

Public Benefits and Power Sector Reform

Lars J. Nilsson, Anders Arvidson
Anton Eberhard



Public Benefits and Power Sector Reform

Report from an International Workshop held in Stockholm 12–13 May 2003

*The workshop report is prepared as part of the project
“Information dissemination on energy and environment in developing
countries”*

Lars J Nilsson
Anders Arvidson
Anton Eberhard

October 2003

Sponsored by the Swedish Development Cooperation Agency (Sida)

SEI Climate and Energy Programme
Report 2003-01
Stockholm, Sweden



Stockholm Environment Institute
Lilla Nygatan 1
Box 2142
SE-103 14 Stockholm
Tel: +46 8 412 1400
Fax: +46 8 723 0348
E-mail: postmaster@sei.se
Web: www.sei.se

Communications Director: Arno Rosemarin
Publications Manager: Erik Willis
Layout: Solveig Nilsson
Web Access: Howard Cambridge

This report is available on line (<http://www.sei.se>)

The project “Information dissemination on energy and environment in developing countries” is supported by the Swedish International Development Cooperation Agency (Sida).

This report represents the views of its authors. These views have not been adopted or in any way approved by Sida and should not be relied upon as a statement of Sida’s views. The responsibility for the report, including possible flaws, remains with the authors.

Copyright 2003 by the Stockholm Environment Institute

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes, without special permission from the copyright holder(s) provided acknowledgement of the source is made. No use of this publication may be made for resale or other commercial purpose, without the written permission of the copyright holder(s).

ISBN 91 88714 87 X

Table of Contents

Preface	iv
Executive Summary	v
Background.....	1
Workshop objectives.....	1
Day 1. Public benefits in power sector reform?.....	2
Presentations	2
Day 1. Afternoon working groups discussions	4
Day 1. Summary and conclusion	7
Day 2. Training and capacity building, what needs and where?.....	8
Presentations	8
Day 2. Afternoon discussion.....	10
Day 2. Summary and conclusion	11
Selected Further Reading.....	12

Preface

From the early 1990s, power sector reforms have been undertaken in several countries and the process will continue for many years to come. While the drivers of reform are mainly economic, there is also a growing recognition of the importance of energy issues and the power sector in meeting broader development goals. Sustainable development in all its economic, environmental and social aspects, as mirrored, for example, in the Millennium Development Goals, has far reaching implications for energy. Marrying sustainable development and power sector reform was the overarching theme at the Workshop on Public Benefits and Power Sector Reform which is reported here.

The workshop was held in Stockholm during two beautiful days in the early spring at a venue bordering on the archipelago. The organisation was a joint effort between the Stockholm Environment Institute, the International Energy Initiative, and the Department of Environmental and Energy Systems Studies at Lund University. As organisers, we wish to express our sincere gratitude to all the presenters and other participants for making valuable contributions to the success of the workshop. We also thank the Swedish Development Co-operation Agency (Sida) for funding the workshop.

This report summarises the presentations made and extensive discussions held during the workshop. We thank Malur Bhagavan, Omar Chisari, Gilberto Jannuzzi, and Kottilil Ramanathan for comments on a draft report. Nevertheless, we are solely responsible for any remaining errors and omissions.

Lars J Nilsson
Professor, Head of Research
Department of Environmental and Energy Systems Studies
Lund University

Anders Arvidson
Climate and Energy Programme Manager
Stockholm Environment Institute

Anton Eberhard
President, Professor
International Energy Initiative
and Graduate School of Business
University of Cape Town

Executive Summary

The Workshop on Public Benefits and Power Sector Reform was motivated by the need to address broader development goals and advance the provision of public benefits in power sector reforms. The primary objectives were:

- To provide a forum for a discussion among specialists, of how the provision of public benefits can be expanded as power sectors in developing countries are reformed, and review the experience (Day 1).
- To identify the needs for training and capacity building and institutional arrangements, as well as make recommendations for their design and implementation, for policy makers, regulators, and other professionals in developing countries (Day 2).

Public benefits is a socially constructed concept that includes activities that are not adequately conceived by competitive markets. Public benefit policies and programmes include those that expand electricity access to rural areas and the urban poor, improve security of supply, promote energy efficiency and renewable energy, etc.

Reforms have indeed been a threat to public benefits as traditionally delivered through electric utilities. However, in many cases public benefit programmes have also been rescued. In fewer cases, public benefit programmes have been conceived in the reform process.

From experience so far it is clear that power sector reforms must be made more compatible with broader sustainable development goals. Recognising the need for broader policy integration and putting public benefits higher on the reform agenda points to the importance of reaching beyond energy ministries and power sector experts at an early stage in the reform process. Other actors, such as NGOs and academia, may also be instrumental in monitoring and assessing the impacts of reform.

Public benefits can be an integral part of a reform package, or a complement to reform. It does appear that reform creates space and opportunity to achieve public benefits, but someone has to utilise that opportunity.

The need to make trade-offs between potentially conflicting objectives should not be underestimated. However, if reforms are framed around broader development goals priorities will be more explicit, and better informed trade-offs can be made. Perceived conflicts may be removed in the process.

Training and capacity building are key approaches to advancing public benefits. Training needs are changing and more specialised training, by topic or country, is needed as reforms evolve. In addition, the target audience should be extended to include a broader range of stakeholders than energy ministries and regulators alone.

The international donor community has a specific responsibility to enhance its own capacity in this area as well as to support training and capacity building in order to advance public benefits. Research based analysis and knowledge should be developed and used in training and capacity building, ultimately contributing to shaping policy.

Background

Across the world and across sectors, infrastructure and public enterprises are in the process of being reformed. New market and regulatory models with increased competition and private ownership are emerging in areas such as water, public transport, telecommunications, and energy. In the energy sector, most of the focus has been on the reform and restructuring of the power sector. The drivers for reform differ between countries. Expectations of higher economic efficiency, leading to lower prices, and improved customer choice or better service have been the motivation for reforming the power sector in many industrialised countries. The poor economic performance of electric utilities, shortages of capital for investing in expanded capacity, as well as conditionalities imposed by the World Bank and international donors, have been the motivation in many developing countries.

It is no surprise that concerns are raised regarding the broader effects of power sector reform since energy is so intimately linked with various aspects of socio-economic development and environmental sustainability. Electric utilities in monopoly markets have sometimes promoted key components of sustainable development, although the experience has been mixed. Examples include programmes for rural electrification and low-income households, demand side management, and renewable energy. Breaking up monopolies and introducing competition radically changes the prospects for power companies to deliver such programmes. There is mounting evidence from across the world that efforts to promote public benefits fall through the cracks during reform and that new approaches are required in order to sustain these efforts.

