Mongolia	P078013	Rural Energy Access and Poverty Reduction	Feinstein	\$10,000	\$10,000	\$0	\$0	\$0	\$10,000	Under Implementation
East Asia & Pacific	China	P076471	Energy Efficiency in Water Utilities – Seed Funding	Rivera	\$10,000	\$10,000	\$0	\$0	\$0	\$10,000	Under Implementation
East Asia & Pacific	Cambodia	P076113	Cambodia – Renewable Energy Action Plan	Crousillat	\$308,000	\$308,000	\$0	\$170,000	\$0	\$478,000	Under Implementation
East Asia & Pacific	China	P076111	Capacity Building for National and Provincial Socially and Environmentally Sustainable Management of Coal Resources in China	Husband	\$350,000	\$350,000	\$250,000	\$80,000	\$40,000	\$720,000	Under Implementation
East Asia & Pacific	Cambodia	P075883	Designing a Poverty-focused, Gender-Sensitive Monitoring & Evaluation Plan for a World Bank Renewable Rural Electrification Project	Lallement	\$25,000	\$95,000	\$0	\$0	\$0	\$95,000	Under Implementation
East Asia & Pacific	China	P074684	China: Policy Advice on Implementation of Clean Coal Technology Projects: Phase II	Takahashi	\$50,000	\$50,000	\$0	\$0	\$0	\$50,000	Under Implementation
East Asia & Pacific	Vietnam	P072947	Vietnam – Policy Dialogue Seminar and New Mining Code	Sa	\$150,000	\$150,000	\$0	\$30,000	\$170,000	\$350,000	Under Implementation
East Asia & Pacific	Philippines	P072413	Philippines – Village Power Fund and Incubator for Renewable Energy Enterprises	Shum	\$371,500	\$371,500	\$0	\$0	\$0	\$371,500	Under Implementation
East Asia & Pacific	Thailand	P069992	Motorcycle Fleet Upgrade to Reduce Air Pollution in Bangkok	Shah	\$120,000	\$120,000	\$0	\$100,000	\$210,000	\$430,000	Under Implementation
East Asia & Pacific	Thailand	P069828	Power Pool Study	Lamech	\$130,000	\$130,000	\$0	\$0	\$0	\$130,000	Under Implementation
East Asia & Pacific	Vietnam	P069143	Lead Phaseout Initiative	Johnson	\$100,000	\$100,000	\$0	\$0	\$90,000	\$190,000	Under Implementation
East Asia & Pacific	EAP	P068663	Regional Electricity Market: Mekong Basin Power Pool Phase II	Charpentier	\$388,059	\$565,000	\$0	\$45,000	\$0	\$610,000	Under Implementation
East Asia & Pacific	China	P068523	Sulfur Emission Mitigation Policies	Johnson	\$100,000	\$100,000	\$0	\$0	\$95,000	\$195,000	Under Implementation
East Asia & Pacific	Vietnam	P067826	Revision of the Existing Legal & Regulatory Framework for the Petroleum Sector	Svensson	\$89,600	\$89,600	\$0	\$0	\$197,400	\$287,000	Publication in Process

