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## THE STAP EXPERT WORKSHOP ON POWER SECTOR REFORMS AND THE ROLE OF GEF IN PROMOTING CLEAN ENERGY TECHNOLOGIES

BANGALORE, INDIA  
JUNE 26-28, 2000

(Prepared by the Scientific and Technical Advisory Panel)

**The STAP Expert Workshop  
on Power Sector Reforms  
and the Role of GEF in Promoting  
Clean Energy Technologies**

*Prepared by  
The Scientific and Technical Advisory Panel (STAP)  
of the Global Environment Facility (GEF)*

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## **Preface**

It is a pleasure to present the final report of the “*STAP Expert Group Workshop on Power Sector Reforms and the Role of GEF in Promoting Clean Energy Technologies*”. The report is the product of a series of initiatives undertaken jointly by STAP and “Comité Scientifique et Technique” (CST) of the “Fonds Français pour l’Environnement Mondial” (FFEM), which culminated in an Expert Group Workshop convened in Bangalore, 26-28 June, 2000.

STAP welcomes the participation between these two scientific advisory bodies and look forward to strengthen its relationship with the CST on critical issues confronting the GEF.

The report was prepared by STAP in collaboration with the CST with input from the STAP Secretariat. The lead author of the report is Dr. Michel Colom bier.

M. Gadgil  
STAP Chairman

## Executive Summary

The report is the product of over four months discussion and analysis, which culminated in an Expert Workshop on Power Sector Reforms and the Role of the GEF in Promoting Clean Energy Technologies convened in Bangalore, India from 26-28 June, 2000. It drew especially on expert papers prepared by STAP, the "Comité Scientifique et Technique" (CST) of the "Fonds Français pour l'Environnement Mondial" (FFEM, the bilateral French GEF), experts and on attending the meeting and the ensuing discussions.

The objective of the workshop was to discuss the best ways and means to promote integration of global environmental concerns, including newly emerging instruments (such as the CDM), into comprehensive power sector restructuring reform efforts, and to explore potential GEF roles in facilitating regulatory and institutional frameworks that address cleaner energy constraints.

Discussions highlighted the experiences of power sector reforms in developed countries, particularly countries of the European Union and the U.S.A as well as developing countries, principally Brazil, China, India, Morocco, South Africa and Sri Lanka. A major conclusion arising from the developing countries experiences is that there are many varieties of power sector reform and the degree to which measures are introduced that support energy conservation and efficiency and the deployment of renewables differs greatly between countries.

A number of key issues emerged from the discussions. These included ensuring consistency between power sector reforms and environmental goals; how to engage the electricity industry and its regulators in environmental improvement, technology development and the incentives to facilitate it; sequencing policy development according to the pace of the reform particularly at the national level; linkages between energy efficiency and renewable energy; institutional mechanisms for renewables and energy efficiency and financial sources and modalities.

Two main recommendations which resulted from the discussions which STAP fully endorses are:

- There is a need for increased involvement of the GEF in the reform process to ensure that the ongoing reforms encourage the deployment of renewables and energy efficiency programmes;
- The need for increased GEF support to cover the incremental transaction costs associated with the introduction of renewable energy and efficiency perspectives in ongoing power sector reform initiatives.

In addition, STAP is recommending that the GEF develop appropriate instruments for incorporation of relevant power sector reform issues in the Climate Change Operational Programmes. To this end, STAP recommends that GEF considers supporting (possibly through targeted research) a series of empirical studies on the impact of power sector reform on the deployment of renewables and

efficient energy technologies in selected GEF client countries.

## **SECTION I: INTRODUCTION AND BACKGROUND**

### **1 INTRODUCTION**

The workshop described in this report was held on 26-28 June 2000 in Bangalore, India. Participants were representatives from both developing and industrialized countries involved in the process of power sector reform (utilities, government bodies, regulation agencies, consultants). This group was convened by the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF), jointly with the "Comité Scientifique et Technique" (CST) of the "Fonds Français pour l'Environnement Mondial" (FFEM, the bilateral French GEF). The purpose of this meeting was to solicit workshop participants' views about the process of power sector reform in developing countries and its impacts on the development of clean energy options, and to provide guidance concerning the possible role of GEF in this process.