The reform process provides a window of opportunity to integrate broader environmental and social policy objectives and expand the provision of public benefits. The workshop was motivated by the need to strengthen our capacity to utilise this opportunity through exploring and better understanding the barriers and opportunities for broader policy integration.

Workshop objectives

The primary objectives of the workshop were:

- To provide a forum for a discussion among specialists, of how the provision of public benefits can be expanded as power sectors in developing countries are reformed, and review the experience (Day 1).
- To identify the needs for training and capacity building and institutional arrangements, as well as make recommendations for their design and implementation, for policy makers, regulators, and other professionals in developing countries (Day 2).

Governments, regulators, development co-operation agencies, development banks, and other organisations are in different capacities involved in the reform of power sectors across the world. Considering the importance of reforms and their impacts, there are strikingly few efforts for providing (a) the exchange of experience and knowledge on this issue or (b) organised training and capacity building in developing countries. The workshop mainly targeted development co-operation organisations that are actively involved in this area and funding such efforts, as well as organisations that deliver training and capacity building.

Day 1. Public benefits in power sector reform?

The first morning session of the workshop focused on reviewing the experience so far, and assessing the state-of-the-art knowledge and sources of information concerning market reforms and public benefits in developing countries. Four invited speakers presented valuable country and regional experiences, results from studies, and ideas for advancing public benefits. The presentations illustrated the great variety between developing countries in different aspects of development. In some countries, dealing with economic crises or capacity shortages has left little space for advancing longer term public benefit programmes. In some of the richer countries, public benefits have made it onto the reform agenda but each country exhibits a different story embedded in different national contexts. It could be mentioned, in parenthesis, that even if turning to a relatively homogeneous set of countries such as the member states of the European Union, each country is relatively unique in terms of the approach taken, if any, to advancing public benefits. Improving the economic and technical performance of the power sector, and expanding access to affordable power is high on the agenda in most developing countries. In contrast, energy efficiency and renewable energy is often high on the agenda in industrialised countries. Dealing with multiple, and sometimes conflicting and competing, goals and objectives is a reality of policy making.

Presentations

Experience from Power Sector Reform in Argentina, Omar Chisari, School of Economics, UADE, Argentina

Argentina was one of the first countries to reform its power sector, as well as other sectors, in the early 1990s as a part of a general programme of economic reforms. Reform was driven by the difficult macroeconomic situation and the poor performance of the power sector which was characterised by under-investment, poor quality, and "political" price structures. The reform process was fast and deep with essentially all utilities privatised within three years encompassing vertical and horizontal de-integration. The reform was considered largely a success in terms of improved quality of service, higher productivity, and new investments in capacity expansion. In terms of public benefits, attention was mainly given to access and affordability issues, and manifested in universal service obligations and cross-subsidies that came as add-ons to the reform process. The point was made that competition is the most powerful instrument to ensure efficiency gains and benefits for users, and that a clear regulatory framework is essential to ensure the long term sustainability of the private sector participation. Operational gains have benefited all income groups. Absolute gains are higher for the higher income classes but indirect gains through effective regulation tend to favour the poorest income classes. However, the ongoing macroeconomic crisis also presents a challenge to the power sector resulting in loss of customers who suffer under the economic crisis, excess capacity, and increased cost of capital. In the efforts to take counter measures, attention is still given to access and affordability but other public benefits are not high on the political agenda in the current economic turmoil. The Argentina case illustrates how short-term economic challenges can take priority over longer-term concerns for public benefits and sustainable development.

Some Public Benefit Aspects in Reforming the Power Sectors in East and Southern Africa, Malur R. Bhagavan, Stockholm Environment Institute

Results and experiences from African case studies were presented, with specific focus on Ethiopia, Tanzania, and Zimbabwe. Ethiopia and Tanzania are among the countries with the lowest levels of electrification in the world. Considerably fewer than half of the urban households have access to electricity and in rural areas only perhaps one percent have access to electricity. Electrification levels are higher (80% and 18% of urban and rural households, respectively) in Zimbabwe. As in many other countries, the power sector is struggling with poor quality, supply shortages, low technical and economic efficiency, lack of accountability, etc. Power to the overwhelming majority of poor people in East and Southern Africa ought to be a top priority in power sector reform and when developing legal and regulatory frameworks. However, this has not been the case and any rural or urban electrification efforts are typically dealt with as stand-alone programmes, not integrated in power sector reform. The question asked here was whether it is possible to “square the circle” and simultaneously meet the objectives of improving the financial performance of utilities and serving the rural and urban poor. The suggested approach to solving this dilemma is to integrate strategies into reforms by which middle-level entrepreneurs can offer services to the poor as independent power producers or independent power distributors/retailers. Empirical research in the region has provided some evidence of willingness and differential ability, on the part of the poor, to pay a relatively high price for electric power. This approach need not exclude the use of cross-subsidies and lifeline rates. Improving access to financing and allowing for independent producers and distributors/retailers through legal and regulatory frameworks are key measures to facilitate this market development.

The REEEP Initiative – Mainstreaming Public Benefits into Power Sector Reform, Giulio Volpi, REEEP, London

The Renewable Energy and Energy Efficiency Partnership (REEEP) was launched at the World Summit on Sustainable Development in Johannesburg 2002. Its mission is to accelerate and expand the global market for renewable energy and energy efficiency technologies. A temporary secretariat has been set up at the UK Foreign and Commonwealth Office (FCO) and a workshop on power sector reform was held in March 2003 as part of the consultative process before the launch of REEEP in September 2003. The workshop identified, for example the emergence of independent power producers, supply efficiency gains, and increased transparency as opportunities that resulted from reform. On the other hand, reforms also have shortcomings, including the lack of attention given to renewable energy and energy efficiency and even the exclusion of support schemes as a consequence of new legal and regulatory frameworks. Explicit challenges for developing countries include developing visions and goals for renewable energy and energy efficiency, as well as implementing policy incentives and access rules for renewable sources of energy. This in turn presents some institutional challenges in terms of establishing transparency and autonomous regulatory bodies and agencies. In order to support this development, REEEP is establishing the Green Regulators Forums to facilitate exchange of information and policy learning.