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
East Asia & Pacific	China	P060125	Clean Coal Technology (Phase I)	Takahashi	\$80,000	\$80,000	\$1,554,095	\$0	\$0	\$1,634,095	Under Implementation
East Asia & Pacific	Mongolia	P058884	Coal Stove Improvement Program	Rivera	\$50,000	\$50,000	\$0	\$0	\$130,000	\$180,000	Publication in Process
East Asia & Pacific	Vietnam	P050391	Institutional Reform & Restructuring of Petrovietnam Gas Company	Svensson	\$104,524	\$104,524	\$0	\$0	\$85,303	\$189,827	Publication in Process
East Asia & Pacific	Vietnam	P045206	Power Sector Regulation & Electricity Law	Lamech	\$329,700	\$329,700	\$0	\$0	\$0	\$329,700	Publication in Process
East Asia & Pacific	Cambodia	P044441	Commercialization of a Power Company	Charpentier	\$358,880	\$358,880	\$0	\$0	\$0	\$358,880	Publication in Process
ECA (11)					\$2,378,869	\$2,378,869	\$1,330,000	\$576,900	\$1,827,500	\$6,113,269	
Europe & Central Asia	Azerbaijan	P076760	Azerbaijan - Natural Gas Sector Restructuring and Regulatory Reform	Townsend	\$230,000	\$230,000	\$0	\$0	\$0	\$230,000	Under Implementation
Europe & Central Asia	ECA	P076097	Multilateral Energy Sector Assistance to the EU Accession Countries	Hamso	\$100,000	\$100,000	\$0	\$400,000	\$240,000	\$740,000	Under Implementation
Europe & Central Asia	Turkey	P074557	Turkey: Energy and Environment Review (Phase III)	Moose	\$80,000	\$80,000	\$1,100,000	\$23,900	\$0	\$1,203,900	Under Implementation
Europe & Central Asia	Central Asia	P073630	Energy Efficiency in Urban Water Utilities in Central Asia	Ijjasz-Vasquez	\$250,000	\$250,000	\$0	\$0	\$0	\$250,000	Under Implementation
Europe & Central Asia	Lithuania	P073366	Lithuania - Heating Supply to Small Cities/Towns	Stuggins	\$230,000	\$230,000	\$230,000	\$69,000	\$0	\$529,000	Under Implementation
Europe & Central Asia	ECA	P070678	Heat strategies in Low-Income Transition Countries	Travers	\$300,000	\$300,000	\$0	\$0	\$120,000	\$420,000	Under Implementation
Europe & Central Asia	Macedonia	P069434	Key Aspects of Energy-Environment/GHG Strategy	Moose	\$70,000	\$70,000	\$0	\$10,000	\$150,000	\$230,000	Under Implementation
Europe & Central Asia	Bulgaria	P068953	Energy-Environment Strategy	Zaheer	\$244,540	\$244,540	\$0	\$70,000	\$0	\$314,540	Under Implementation
Europe & Central Asia	Poland	P065449	Energy Sector Regulation (incl gas proj)	Benmessaoud	\$720,000	\$720,000	\$0	\$0	\$779,000	\$1,499,000	Under Implementation

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
Europe & Central Asia	Romania	P064743	Energy Efficiency (Reconnaissance)	Atur	\$101,329	\$101,329	\$0	\$0	\$160,000	\$261,329	Under Implementation
Europe & Central Asia	ECA	P049639	Oil Spills Occurrence Database, Modeling, Remediation and Prevention	Oduolowu	\$53,000	\$53,000	\$0	\$4,000	\$378,500	\$435,500	Under Implementation
GLB (21)					\$3,250,658	\$3,626,743	\$316,500	\$330,849	\$2,445,259	\$6,719,351	
Global	Global	P077595	Energy and Poverty Reduction Workshop	Feinstein	\$26,130	\$26,130	\$0	\$0	\$0	\$26,130	Under Implementation
Global	Global	P077689	Rapid Assessment for Meeting Immediate Needs for Water and Energy Services	Davis	\$105,000	\$105,000	\$316,500	\$48,000	\$0	\$469,500	Under Implementation
Global	Global	P076863	Energy Development Report 2001	Spencer	\$25,000	\$25,000	\$0	\$0	\$0	\$25,000	Under Implementation
Global	Global	P074622	Village Power Partnership	Feinstein	\$75,000	\$75,000	\$0	\$0	\$0	\$75,000	Under Implementation
Global	Global	P074455	Petroleum Revenue Management: Best Practice Paper - Seed Funding	McPherson	\$6,000	\$238,000	\$0	\$0	\$0	\$238,000	Under Implementation
Global	Global	P073751	Assessing the Impacts of Energy Sector Reform on the Poor	Bacon	\$285,915	\$430,000	\$0	\$0	\$0	\$430,000	Under Implementation
Global	Global	P073145	Developing Regional Clean Air Networks	Bigio	\$300,000	\$300,000	\$0	\$0	\$0	\$300,000	Under Implementation
Global	Global	P073016	Developing Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China and India	Taylor	\$309,904	\$309,904	\$0	\$0	\$2,150,000	\$2,459,904	Under Implementation
Global	Global	P072999	Alternative Energy Applications	Labaste	\$8,027	\$8,027	\$0	\$0	\$0	\$8,027	Under Implementation
Global	Global	P070797	Advancing Modern Biomass Energy Opportunities & Challenges	Floor	\$232,640	\$232,640	\$0	\$17,000	\$0	\$249,640	Under Implementation
Global	Global	P069763	Energy Sector Strategy (Energy/Poverty Background Paper)	Besant-Jones	\$150,000	\$150,000	\$0	\$0	\$0	\$150,000	Publication in Process
Global	Global	P066021	Best Practices for Grid Electrification - Phase 2	Barnes	\$280,000	\$280,000	\$0	\$0	\$62,759	\$342,759	Under Implementation
Global	Global	P066021	Best Practices for Grid Electrification - Phase 2	Barnes	\$280,000	\$280,000	\$0	\$0	\$62,759	\$342,759	Under Implementation
Global	Global	P065971	ESMAP Knowledge Dissemination Activity	Lallement	\$320,149	\$320,149	\$0	\$0	\$0	\$320,149	Under Implementation
Global	Global	P065454	Energy Efficiency Operational Exchanges Program	Taylor	\$300,000	\$300,000	\$0	\$0	\$82,500	\$382,500	Under Implementation
Global	Global	P065311	Removing Obstacles to Cross-Border Oil & Gas Pipelines	Bacon	\$335,000	\$335,000	\$0	\$0	\$150,000	\$485,000	Publication in Process