The workshop was held in conjunction with the sixth STAP meeting in Bangalore, 21-23 June 2000.

### **2 BACKGROUND**

The GEF currently has three operational programmes that are closely linked to energy market development. They are designed to promote development of renewable energy, energy efficiency markets and reduction of energy losses by assisting eligible partners in their efforts to address problems hampering strategic shifts towards cleaner solutions. The programmes look at how to remove market barriers on both demand and supply sides and how to reduce costs of promising but not yet fully competitive technologies.

Energy policy and utility regulation bear greatly on renewable-energy and energy-efficiency market deployment. Yet more global approaches aiming to facilitate the integration of strategic options to promote cleaner, low-carbon alternatives in the broader context of energy sector reforms and related market deregulation have not played prominent roles in GEF programmes so far. Similarly, potential impacts of energy sector restructuring on the domestic environment (particularly air and water pollution) seem to be often overlooked by local decision-makers.

While the agreed Kyoto Mechanisms, particularly the Clean Development Mechanism (CDM), are raising great expectations when it comes to the provision of incentives for investments in low carbon technologies, it needs to be recognized that their effectiveness will depend on a complex array of legal, economic and institutional factors. Appropriate implementation frameworks at the national level will be instrumental for success. To unleash all CDM potentials, including prospective synergies at economic, social and ecological levels, one will need to integrate carbon emission and other global environmental considerations into comprehensive energy sector restructuring efforts, particularly regulatory and institutional adjustments.

In view of the complexity of the economical and ecological challenges and opportunities arising in the context of energy market reform and CDM introduction it appears to be worthwhile to review existing experience, and to discuss GEF potentials to facilitate comprehensive approaches towards cleaner energy markets. Generation of multiple global and domestic benefits appears to be feasible, if the horizon of sector restructuring efforts would be widened and environmental concerns, including new instruments providing incentives for their consideration, would be integrated in policy and institutional reform.

While the GEF has a proven track record in the removal of technology specific barriers, only a few GEF projects have attempted to influence electric power utility regulation and none have explicitly addressed how consideration of cleaner alternatives could be integrated in broad policy changes and restructuring. There are three projects in the portfolio that focus on electric utility Demand Site Management (DSM) programmes (in Thailand, Jamaica, and Mexico). And a few projects, such as Sri Lanka Energy Services Delivery, help establish non-negotiable power-purchase tariffs for small renewable energy producers and standard power-purchase agreements.

The World Bank has incorporated power-sector restructuring into many of its mainstream power projects over the past two decades. Yet it is not evident that these efforts have explicitly considered how restructuring would affect the use of cleaner energy technologies and related GHG emissions. For example, an approved WB/GEF China wind project is now stalled by the issue of power purchase agreements. No province wants to buy Inner Mongolia's expensive wind-generated power, and the Inner Mongolians don't want to have to buy it all themselves. Before China's utility restructuring this probably wouldn't have been an issue. The question arises how GEF could help avoid similar situations in the future by facilitating a level playing field for cleaner energy options in liberalized markets.

Power-sector restructuring is underway or beginning in many GEF client countries. In many regions and countries, power sector restructuring has resulted in privatization, corporatization, unbundling of generation, distribution and transmission, and a broad variety of new institutional and contractual forms. The scope of existing GEF operational programmes does not appear to target the nexus of environmental benefits (both local and global), market liberalization (e.g., from public and regulated to private and competitive), and decentralization (both on demand and supply sides) in evolving energy markets. This nexus must be addressed holistically in a fully integrated approach to enable a level playing field for cleaner energy alternatives. The GEF possibly could play a more proactive role in shaping ongoing and initial efforts in many countries.