Towards sustainable development: expanding public benefits while power sectors are reformed in developing countries, Alix Clark and Anton Eberhard, International Energy Initiative, Cape Town

A major study has been undertaken by the International Energy Initiative to explore what happens to public benefits and how they can be promoted when power sectors are reformed, and whether reform presents new opportunities for advancing public benefits. Public benefits were described as a socially constructed concept over time. Public benefit programmes (including universal access, energy efficiency, renewable energy, environmental programmes, public interest R&D, and integrated resource planning) provide public benefit outcomes (economic prosperity, social equity and environmental sustainability) that contribute ultimately to the goal of sustainable development. The research effort has explored public benefits based on empirical data from six country studies including Brazil, South Africa, Ghana, India, Thailand, and Indonesia. The emphasis given to different public benefits differ between countries, given that resources and priorities differ between countries. The impact of reform on public benefits has not been as negative as originally anticipated in the project. In several cases, public benefit programmes have been rescued or expanded during reform. As expected, there are also several examples of negative impacts. The impacts of reforms depend on several factors including the extent of programmes prior to reform, the extent of reform, nature of national objectives, etc. Overall, the research indicates that reform has produced space and opportunity for advancement of public benefit programmes. Key factors for success include cornerstone policy and legislation as a basis for regulation, stable financing streams, and institutional and organisational structures. A final observation was that achievement of public benefits is seemingly independent of power sector structure and ownership, although reform in itself creates a window of opportunity. Reform was considered important and should be pursued to improve the performance of the power sector. Clearly, policy and regulatory instruments are needed as integral or complementary parts of reform in order to advance public benefits.

Day 1. Afternoon working groups discussions

In the afternoon session of Day 1 the participants were split into three groups for more focussed discussions of specific issues. A set of six issues were proposed in the programme:

- Do reforms fundamentally conflict with sustainable development? Can we rethink reforms so that they are more compatible with development goals?
- How do public benefits make it onto the reform agenda? Who needs to be interested and motivated?
- What are the main barriers (e.g., weak institutions, knowledge gaps, or weak political will)?
- Should public benefits be part of, or complement, reform? Are reforms an opportunity to achieve environmental and social benefits?
- How do policy instruments and regulation differ according to the specific public benefit or policy goal?
- What are current research needs?

Following a general discussion of priorities, three general issue areas were identified as important to discuss further.

- The first area concerned the issue of how public benefits can be advanced and be put on the agenda. What is the appropriate entry point for development co-operation agencies and who owns the problem in developing countries? Is it the energy sector and the energy ministry?
- The second area concerned conceptual and research oriented issues. What do we mean by public benefits? Is it a valid observation that the achievement of public benefits is essentially independent of power sector structure and ownership? How do we set targets and assess impacts of interventions?
- The third area concerned the extent to which there are trade-offs or conflicts between power sector reform and public benefits, and between public benefits themselves. How do we prioritise and balance competing demands, for example, short-term demands versus longer-term and broader development objectives.

Three groups were formed each addressing two of the areas above. In response to the issue areas, and inspired by the original six questions posed, the following outputs from the extensive and encompassing discussions are worth highlighting.

What do we mean by public benefits?

There was a strong need to discuss the meaning of public benefits. This was a concept that had different meanings to different participants. It goes beyond the more narrowly defined concept of public goods in economic theory by incorporating also social concerns such as equity and distribution of wealth. Thus, it is a socially constructed concept that over time undergoes change and revisions, requiring consensus building among stakeholders. Priorities and emphasis may differ between countries and it is not easily defined. Ultimately, public benefits should contribute to sustainable development through outcomes such as economic prosperity, social equity, and environmental sustainability. Examples of public benefit programmes include those that expand electricity access, improve security of supply, promote energy efficiency, renewable energy, and public interest energy R&D, or enhance energy planning capabilities. It includes activities that are not adequately conceived by competitive markets. The observation that public benefits is a socially constructed concept highlights the need for open and transparent processes with public consultation on power sector reform and related policy matters.

Is power sector structure and ownership important for public benefits?

One point of discussion was whether the achievement of public benefits is in principle independent of power sector structure and ownership. Research has not been able to show any clear correlation between these factors and the extent to which public benefits are created. Certainly, power sector reforms have meant the end of many power company driven activities that were motivated by social obligations: demand side management, low income, and energy R&D programmes, to name a few. However, the critical factor is whether policies and mechanisms are in place to promote public benefits during and after reform. Reform may be important to improve power sector performance but the important factors, which may be realised through reform and are conducive to the promotion of public benefits, appear to be transparency, accountability, the definition of clear roles, an independent regulator, etc. The specific power sector structure and ownership may be secondary although it provides the basis on which explicit policy and regulatory instruments can be applied.

Reform for sustainable development or band-aid approaches?

Should the provision of public benefits be an integral part of power sector reform or treated as an add-on? Ideally, the overarching goal of reform should be sustainable development. At a minimum, the impacts of power sector reform on public benefits should be assessed in the pre-reform process. This may lead to changes in the reform itself, or to flanking policies. It also depends on the type of public benefit and the national or regional context. For example, extending electricity access may be a strong priority in many countries and should be at the core of the reform process for example, through setting the rules for granting concessions or for independent power producers/distributors. A closely related issue is that of whether financing should be through cross-subsidies or general taxation revenues. Cross-subsidies or public benefit charges that remain within the power sector, perhaps controlled by the regulator, are conveniently at arms length from the government. Funding through tax revenue and government budget runs a greater risk of being cut at short notice. In some cases it may be necessary to create markets, including mechanisms for financing, for services, such as, electrification or renewable energy. What are generally referred to as market based instruments may work well in some areas.

What is the appropriate entry point?

It is clear that public interests or public benefits go well beyond the domains of the power sector or energy ministry and hence the entry point for development co-operation should be at many levels, including higher ones. Furthermore, the pressure to reform often comes from development co-operation organisations themselves and thus the international donor community is also an important entry point. Policy coherence, co-ordination, and integration between different policy domains is important in any reform. For example, the Millennium Development Goals, for which there is broad consensus and agreement, have far reaching implications for the energy sector in terms of their importance in contributing to health, environment, poverty alleviation, etc. However, making the link between broader societal goals and power sector reform and related policies apparently remains a challenge. Defining and communicating potential environmental and social benefits and challenges can be an important part of setting the reform agenda.

Who needs to be involved?