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
Global	Global	P061189	Global Financing of Decentralized Rural Electrification	Floor	\$4,808	\$4,808	\$0	\$0	\$0	\$4,808	Publication in Process
Global	Global	P060433	ESMAP Publications	Lallement	\$70,000	\$70,000	\$0	\$17,305	\$0	\$87,305	Under Implementation
Global	Global	P056162	ESMAP CG Meeting	Lallement	\$91,000	\$91,000	\$0	\$248,544	\$0	\$339,544	Under Implementation
Global	Global	P049075	Gas Flaring Reduction	Svensson	\$87,000	\$87,000	\$0	\$0	\$0	\$87,000	Publication in Process
Global	Global	P044279	Electricity Benefits Assessment	Barnes	\$239,085	\$239,085	\$0	\$0	\$0	\$239,085	Publication in Process
LCR (23)					\$7,003,292	\$7,327,204	\$25,000	\$472,000	\$982,762	\$8,806,966	
Latin America & Caribbean	Bolivia	P078011	Best Practice Case Study in Integrating Environment into Gas and Oil Pipeline Projects: Experiences Based on the Bolivia-Brazil Gas Pipeline	Quintero	\$117,000	\$117,000	\$0	\$29,000	\$25,000	\$171,000	Under Implementation
Latin America & Caribbean	Nicaragua	P076709	Lessons on Offgrid Electricity, Business Development Services and Microcredit	Reiche	\$15,000	\$15,000	\$0	\$0	\$0	\$15,000	Under Implementation
Latin America & Caribbean	LCR	P076081	Regulatory issues of off-grid energy service delivery as part of national rural electrification strategies	Reiche	\$150,000	\$150,000	\$0	\$20,000	\$0	\$170,000	Under Implementation
Latin America & Caribbean	Brazil	P075196	Energy Efficiency in Medium and Small Water Supply Utilities	Armar	\$160,000	\$160,000	\$0	\$30,000	\$50,000	\$240,000	Under Implementation
Latin America & Caribbean	Honduras	P075127	Technical Assistance to Proposed Expansion of Solar-Net Village Program	Torres	\$187,000	\$197,000	\$0	\$0	\$50,000	\$247,000	Under Implementation
Latin America & Caribbean	LCR	P074337	LCR - Low Income Energy Assistance	Wodon	\$150,000	\$150,000	\$0	\$20,000	\$30,000	\$200,000	Under Implementation
Latin America & Caribbean	Guatemala	P074232	Health Impacts of Traditional Fuel Use	Ahmed	\$167,000	\$167,000	\$25,000	\$40,000	\$0	\$232,000	Under Implementation