### **3 AIMS AND OBJECTIVES**

The objective of the workshop was to discuss the best ways and means to promote integration of global environmental concerns, including newly emerging instruments (such as the CDM), into comprehensive power sector restructuring reform efforts, and to explore potential GEF roles in



facilitating regulatory and institutional frameworks that address cleaner energy constraints.

This led STAP to organize a workshop that would give focused attention to the following questions:

- (1) What regulatory and policy frameworks and tools can be incorporated into power sector restructuring in client countries, in order to create more systemic opportunities and incentives for low-carbon technologies (a "level playing field")? What are the specific tools and services the GEF should consider co-financing in order to facilitate such incorporation?
- (2) What historical evidence and analysis do we have that specific approaches to power sector restructuring have led to greater or reduced incentives for low-carbon technologies?
- (3) How can the GEF most effectively contribute its services and resources to help governments and utilities create those systemic opportunities and incentives?
- (4) What is the relative and appropriate strategic role of the GEF in energy market development relative to longer-term utility regulation? Do the new strategies fit into the existing operational programs or would an additional operational program be needed?
- (5) Is there a role for the GEF in assisting utilities to lay the groundwork for decentralization of generation and local grids, anticipating that future technologies (like renewables, fuel cells and other low-carbon technologies) are better positioned to receive fair treatment in decentralized applications?

#### **4 PARTICIPATION**

The meeting was attended by energy experts from developed and developing countries including representatives of the power sector, developers from the North and the South, experts from research institutions, the International Energy Agency, and the Indian Institute of Sciences, the Chair of SBI/UNFCCC, the STAP Chair and STAP members, members of the CST/FFEM, representatives of the GEF Secretariat and the Secretariat of the FFEM, the World Bank and UNDP. The list of participants is contained in Annex II.

#### **5 STRUCTURE OF THE MEETING**

The meeting was structured in two distinct phases, namely ;

- (i) A preparatory phase which took place before the actual Workshop : It took the form of an electronic discussion involving key experts in power sector reform. The electronic forum took place between April – June, 2000. The background materials for the discussion included a series of papers on Renewable Energy Technologies (RETs) prepared by STAP I as well as

background papers prepared by Comité Scientifique et Technique (CST) and STAP. These papers can be accessed from the STAP website (<http://stapgef.unep.org>); and

- (ii) The workshop discussion : This was structured in five distinct segments consisting of background presentations by STAP, the GEF, the French GEF, IEA and the World Bank; presentations on experiences and perspectives from developed and developing countries; and Working Group Sessions. Plenary discussions were held after each segment. The Agenda for the Workshop is contained in Annex I.

## **6 TECHNICAL BACKGROUND PAPERS**

### **6.1 Commissioned Papers**

To facilitate the workshop discussion, an overview paper<sup>1</sup> was commissioned by STAP. This provided a basis for discussion by addressing a number of central issues related to trends and instruments used in the power sector reform, and to GEF interventions to promote clean energy technologies. The paper presents an overview of the different patterns of power sector reform, and the way it can influence the environment. Six key trends relevant to GEF activities were identified, namely: commissioned wholesale power markets and removal of price regulation on generation; self generation by end user; smaller-scale generation facilities and technologies; privatization and/or commercialization of utilities; unbundling of generation, transmission and distribution; and competitive retail power markets.

The experience gained in developed countries shows that power sector reforms may lead to substantial negative impacts on the environment, namely the use of older and dirtier facilities, or the increase of consumption induced by the price reduction and the retail competition. But such concerns are less relevant in the developing countries framework, where the positive impacts on the environment seems to overcome the negative ones. In that context, the improvements in generation, transmission and distribution efficiency, along with the “dash for gas” and the incentive given to co-generation, are expected to bring along enormous benefits both from the point of view of the environment and the financial viability of the power sector. Those trends are exemplified in case studies in Argentina, Brazil, China and India.