It was also noted throughout the workshop that civil society participation is necessary to ensure that the public interest is represented in power sector reforms. The need to extend training and capacity building efforts beyond regulators and experts in government was also stressed on the second day of the workshop. Specifically, the academic community and NGOs were identified as potentially important actors in this regard. NGOs may also be important and instrumental for monitoring the actual development of reforms as well as the impacts “on the ground.”

Trade-offs between competing goals

It should be made clear that there may be trade-offs between different public benefits, e.g., environmental versus social public benefits. This goes back to the earlier question as to what we mean by public benefits, reflecting different priorities in different countries. Access to electricity at lifeline rates may conflict with the ambition to create incentives for energy efficiency or to reduce dependence on (imported) fossil fuels and improve supply security. Solutions to such conflicting objectives, for example, through delivering the service “lifeline lighting” instead of subsidised electricity, may exist in some cases and should be sought. In other cases, one type of public benefit

may take priority over another and result in the installation of diesel-fuelled generator sets. This could be the outcome of a well informed decision but the challenge is to look for, and promote, solutions that simultaneously meet different goals.

Specific challenges

The particular situation of government officials and regulators in some countries was also noted. It is difficult to promote public benefits when swamped in daily work and tied up in fire-fighting. Again, this pointed to the need for ownership of the relevant issue, whether rural electrification or renewable energy, and having the financial means to address it. The need for integrated resource planning, or energy planning, as a tool for setting priorities was stressed repeatedly. A specific concern is whether subsidies for electrification actually reach the poor and to what extent subsidy systems are prone to corruption. This set of issues links back to the point raised earlier that key factors are transparency, accountability, and clear roles - factors that can be realised through power sector reform but do not automatically follow reform.

Day 1. Summary and conclusion

It cannot be shown that power sector reforms, introducing changes in structures and ownership, fundamentally conflicts with sustainable development. On the contrary, in the long run a financially healthy power sector is an important prerequisite for sustainable development. However, there is certainly scope for improving the process so that reforms are more compatible with broader development goals. Reforms with narrow economic focus may create lock-in effects that exclude even add-on policies for public benefits. Instead, reforms should evolve from a broader set of development goals.

Reforms have been seen as a threat to public benefits. This is partly true, but in many cases public benefit programmes have been rescued. In fewer cases, public benefit programmes have been conceived in the reform process. Reforms will continue and it is time to move from rescue operations to more forward looking development of policy for advancing public benefits.

A number of different actors, including government, donor agencies, academics, NGOs, etc., can be instrumental in putting public benefits on the reform agenda. In government, and the broader political sphere, it is a matter of recognising the need for broader policy integration and reaching beyond ministries of energy and the power sector itself. The same is true for donor agencies who often exert pressure on countries to reform. The observation that public benefits is a socially constructed concept highlights the need for open and transparent processes with public consultation on power sector reform.

There are a number of barriers to public benefits that may be more or less prevalent in different countries. An important general barrier to public benefits appears to be the relatively technical nature of power sector reform and that mainly the power sector and energy ministry experts are involved. Thus, including a broader set of stakeholders, including NGOs, in the process and enhancing the capacity of such stakeholders in this area is important. NGOs, academics, etc., may also be instrumental in monitoring and assessing impacts of reform.

Public benefits can be an integral part of reform, and/or a complement to reform, depending on the specific public benefit and the national context. Rules governing access for independent producers/distributors and access and affordability for new users exemplify issues that are at the core of power sector regulation. From empirical studies and theoretical analysis it does appear that reforms

present an opportunity to achieve public benefits. However, public benefits do not occur by default and someone has to utilise the opportunity.

The potential trade-offs between conflicting objectives should not be underestimated. It is all very well to speak of sustainable development goals or Millennium Development Goals but at the end of the day it may come to making trade-offs and dealing with the complexity of real situations. However, if reforms are reframed around these broader development goals priorities will be more explicit and better informed trade-offs can be made. In addition, perceived conflicts may be removed in the process.

Day 2. Training and capacity building, what needs and where?

Day 2 of the workshop was devoted to how knowledge can be transferred into action, experiences from training and capacity building efforts and how they can be organised. Presentations were made in the morning session by representatives of some key institutions involved in research as well as capacity building and training of regulators, policy makers, and other relevant actors. Throughout the world there is a strong need for training and capacity building in this area. It is also clear that the needs, knowledge, and experience are developing rapidly as reforms are unfolding. Thus, it is a challenge for trainers to remain in the knowledge front and respond to the changing demands and needs of the trainees. There is also a need to reach stakeholders other than regulators and governments with capacity building efforts. Partnerships or a network for the exchange of ideas, gathering of information, and development of teaching materials can support the training and capacity building process. The International Energy Initiative research study of how the provision of public benefits can be expanded as power sectors in developing countries are reformed represents one example in this direction.

Presentations

Training and capacity building needs in the context of power sector reform in India, Kottilil Ramanathan, The Energy and Resources Institute (TERI), India

An overview of the power sector and the power sector reforms in India was given as a background to the discussion on training and capacity building needs and TERI's work in this area. Reforms were initiated in India in 1991 driven by, e.g., capacity shortages, financial difficulties, and conditionalities imposed by donor agencies. Reforms have resulted in training needs arising from the establishment of new institutions (for example, independent regulatory commissions), changes in work orientation, the entry of more multi-disciplinary staff in the power sector, etc. Furthermore, the government of India has also adopted a training policy specifying the minimum levels of training for employees in the power sector. TERI is undertaking a multitude of efforts towards capacity building and training, one of which is the South Asia Forum for Infrastructure Regulation (SAFIR) established in 1999 with support from the World Bank and PPIAF. One activity under SAFIR is a core course on infrastructure regulation and reform. Specific challenges in developing countries based on the SAFIR experience include the lack of a training culture, the need for re-deployment of a large work force, the wide disparities in background and training needs, and the lack of finances. From this, Ramanathan identified the need for tailored training programmes, to sensitise participants on sustainable energy

issues, development of local resources including training of trainers, networking of training institutions, and funding for the development and delivery of training programmes.