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
Latin America & Caribbean	Brazil	P074149	Brazil - Rural Electrification Strategy	Guasch	\$250,000	\$250,000	\$0	\$50,000	\$50,000	\$350,000	Under Implementation
Latin America & Caribbean	Nicaragua	P073842	Nicaragua - Workshop on Private Sector-Led Mechanisms for Rural Energy Service Delivery	Terrado	\$75,000	\$75,000	\$0	\$0	\$25,000	\$100,000	Publication in Process
Latin America & Caribbean	LCR	P073536	Evaluation of Bank Experience with Integrated Rural Electrification Projects - Seed Funding	Goldmark	\$15,000	\$15,000	\$0	\$0	\$0	\$15,000	Under Implementation
Latin America & Caribbean	Mexico	P073535	Mexico - TA for Long-Term Program for Renewable Energy Development	Avalle	\$100,000	\$100,000	\$0	\$15,000	\$10,000	\$125,000	Under Implementation
Latin America & Caribbean	Nicaragua	P073293	Nicaragua - Pilot Commercialization of Improved Cookstoves	Torres	\$175,000	\$175,000	\$0	\$25,000	\$15,000	\$215,000	Under Implementation
Latin America & Caribbean	Ecuador	P072741	Ecuador - Indigenous People's Training Program on Oil Development Projects	Alba	\$280,000	\$280,000	\$0	\$0	\$0	\$280,000	Under Implementation
Latin America & Caribbean	LCR	P070922	Central America Gender in Sustainable Energy	Correia	\$385,040	\$225,000	\$0	\$0	\$50,000	\$275,000	Under Implementation
Latin America & Caribbean	LCR	P069821	Mitigation of Environmental and Social Impact of Oil and Gas Operations	Alba	\$176,977	\$176,977	\$0	\$63,000	\$144,000	\$383,977	Under Implementation
Latin America & Caribbean	LCR	P068335	Regional Interconnection b/w Southern American Electricity Markets Phases I & II	Charpentier	\$430,377	\$430,377	\$0	\$0	\$275,000	\$705,377	Under Implementation
Latin America & Caribbean	LCR	P065664	Refining Industry in LCR - Sector Reform and Fuel Quality Improvement	Alba	\$509,082	\$509,082	\$0	\$0	\$0	\$509,082	Under Implementation
Latin America & Caribbean	Bolivia	P065663	Training Program for Key Group Representatives From Indigenous People Regional Organizations/Rural Energy Development, Phase 2	Alba	\$597,504	\$863,655	\$0	\$30,000	\$0	\$893,655	Under Implementation

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
Latin America & Caribbean	Mexico	P064933	Energy Sector Reform - Phase 1	Halpern	\$192,199	\$402,000	\$0	\$150,000	\$212,000	\$764,000	Under Implementation
Latin America & Caribbean	Bolivia	P056928	National Biomass Programme	Durand	\$2,569,113	\$2,569,113	\$0	\$0	\$46,762	\$2,615,875	Under Implementation
Latin America & Caribbean	LCR	P053523	Rural Electrification & Power Reform in Central America	Barnes	\$302,000	\$300,000	\$0	\$0	\$0	\$300,000	Under Implementation
Latin America & Caribbean	LCR	P053523	Rural Electrification & Power Reform in Central America	Barnes	\$300,000	\$300,000	\$0	\$0	\$0	\$300,000	Under Implementation
Latin America & Caribbean	LCR	P053523	Rural Electrification & Power Reform in Central America	Barnes	\$300,000	\$300,000	\$0	\$0	\$0	\$300,000	Under Implementation
MNA (2)					\$344,981	\$344,978	\$0	\$0	\$0	\$344,978	
Middle East & North Africa	Egypt	P072755	Household Energy and Burns Injuries in Egypt	Spencer	\$4,981	\$4,978	\$0	\$0	\$0	\$4,978	Under Implementation
Middle East & North Africa	Morocco	P065461	Global Efficiency in Sidi Bemoussi Industrial & Peri-Urban Area	Mendonca	\$340,000	\$340,000	\$0	\$0	\$0	\$340,000	Under Implementation
SAR (13)					\$2,546,524	\$2,627,982	\$0	\$235,000	\$255,000	\$3,117,982	
South Asia	Bangladesh	P078016	Replication of Bangladesh Women's Energy Enterprise Pilot	Feinstein	\$30,000	\$30,000	\$0	\$0	\$0	\$30,000	Under Implementation
South Asia	Bangladesh	P077887	Opportunity for Women in Renewable Energy Technology Utilization in Bangladesh (Phase 2)	Ahmad	\$220,000	\$220,000	\$0	\$0	\$0	\$220,000	Under Implementation
South Asia	India	P075756	Access of the Poor to Cleaner Household Fuels in India	Lvovsky	\$100,000	\$100,000	\$0	\$110,000	\$10,000	\$220,000	Under Implementation
South Asia	SAR	P073511	South Asia Urban Air Quality Management Strategy	Kojima	\$195,000	\$195,000	\$0	\$0	\$0	\$195,000	Under Implementation