But the reforms also reduce the opportunities for demand side management programmes, and shorten the time horizon of the managers, thus limiting investments in capital intensive technologies such as renewables. Furthermore, the traditional instruments designed to cover the extra cost of some renewables are no more operative, and new instruments need to be developed.<sup>2</sup> A range of possible

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<sup>1</sup> Power Sector Reform and Environment : A Role for the GEF - June 2000

<sup>2</sup> CST paper entitled « Deregulation of electricity markets and incentives frameworks in favour of renewable energy »

<sup>3</sup> ibid

instruments for incorporating clean energy technologies with reform exist.<sup>3</sup>

An overview of specific instruments designed to promote renewable energy, based on the European experience was also presented. The reasons for developing such instruments were highlighted. Firstly in a monopoly context where access to electricity markets was not easy. Mandatory feed-in schemes were designed to oblige the utilities to purchase electricity from small-scale, independent producers. Buy-back tariffs were sometimes based on the avoided costs for the utility, but could also be more favorable to renewable energy generators, thus leading to additional costs paid for by consumers, for example in Germany, or by taxpayers as in the case of Denmark.

With the introduction of competition and easier access to the grid for independent producers, the barriers which prevented the development of renewables in a monopoly context are theoretically removed, but other barriers remain, due to the small size of the projects, the financial profile of renewable investments, and sometimes the cost of the electricity generated. New instruments designed to overcome those barriers in a deregulated electricity sector, such as standard portfolios, bidding schemes and green certificates were highlighted as well as the possibility to learn from the experiences in developed countries and the adaptation of similar approaches to developing countries.

## **6.2 Implications for the GEF: Overview of GEF Operational Programmes in Climate Change**

Dr. Alan Miller *et al* of the GEF Secretariat presented an overview of the GEF Operational Programmes in the climate change focal area, the GEF's experience of development and implementation of the portfolio, and the evolving orientation of the new Operational Programmes. They indicated that GEF's future efforts in the climate change area will link more creatively with the economic sectors and will be more integrated in the broader context of power sector reform.

Dr. Christian De Gromard also outlined the experience of the French GEF in energy sector-related interventions. Three areas of activities were outlined, namely mini and micro power plants, decentralized rural electrification and demand-side management. It was emphasized that one of the main constraints for increased market penetration of renewables in a restructuring power sector is the risk associated with the long period of investment returns.

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<sup>3</sup> *ibid*

## **SECTION 2 : EXPERIENCES AND MAJOR ISSUES IN POWER SECTOR REFORM**

### **2.1 INTRODUCTION**

To facilitate indepth discussion on power sector reform experiences from the developed countries, principally Europe and U.S.A. and a number of developing countries, name ly, India, China, Brazil, Morocco, South Africa and Sri Lanka, were considered. Following the discussion on these experiences, the participants sought to identify key issues on the following themes ; name ly :

- Overall regulatory frameworks for investments in cleaner and distributed power sector development;
- Specific clean energy technology add-ons to basic regulatory frameworks aimed at promoting energy efficiency and renewable energy ; and
- Environmental regulation and mechanisms.

### **2.2 Experiences in Europe and the U.S.A.**

The perspective from the European Union focused on EU's liberalisation and a new market paradigm . An overview of the rules of the EU electricity directive, the differences in implementation and experiences, and the consequences of the market reform on climate policy objectives were presented. It was highlighted that without incentive frameworks, market reform will likely contribute to a decline in New and Renewable Energies (NREs) generation. Adequate mechanisms are necessary to provide continuous support to DSM activities and to stimulate the development of NREs, in particular to protect market niches, to improve the cost-effectiveness of NREs and to support the learning and dissemination of emerging technologies with specific market driven instruments.

The U.S. perspective, however focused on restructuring for increased competition. The deregulation process in Alberta was described as an example. An overview was presented on the design of simultaneous auction that was selected as part of that Alberta's deregulation process as the preferred approach to selling the Power Purchase Agreements (PPAs) as well as the process for implementing the auction target date of early July 2000. The transparent format of the Simultaneous Ascending Auction makes it possible for regulators to observe that selling prices are truly market-determined and makes it easier for them to certify to consumers that stranded cost burdens are minimized.