PURC's international capacity building for regulators and observations on needs for the future, Paul Sotkiewicz, Public Utilities Research Center, University of Florida, USA

PURC has operated the joint PURC/World Bank International Training Program on Utility Regulation and Strategy, a biannual two-week programme, since 1997, in addition to in-country and regional training programmes. The 13 programmes since 1997 have been attended by over 1100 regulators representing 110 countries, and cover water, gas, and telecommunications, in addition to electricity. Areas covered include regulatory mechanisms and rate design, market design and anti-trust, the regulators' role and regulatory process, as well as the intersection of energy sector reform and environmental policy. Participants have become more sophisticated over time and increasingly request tailored programmes that fit specific national contexts or focus on specific areas. Efforts so far have been directed at governments and regulators but PURC sees a need to widen the capacity building efforts and involve not least capacity building in academic communities, training the trainers, or other stakeholders in order to improve the reform process. It is likely that there will be more in-country efforts reaching more participants at the same cost, although work distractions may decrease effectiveness. International programmes facilitate more focused learning and facilitate networking. A successful approach from Argentina and Brazil has been to involve last year's students in economics or other relevant disciplines, thus mixing participants who have a fresh theoretical background with practitioners.

Power sector reform and public benefits, Lawrence Agbemabiese, United Nations Environment Programme, Paris

At the time of the Workshop, UNEP was finishing a book entitled "Electricity Reform, Social and Environmental Challenges" covering the problem, regional and country experiences, and suggestions for ways forward. Agbemabiese spoke specifically on the roles of stakeholders in promoting equity and environmental protection. The case was made that the "free market" cannot be trusted and that efforts should be made to develop reform models based on social consensus rather than building social consensus around pre-packaged reform models. The Indian state of Karnataka was presented as a case where the former approach has been used. NGOs and other civil society groups can play an important role in promoting environmental and social benefits but their effectiveness depends on independence and competence, again pointing to the need for widening the capacity building efforts. Agbemabiese also pointed out the importance of understanding power sector reforms from a sustainable livelihood perspective. Core dimensions by which to assess the sustainability of rural livelihood systems include existence, effectiveness, freedom of action, adaptability, and coexistence. Thus, sustainability can be promoted through reducing waste when using scarce resources and enhancing the ability of people to cope with variability and change. These core dimensions can be used to define micro-indicators of sustainability from which power sector reform may be evaluated.

Building capacity in infrastructure market reform and regulation in Africa, Anton Eberhard, Graduate School of Business, University of Cape Town, South Africa

The Graduate School of Business (GSB) is offering a course on "Frontiers in managing the reform and regulation of the electricity sector" mainly attended by participants from Africa, in addition to courses in gas, water, and telecommunications. Many countries are now establishing independent regulators and new legislation but have little prior experience in economic regulation. This creates the

need for capacity building and training not least for process management, the creation of new institutions, and maintenance of their independence. The experience from Africa is that regulators, where professional experience accrues, have a special role in the reform process and that they are often forced to intervene in the process, thus developing complex relationships with government while at the same time striving to maintain independence. Thus, regulators also have a special role in advancing public benefit programmes. The approach taken in the capacity building efforts at GSB is to focus on regional problems and challenges and build networks of regulators in order to facilitate sustained co-operation and sharing of experiences. As electricity grids become more interconnected this becomes increasingly important. Although focusing on the regional context, training should be informed by international experiences and thus international training partnerships, as exemplified by the GSB – PURC partnership, can add value.

Institutional challenges for regulation and competition – experiences from CRC, Paul Cook, Martin Minogue, and Derek Eldridge, Centre on Regulation and Competition (CRC), University of Manchester, UK

The regulatory governance research programme at CRC has the broad objective of developing research based knowledge relevant to policy makers on different aspects of regulatory policy and practice. Research is conducted under the two broad themes of institutional innovation in regulatory governance, and regulation, politics, and poverty. The research targets several areas for regulation in addition to energy. The importance of providing policy advice grounded in research without being prescriptive was emphasised. Specifically, importing “best practice” models from developed economies is likely to be counterproductive. Institutional capability, contextual, political and other factors vary considerably between different developing economies but are significant in determining what can happen in any reform. It should also be acknowledged that regulatory systems serve a range of purposes beyond economic efficiency. CRC is involved in capacity building at different levels and organises training/workshops at local and regional levels, in addition to disseminating knowledge to a wider audience through publications, conferences etc.

Day 2. Afternoon discussion

A set of critical issues for discussion in the afternoon session were proposed in the programme:

- Is there a need for training and capacity building or are the real barriers to be found somewhere else?
- What are the needs for training and capacity building and where (decision making, policy making, implementation, etc.)?
- What institutional arrangements are needed?
- What are the implications for development co-operation?
- How can the needs be met (e.g., financing and organisation)
- How can the IEI book on power sector reform and public benefits be used?

Instead of organising the afternoon around a discussion of these issues, which were partly addressed in the presentations, during the afternoon of day 2 discussions were held in plenary around two themes that mirrored the issues stated above:

- What is the role of the donor community?
- How can capacity building and training activities be advanced?

A general concern for the donor community is how they can be most effective when addressing reform issues in different countries. Specific questions raised were how to ensure that reform and public benefits are included on the agenda, i.e., who owns the problem, and how regional co-operation and integration can best be facilitated, both in terms of electricity grids and policy development. Lack of political will and institutional capacity are common problems encountered by donors. Sida has a long standing focus on rural electrification with technical assistance and support. Sida is now reviewing its energy policy and it is likely that there will be greater attention to reform and regulatory issues in the future. Country directed support and assistance will continue, complemented by more generic efforts together with, for example, the World Bank ESMAP programme. This includes supporting the participation of country representatives in training programmes.

Under the second theme, the workshop capitalised on the fact that representatives of the main regulatory training programmes in the world were gathered. Although lack of political will to advance public benefits may be the main barrier in some cases there is still a great need for capacity building and training. It was clear that these efforts should now move beyond targeting only regulators and government officials in order to reach other actors, including NGOs. If there is lack of political will, other actors must put public benefits on the political agenda. It was also clear that the issue of public benefits commands a relatively small slot in current training programmes and that there is a need for more information and better teaching materials in this area. Current efforts by, for example, the IEI and UNEP are answering this need. It is important to sensitise participants in training programmes to a wide range of issues concerning reforms, including public benefits, thus laying the groundwork for additional training programmes on more specific issues.

The presentations and discussions served as an emphatic reminder that there is a huge set of issues around power sector reform and public benefits. Institutions involved in training can benefit from more extensive co-operation and sharing of teaching resources. In this rapidly evolving field of knowledge the research community has a key role to develop research based knowledge that can feed into training and capacity building. This includes, for example, evaluating experiences and evidence of practical policy instruments and improving our understanding of the reform processes. The donor community is in the position to support the training and capacity building process in several ways thereby widening the scope of reforms beyond economic efficiency considerations.