Region	Country	Project ID	Name	Task Mgr	ESMAP Allocation to Date	ESMAP Financing	Funding Source: Non-ESMAP TFs	Funding Source: Bank Budget	Funding Source: Non-WB	Total Project Budget	Status
South Asia	India	P072936	India – Environmental Policies for the State Power Sector – Rapid Assessment for Karnataka & Uttar Pradesh	Imran	\$222,750	\$222,750	\$0	\$50,000	\$0	\$272,750	Under Implementation
South Asia	Bangladesh	P072626	Towards Formulating a Rural Energy Strategy	Barnes	\$228,542	\$310,000	\$0	\$20,000	\$90,000	\$420,000	Under Implementation
South Asia	India	P070938	Household Energy & Women's Lives: The Case of India	Barnes	\$50,000	\$50,000	\$0	\$0	\$0	\$50,000	Under Implementation
South Asia	Bangladesh	P069693	Reducing Emissions from Three Wheeler Two-Stroke Engine Taxis	Brandon	\$90,000	\$90,000	\$0	\$15,000	\$20,000	\$125,000	Under Implementation
South Asia	India	P069390	Household Energy, Air Pollution and Health	Lvovsky	\$120,000	\$120,000	\$0	\$40,000	\$25,000	\$185,000	Under Implementation
South Asia	Bangladesh	P065453	Opportunity for Women in Renewable Energy Technology Utilization	Ahmad	\$188,979	\$188,979	\$0	\$0	\$0	\$188,979	Publication in Process
South Asia	Sri Lanka	P063170	Energy-Environment Review	Munasinghe	\$285,559	\$285,559	\$0	\$0	\$110,000	\$395,559	Under Implementation
South Asia	India	P057861	Dissemination on Environmental Issues in the Power Sector	Imran	\$403,923	\$403,923	\$0	\$0	\$0	\$403,923	Under Implementation
South Asia	India	P035324	Rural Energy Study	Barnes	\$411,771	\$411,771	\$0	\$0	\$0	\$411,771	Publication in Process
					\$21,952,387	\$22,980,780	\$3,578,595	\$3,587,749	\$8,653,524	\$38,800,648	

ANNEX 5

REPORTS PUBLISHED IN 2000–2001

Formal ESMAP Publications			
REGION/COUNTRY	ACTIVITY/REPORT TITLE	DATE	NUMBER
SUB-SAHARAN AFRICA (AFR)			
Africa Regional	Commercializing Natural Gas: Lessons from the Seminar in Nairobi for Sub-Saharan Africa and Beyond	01/00	225/00
	Africa Gas Initiative – Main Report: Volume I	02/01	240/01
	First World Bank Workshop on the Petroleum Products Sector in Sub-Saharan Africa	09/01	245/01
	Ministerial Workshop on Women in Energy	10/01	250/01
Angola	Africa Gas Initiative – Angola: Volume II	02/01	240/01
Cameroon	Africa Gas Initiative – Cameroon: Volume III	02/01	240/01
Comoros	Energy Assessment (English and French) 01/88		
	In Search of Better Ways to Develop Solar Markets: The Case of Comoros	05/00	230/00
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Côte d'Ivoire	Africa Gas Initiative – Côte d'Ivoire: Volume V	02/01	240/01
Gabon	Africa Gas Initiative – Gabon: Volume VI	02/01	240/01
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	Reducing the Cost of Grid Extension for Rural Electrification	02/00	227/00
	Undeveloped Oil and Gas Fields in the Industrializing World	02/01	239/01
	Best Practice Manual: Promoting Decentralized Electrification Investment	10/01	248/01
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	The Kenya Portable Battery Pack Experience: Test Marketing an Alternative for Low-Income Rural Household Electrification	05/01	012/01
Swaziland	Solar Electrification Program 2001-2010: Phase 1: 2001-2002 (Solar Energy in the Pilot Area)	12/01	019/01
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	Technology Assessment of Clean Coal Technologies for China Volume III—Environmental Compliance in the Energy Sector: Methodological Approach and Least-Cost Strategies	12/01	011/01
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Vietnam	Options for Renewable Energy in Vietnam	07/00	001/00
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Bangladesh	Workshop on Bangladesh Power Sector Reform	12/01	018/01

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	Best Practices for Sustainable Development of Micro Hydro Power in Developing Countries	08/00	006/00
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	Subsidies and Sustainable Rural Energy Services: Can we Create		
	Incentives Without Distorting Markets?	12/00	010/00
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