In addition, examples were given of REs policies under different utility scenarios in the US and Europe and and of lessons learned.

Following the more general presentations, two private sector perspectives were given :

(a) **Developer's perspectives : what are the requirements for business development ?**

Based on the experience of project development in grid connected renewables and renewables to feed isolated grids suggestions were made for the type of support that GEF could provide to catalyse market penetration of renewables in a given country. Areas where support is required are : updated information on emerging practices and approaches for PPAs and on investment potential and regulations; frameworks associated with renewables projects (local utilities, executing agencies and rural service providers); risk mitigation instruments and risk capital funds.

(b) **A CDM perspective**

In order for developing countries to participate in the CDM assistance will be needed to initiate institutions to minimize transaction costs and maximize private sector investment. Funding of enabling activities such as inventory assessment and baseline setting will give countries the chance to attract CDM investment. An indication is given of the necessary institutions and policies to attract private sector investment.

### **2.3 Experiences from developing countries**

A recent ESMAP survey of 115 developing countries showed that many countries have started reform. There are as many varieties of power sector reform as there are countries and the degree to which measures are introduced that support energy conservation and efficiency and the deployment of renewables differs greatly between countries.

The developing countries that made presentations were China, Brazil, India, Morocco, South Africa and Sri Lanka. South Africa focused on its DSM programme and the uncertainty of its direction in a restructured power sector. The Sri Lanka presentation, on the other hand, focused on the impact of the reforms on small independent power producers.

In Brazil, the ownership and operational structure in the electricity sector is changing significantly. The new restructured power sector allows competition in generation of 1999 and will consist of generators, distributors, transmission companies, marketers and suppliers. The new rules of ANEEL, Brazil's regulatory agency, are based on two laws : one on energy efficiency and one on Research and Development, both of which ensure that a percentage of the revenues are used for energy efficiency programmes and for R & D of the power sector. Incentives are accorded to Small Hydro Power (SHP), which will be extended to other renewables and cogeneration in the future, examples of which are simplified rules for licences and exemption of certain payments.

Though still in early phases of reform, China, the second largest electricity producer in the world, has made substantial progress. Among the policy and reform goals are the enactment and implementation

of an electricity law ; function separation (of the generating/operating and regulatory powers) ; separation of generation and transmission (in Zhejiang Province for example, 15% of the energy purchase is open for competition). It is anticipated that between 2001 and 2010, all of the generating plants with some exceptions will be reorganized into Independent Power Producers (IPPs), with full competition in generation. The generation pricing on the market, however, will limit the development of renewable energy which is not commercially competitive. China plans to maintain the renewables share of generation at 5% which would require 18 GW of renewable energy capacity by 2010. The government is considering options like a renewable portfolio standard.

India, which is still at an early stage of reform created a dedicated Ministry for renewables : the Ministry of Non-Conventional Energy Sources (MNES) and further set up a financing agency (IREDA). MNES has initiated a dialogue with the Forum of Indian Regulators to evolve a common approach for a level playing field. IPPs were allowed in 1991 to sell power to both state electricity boards and directly to third party consumers. The spread of RETs is aided by a variety of policy and support measures, including an R & D strategy and wheeling and banking facilities at nominal charges.

In Morocco, the impact of the energy sector restructuring on the renewable energy market has been considerable. Renewables are integrated in its rural electrification programme when they are the least cost option and are an energy efficiency option through the promotion of solar hot water systems. The barriers to an increased deployment of RETs are the high cost of project development, the risk of energy availability and a project rather than programme approach.

While IPP frameworks have played key roles in accelerating markets for renewable energy (particularly wind power and small hydro), considerable barriers remain in place, financing being the most important one. The transition from public to private may shorten the time horizons, increase borrowing costs, and increase requirements for high rates of return. All of these factors limit investments in more capital-intensive projects, in favour of lower-capital cost forms of energy (fossil fuels and natural gas).