Day 2. Summary and conclusion

Training and capacity building are key approaches to removing barriers to the provision of public benefits. Efforts so far have mainly been directed towards regulators and government representatives, notably in energy ministries. There is now a need to meet the change in demand for training where specialised courses, by topic or country/region, are increasingly asked for. There is also a need to extend the target audience beyond experts in the power sector to include also those representing other interests, e.g., environmental agencies or ministries, NGOs, civil society, donor agencies, etc.

The international donor community, as one of the agents of change and reform, has a specific responsibility to enhance its own capacity in this area as well as to support training and capacity building in order to advance public benefits. The whole area of infrastructure reform is developing rapidly and there is a strong need for monitoring and strengthening research based analysis and knowledge. The results need to be fed into capacity building efforts in order to eventually shape

policy. Donor agencies can support the different steps in this chain, for example by involving and supporting academic institutions when assisting in reform processes in different countries.

Efforts by the IEI, UNEP, CRC and others exemplify research and studies that can be used as materials in training and capacity building efforts. However, as reforms are unfolding the amount of information is growing rapidly and the area is becoming increasingly ripe for research. This includes monitoring and evaluation of reforms, modelling impacts of rate designs or other specific policies, advancing policy learning, etc. Research is needed as a basis for high quality training and capacity building, which will ultimately contribute to shaping policy.

Selected Further Reading

Bhagavan, M.R. (ed.), 1999, *Reforming the Power Sector in Africa*, Zed Books, London and New York.
ISBN: 1-85649-667-8

Dubash, N. (ed.), 2002, *Power Politics*, World Resources Institute, Washington D.C., USA.
ISBN: 1-56973-503-4

Wamukonya N. (ed.), 2003, *Electricity Reform, Social and Environmental Challenges*, UNEP, UNEP Center Risoe, Roskilde, Denmark.
ISBN: 87-550-3235-4

Appendices

Participants at the workshop in Stockholm on Benefits of Power Sector Reform, 12-13 May 2003

<i>Name</i>	<i>Address</i>	<i>Tel.</i>	<i>Fax.</i>	<i>Email</i>
Dr. Lawrence Agbemabiese	UNEP Tour Mirabeau 39-43 quai André Citroën 75739 Paris Cedex 15, France	+33 144 373003		lagbemabiese@unep.fr
Mr. Johnny Andersson Programme Manager	Sida, INEC SE-105 25 Stockholm	+46 8 6985029 +46 8 6985000 (switchboard)	+46 8 249290	johnny.andersson@sida.se
Mr. Anders Arvidson	Stockholm Environment Institute (SEI) Box 2142 SE-103 14 Stockholm	+46 8 412 1414	+46 8 723 0348	anders.arvidson@sei.se
Dr. M.R. Bhagavan	Stockholm Environment Institute	+46 8 412 1437	+46 8 723 0348	malur.bhagavan@sei.se
Mr. Anders Cajus Pedersen	Sida, INEC-INFRA SE-105 25 Stockholm	+46 8 698 5495	+46 8-249290	anders.cajus.pedersen@sida.se
Dr. Omar Chisari, Decano	UADE Lima 717, 1er piso C1073AAO – Buenos Aires, Argentina	+54 11 4379-7583	+54 11 4379-7588	ochisari@uade.edu.ar

Ms Alix Clark, Energy Researcher	14 Rutland Avenue Craighall Park 2196, South Africa	+27 11 787 6940	+27 11 787 6940	alix@worldonline.co.za
Prof. Paul Cook	Centre on Regulation and Competition University of Manchester, UK Harold Hankins Building, Precinct Centre Oxford Road Manchester M13 9QH, UK	+44 (0)161 275 7447 (2798)	+44 (0) 161275 0808	paul.cook@man.ac.uk
Dr. Jens Drillisch	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH Dag -Hamarskjöld-Weg 1-5 P.O. Box 5180 65726 Eschborn, Germany	+49(0)619679-1380	+49(0)619679-7144	jens.drillisch@gtz.de
Prof. Anton Eberhard	The Graduate School of Business, IIRR University of Cape Town Breakwater Campus, Private Bag Rondebosch 7701, South Africa	+27(21) 4061922 ext 2112	+27(21) 4061412	eberhard@gsb.uct.ac.za
Mr. Derek Eldridge, Director	Centre on Regulation and Competition University of Manchester Harold Hankins Building, Precinct Centre Oxford Road, Manchester M13 9QH, UK	+44 (0)161 2752818	+44 (0)161 2750808	derek.eldridge@man.ac.uk
Ms Monica Gullberg, Senior Consultant	ÅF-International AB Flemingatan 7, PO Box 8133 SE-104 20 Stockholm	+46 8 657 1000	+46 8 657 1454	monica.gullberg@af.se

Mr. Bo Hektor, Consultant	HEKTOR Project Promotion AB Signalistgatan 6 SE-169 73 Solna	+46 8 590 82850		bo.hektor@chello.se
Dr. Therése Hindman-Persson Senior Analyst	ECON Klarabergsviadukten 90D SE-111 64 Stockholm	+46 8 698 8125	+46 8 698 8139	therese.hindman.persson@econ.se
Ms Marie Holmlund Project Manager	Sida, INEC-Infra SE-105 25 Stockholm	+46 8 698 4049	+46 8 249290	marie.holmlund@sida.se
Ms Elisabeth Ilskog Energy & System Analysis	ÅF Energy & Miljö AB Fleminggatan 7, P O Box 8133 SE-104 20 Stockholm	+46 8 657 1031	+46 8 653 3193	elisabeth.ilskog@af.se
Dr. Raida Jirjis, Assoc. Prof.	SLU, Dep. of Bioenergy P O Box 7060 SE-750 07 Uppsala	+46 18 672524	+46 18 673490	Raida.Jirjis@sh.slu.se
Dr. Gilberto Jannuzzi	Universidade de Campinas-UNICAMP Fac. Engenharia Macânica C.P. 6122 13083-970 Campinas, Sao Paulo, Brasil	+55 19 32490288	+55 19 32893722	jannuzzi@fem.unicamp.br
Dr. Gilberto Jannuzzi Director	International Energy Initiative (IEI) Rua Shigeo Mori, 2.013 13084-082 Campinas-SP Brasil			gilberto@iei-la.org ;

Mr. Ole Langniss, Dipl.Ing.	Lund University Dep. Of Environmental & Energy Studies Gerdagatan 13 SE-223 62 Lund, Sweden	+46 46 222 9871	+46 46 222 8644	ole.langniss@miljo.lth.se
Mr. Kjell Larsson	Sida, INEC-Infra SE-105 25 Stockholm	+46 8 698 5299	+46 8 214529	kjell.larsson@sida.se
Mr. Eivind Magnus, Dir.	ECON, Norway Post Box 5 0051 Oslo, Norway	+47 9088 8339		ema@econ.no
Ms Anne-Charlotte Malm Head of Infra	Sida, INEC/Infra SE-105 25 Stockholm, Sweden	+46 8 698 5073	+46 8 249290	anne-charlotte.malm@sida.se
Mr. Ivo Martinac	Royal Institute of Technology (KTH) 100 44 Stockholm	+46 8 790 8740		im@egi.kth.se
Mr. Martin Minogue Dir. of Research in Reg. Governance	Centre on Regulation and Competition martin.minogue@man.ac.uk University of Manchester	+44 (0)161275 2824		
Prof. Lars J. Nilsson	Lund University Environmental & Energy Systems Studies Gerdagatan 13 223 62 Lund	+46 46 222 4683	+46 46 222 8644	Lars_J.Nilsson@miljo.lth.se

Mr. Måns Nilsson, Senior Research Associate	Stockholm Environment Institute Box 2142 SE-103 14 Stockholm	+46 8 412 1415	+46 8 723 0348	mans.nilsson@sei.se
Mr. Joakim Nordqvist	Lund University Environmental & Energy Systems Studies Gerdagatan 13 SE-223 62 Lund	+46 46 222 3848	+46 46 222 8644	Joakim.Nordqvist@miljo.lth.se
Dr. Romeo Pacudan Senior Economist	UNEP Risoe National Laboratory P O Box 49 DK-4000 Roskilde, Denmark	+45 46 32 2288	+45 46 32 1999	romeo.pacudan@risoe.dk
Mr. Kottilil Ramanathan Senior Fellow	Tata Energy Research Institute (TERI) Darbari Seth Block, Habitat Place Lodhi Road New Delhi – 110 003, India	+91 2 468 2100	+91 2 468 2144	krnathan@teri.res.in
Dr. Paul Sotkiewicz Director, Energy Studies	Public Utility Research Center (PURC) Warrington College of Business University of Florida 331 Matherly Hall P O Box 117142 Gainesville, FL 32611-7142, USA	+1 352 392 7842	+1 352 392 7796	paul.sotkiewicz@cba.ufl.edu

Mr. Mikael Söderbäck	Sida, INEC	+46 8 698 5087		mikael.soderback@sida.se
Ms Lisbeth Söderling	Sida, INEC, Infra	+46 8 698 4063		lisbeth.soderling@sida.se
Mr. Gösta Werner Project Manager	Sida, INEC-Infra	+46 8 698 5431	+46 8 249290	gosta.werner@sida.se
Dr. Njeri Wamukonya	UNEP Risoe National Laboratory P O Box 49 DK-4000 Roskilde, Denmark	+45 46 775169	+45 46 321999	njeri.wamukonya@risoe.dk
Mr. Giulio Volpi	Renewable Energy and Energy Efficiency Partnership, REEEP Foreign and Commonwealth Office Environment Policy Department Climate Change and Renewable Energy Rm K217 – King Charles St. London SW1A 2AH, UK	+44 20 7008 1891	+44 20 7008 4076	g.volpi@gtnet.gov.uk
Ms Kerstin Åstrand Candidate for the Doctorate	Lund University Environmental & Energy Studies Gerdagatan 13 SE-223 62 Lund	+46 46 222 8645	+46 46 222 8644	kerstin.astrand@miljo.lth.se

Workshop Programme

Public Benefits and Power Sector Reform

Stockholm, 12-13 May 2003

at

Venue: Hotel J, Nacka Strand

Organised by:

Stockholm Environment Institute (SEI)

International Energy Initiative (IEI)

Department of Environmental and Energy Systems Studies, Lund University

Funded by the Swedish International Development Cooperation Agency (Sida)

Workshop objective

The primary objectives of the workshop are:

- To provide a forum for a discussion among specialists, and review the experience, of how the provision of public benefits can be expanded as power sectors in developing countries are reformed (Day 1).
- Identify the needs for training, capacity building and institutional arrangements, as well as make recommendations for how this can be designed and implemented for policy makers, regulators and other professionals in developing countries (Day 2).

Governments, regulators, development co-operation agencies, development banks, and other organisations are in different capacities involved in the reform of power sectors across the world. Considering the importance and impacts of reforms there are strikingly few efforts for providing (a) the exchange of experience and knowledge on this issue or (b) organised training and capacity building in developing countries. The workshop is mainly targeting development co-operation organisations that are actively involved in this area and funding such efforts, as well as organisations that deliver training and capacity building.

Background

Historically, certain key components of sustainable development in the energy sector have been promoted through public benefit programmes, albeit with mixed success. As reforms are introduced into power sectors around the world, some important public benefit programmes and social obligations are being questioned by those traditionally responsible for the design and implementation of these programmes. Power companies in increasingly competitive markets find it hard to maintain spending on programmes that promote public benefits. There is mounting evidence from developing and developed countries alike that important public benefit programmes and other efforts fall through the cracks during reform. Programme areas that can promote public benefits include:

- Energy efficiency
- Renewable energy
- Public interest R&D
- Access to modern energy services
- Integrated resource planning
- Environmental protection

Power sector reforms provide a window of opportunity that could be utilised by regulatory authorities and key decision makers to expand the provision of such important public benefits. Reforms introduce new players, new sources of finance, new rules and regulations that can be used to the advantage of public benefit programmes. Reforms may also bring about an openness to change.

Answering to this challenge, the International Energy Initiative (IEI) in 2001 launched a project on "The Expanded Provision of Public Benefits as Power Sectors in Developing Countries are Reformed." The overall purpose of this project is to develop an in-depth understanding of how,

practically, the provision of public benefits can be sustained and grown as power sectors are reformed. The first phase of this project is now coming to an end through the completion of a book in the spring of 2003 authored by experts from developing countries, including Brazil, South Africa, Ghana, India, Thailand and Indonesia. The book is intended to be an authoritative source of information on this topic for use in capacity building efforts.

Programme

The first day of the workshop will focus on reviewing the experience so far, and assessing the state-of-the-art knowledge and sources of information concerning market reforms and public benefits/goods in developing countries. The morning session will be mainly presentations. The afternoon session will be used for focused discussions. A draft of the IEI-book will be circulated at the workshop.