A side effect of the privatization and deregulation of utilities has been the elimination of incentives on regulatory mechanisms for utilities to do DSM. In developing countries established programmes may be similarly jeopardized, as illustrated in South Africa. For example, the GEF has expended large resources to help develop a DSM office in the Thai electricity utility over the past years, now that the utility is being privatised, no one is sure what to do with this office.

As illustrated by the case of the development of the SHP sector in Sri Lanka, availability of profitable investments loan funding and other incentives are essential initial conditions, aside from IPP and standard PPAs.

## 2.4 Key Issues Emerging From The Discussions

### 2.4.1 Overall regulatory framework for investments in cleaner and distributed power sector development

The main objectives for addressing this theme was to identify the driving forces behind the reform process, to analyze the potential impact of the reforms on the environment, and more specifically on the development of clean technologies, and to evaluate the possibility of incorporating more specifically long term, environmental concerns in the process of reforms. Following are the main conclusions of the discussion:

- a) *Ensuring consistency between power sector reforms and environmental goals, including the goals of the GEF.* Power sector reforms in developing countries are intended to improve the financial and economic performance of the industry, with the aim of enabling the industry to meet their growing demands for electricity. However, it has long been predicted that a by-product of the reforms would be the environmental benefits arising from improvements in energy efficiency. For example, the reforms would provide incentives for the companies to reduce electrical losses in transmission and distribution, which in 1990 were as high as 25-30 percent of supply as compared with 10 percent in good practice situations, and to improve the efficiency of thermal power stations, which were often one quarter to one half of rated performance. In addition, by eliminating subsidies they would reduce excess consumption and, by improving the reliability of electricity supply, would reduce the dependence of millions of consumers around the world on inefficient back-up diesel generators. It was reported during the workshop that, on account of improvements in energy efficiency in the reforming countries, emissions were being reduced by about 30% relative to the levels that would have been obtained without the reforms.

Despite such favorable effects of reform on the environment, it has also been recognized that power sector reforms and environmental policy need to go hand-in-hand. This is not a matter of the industry simply being subject to environmental regulations imposed by another agency, as is the case in other industries. Rather it is necessary to involve the industry in the development, demonstration and commercialization of the technologies and practices required to address emerging environmental problems, such as carbon emission abatement and pollution. Without exception, all OECD countries have long accepted this position, as has the host country, India. There is indeed a long history of the electricity industry being involved in the development, demonstration and commercialization of environmentally sound technologies – for example, in the

development of electrostatic precipitators for the control of particulate matter emissions in the development of 'clean coal' and combined cycle technologies, in the effort, spanning more than a century, to improve the thermal efficiency of power stations and reduce electrical losses, and more recently in the development of renewable energy. The reform process needs to recognize the importance of such developments, and to put in place the appropriate incentives for their continuance in regulatory and price structures.

- b) *The separation of the power sector reform process from environmental policies.* Two contrasting views emerged on these issues. One view point argued that power sector reform, on the one hand, and environmental policies on the other, were separate issues; and that to address the power sector reform and the environment simultaneously would "overburden the reform process". An alternative view is that the first view point is a false and that it is an unnecessary dichotomy to make a distinction between power sector reform and environmental policies. Instead, environmental concerns should be addressed during—and should be an integral aspect of—the reform process.

STAP agrees with the latter view, and emphasized that to ignore environmental issues during the reform process would lead to undesirable economic and environmental consequences, and would ultimately undermine the quality of the reform process itself.