Day 1: Public Benefits in Energy Market Reforms

Morning session 09.00 – 12.00

- Welcome address
Anders Arvidson, SEI and Lars J. Nilsson, Lund University, Sweden
- Introduction
Lars J. Nilsson, Lund University, Sweden
- Renewable Energy and Energy Efficiency Partnership (REEEP) and power sector reforms, report from the 21 March Workshop in London
Giulio Volpi, REEEP, Foreign & Commonwealth Office, U.K.
- Experience from Power Sector Reform in Latin America/Argentina
Omar Chisari, School of Economics, UADE, Argentina
- Some policy conclusions from the power sector reform process in Eastern and Southern Africa
Malur. R. Bhagavan, Stockholm Environment Institute
- Results from the IEI-project on Expanding the Provision of Public Benefits as Power Sectors in Developing Countries are Reformed
Anton Eberhard and Alix Clark, University of Cape Town, South Africa

Afternoon session 13.00 – 17.00

Focused discussion of critical issues probably in smaller groups. Issues to address include (suggestions are welcome):

- Do reforms fundamentally conflict with sustainable development? Can we rethink reforms so that they are more coherent with broader development goals?
- How do public benefits get on the reform agenda? Who needs to be interested and motivated?
- What are the main barriers (e.g., weak institutions, knowledge gaps, or weak political will)?
- Should public benefits be part of or complement to reform? Are reforms an opportunity to achieve social and environmental benefits?
- How do policy instruments and regulation differ according to the specific public benefit or policy goal?
- What are the current research needs?

Day 2: Training and capacity building, what needs and where?

The second day of the workshop will focus on discussing how we can transfer knowledge into action as well as the need for training and capacity building and how such efforts can be organised.

Morning session 09.00 – 12.00

Experiences from the field:

K Ramanathan, Tata Energy Research Institute, India (Experiences from SAFIR)

Paul Sotkiewicz, PURC, University of Florida, USA (Experiences from PURC Training Programmes)

Lawrence Agbemabiese, UNEP, Paris (Roles and responsibilities of stakeholders - preview from a UNEP publication on power sector reform)

Paul Cook, Centre of Regulation and Competition, University of Manchester (Institutional Challenges for Regulation in Malaysia and the Philippines - Experiences from CRC)

Anton Eberhard, University of Cape Town, South Africa (Experiences from UCT)

Afternoon session 13.00 – 17.00

Focused discussion of critical issues. Issues to address include (suggestions are welcome):

- Is there a need for training and capacity building or are the real barriers to be found somewhere else?
- What are the needs for training and capacity building and where (decision making, policy making, implementation, etc.)
- What institutional arrangements are needed?
- What are the implications for development co-operation?

- How can the needs be met (e.g., financing and organisation)?
- How can the IEI-PB book and other materials be used?

A concrete output of day 2 could be a generalised concept that can be used as a basis for customised regional workshops or other capacity building efforts. It could also be a roadmap for development co-operation in this area.

Venue

Hotel J, Ellensviksvägen 1, Nacka Strand. Tel. +46 8 601 3000, fax: +46 8 601 3009, web: www.hotelj.com. Meeting at Tornvillan. See attached map.

Transportation

From Arlanda airport to Stockholm City Terminal

	Cost SEK	Time
By train	SEK 160	15 min.
By bus	SEK 80	45 min.

From City Terminal to Hotel J., Nacka Strand

By subway to Slussen (southwards)	SEK 50	
Change to bus 443 towards Jarlaberg (keep ticket from subway)		20 min.

From Arlanda via City Terminal to hotel

Combination Arlanda bus/taxi (book the taxi onboard the bus) SEK 80+ SEK 200 ~1 hour

Taxi from Arlanda direct to hotel SEK 500-600 ~1 hour

More information:

Lars J. Nilsson, Lars_J.Nilsson@miljo.lth.se

Anders Arvidson, anders.arvidson@sei.se

Confirmed speakers/participants

- Lawrence Abgemabiese, UNEP, France
 - Anders Arvidson, Stockholm Environment Institute, Sweden
 - M.R. Bhagavan, Stockholm Environment Institute, Sweden
 - Omar Chisari, School of Economics, UADE, Argentina
 - Alix Clark, University of Cape Town, South Africa
 - Paul Cook, Centre of Regulation and Competition, University of Manchester, UK
 - Anton Eberhard, University of Cape Town, South Africa
 - Gilberto Jannuzzi, University of Campinas, Brazil
 - Lars J. Nilsson, Lund University, Sweden
 - Romeo Pacudan, UNEP Centre Risoe, Denmark
 - K. Ramanathan, Tata Energy Research Institute, India
 - Paul Sotkiewicz, PURC, University of Florida, USA
-
- Jens Drillisch, GTZ, Germany
 - Derek Elridge, Centre of Regulation and Competition, University of Manchester, UK
 - Martin Minogue, Centre of Regulation and Competition, University of Manchester, UK
 - Eivind Magnus, ECON-Norway
 - Therese Hindman Persson, ECON-Sweden
 - Giulio Volpi, REEEP, Foreign & Commonwealth Office, UK
-
- Johnny Andersson, Swedish International Development Cooperation Agency, Sweden
 - Anders Cujus Pedersen, Swedish International Development Cooperation Agency, Sweden
 - Marie Holmlund, Swedish International Development Cooperation Agency, Sweden
 - Annika Johansson, Swedish International Development Cooperation Agency, Sweden
 - Kjell Larsson, Swedish International Development Cooperation Agency, Sweden
 - Anne-Charlotte Malm, Swedish International Development Cooperation Agency, Sweden
 - Mikael Söderbäck, Swedish International Development Cooperation Agency, Sweden
 - Lisbeth Söderling, Swedish International Development Cooperation Agency, Sweden
 - Gösta Werner, Swedish International Development Cooperation Agency, Sweden
-
- Monica Gullberg, Ångpanneföreningen, Sweden
 - Bo Hektor, HEKTOR Project Promotion AB, Sweden
 - Liza Ilskog, Ångpanneföreningen, Sweden
 - Rajda Jirjis, SLU, Sweden
 - Ole Langniss, Lund University, Sweden
 - Ivo Martinac, Royal Institute of Technology, Sweden
 - Måns Nilsson, Stockholm Environment Institute, Sweden
 - Joakim Nordqvist, Lund University, Sweden
 - Kerstin Åstrand, Lund University, Sweden