- c) *How to engage the electricity industry and its regulators in environmental improvement.* Three principles on which the reforms should be based were highlighted, namely:
- The need for simplicity in the regulatory and price structures offered for the development, demonstration and commercialization of new 'clean' technologies.
  - The importance, as noted, of those involved in the reforms, of respecting and responding to both local and global environmental concerns.
  - That, so long as the new technologies occupy less than, say, 5 % of overall investment, the incremental costs may be covered through limited, almost insignificant increases of tariffs.
- d) *Technology Development.* A difference of opinion arose between those engaged in the power sector reform process, and other participants. The former argued that the policies should be technology neutral, and that this would be a sufficient policy. The latter, including STAP, argued that industry involvement in the development, demonstration and commercialization of 'clean' technologies was crucial. As noted there has been a long history of involvement of the electricity industry in the development of environmentally improved technologies, and also of public-private partnerships—for example in the development of the advanced gas turbine technologies that are now sweeping the market. The reform process would fail if this involvement and partnerships were to cease.
- e) *Incentives for Technology Development.* The problem posed by the uncertainties about climate change was identified as a major issue. Available estimates of the external costs of climate change



range from as little as \$ per ton of carbon emitted to \$250-500 per ton. In short, since what the actual costs will be is not known, one cannot recommend a particular shadow price with confidence. Uncertainty, in other words, is one part of the policy problem, which is why many countries are following the classical principle that, when uncertainties are large, a necessary step is to explore options. In the present case, this means policies to develop and demonstrate new climate friendly technologies, and to commercialize the more promising ones. Such policies are fully consistent with the goals of the GEF.

A general point that was highlighted in the discussion related to differences in time frames. In terms of reducing carbon emissions, power sector reforms were likely to have a greater effect in the short-term. Policies to encourage the development, demonstration and commercialization of 'clean' technologies were likely to have the greater effect in the long term—and would also be facilitated by power sector reforms. Power sector reforms should therefore, not ignore the goals of promoting environmentally friendly technologies. The two sets of policies are complements and not substitutes, and need to move forward together. The fact that this elementary principle seems often to be overlooked by the power sector reformers, is the reason STAP has recommended a best practice paper on the subject, and for an agreement to be reached between the GEF and the Implementing Agencies.

#### **2.4.2 Specific clean energy technology add-ons to basic regulatory frameworks promoting energy efficiency and renewable energies**

This theme focused on the rationale for developing specific approaches and instruments aimed at promoting energy efficiency and renewable energy beyond the basic regulatory framework of the power sector, and to identify a set of instruments relevant in the developing countries' context. The major issues which were highlighted are summarised as follows:

- a) *The primacy of the political process.* First of all, there was a general agreement to recognize that the reform process may result in an improved environment, but that the basic competition under "pure market rules" would present a threat for the development of clean technologies such as renewables, and energy efficiency. The issue at stake here is not to oppose the transition towards a more competitive marketplace and the enforcement of "counterproductive" regulations in favor of renewables (in the sense that such regulations would introduce restrictions or distortion of the market), but to recognize first that electricity is more than a commodity, and is to be associated with environmental and social issues, and thus public interest. As a consequence, the primacy of the political objectives over the technical process remains valid, but is to be clearly defined and transparent, to avoid mismanagement and erroneous decision-making in investment allocations. The incorporation of public interest objectives implies that an internal consensus is to be built in the early stages of the reform process. This issue was illustrated by the representative of Brazil (ANEEL) where it took almost two years to reach a consensus.

It is also agreed that the economic situation in developing countries doesn't leave as much room for

intervention as it is the case in the developed countries, and that any measure has to be thoroughly evaluated before enforcement. In that respect, there was a general recognition among participants that long term benefits such as climate change mitigation could not justify *per se* a strong and costly commitment of developing countries towards renewables. However, short term externalities may be identified (capacity development, no fuel price risk, grid balance, social impact, local development, industrial development and technology ownership) and legitimate political efforts to further develop renewable alternatives to fossil fuels, in line with national priorities.

- b) *General rules for developing selected policies and instruments.* The first consequence of the above observations is that any rules to be developed have to be simple, open, transparent and in line with the competition framework being established through the reform process. In particular, the correction of existing, inefficient rules by adding new procedures should be avoided, and the priority should be given to the removal of the existing, non-optimal ones, in order to build a sound foundation. A discussion arose concerning the wheeling and banking procedures developed in India for wind energy. The point was made that the tax incentives in India played a major role in the development of the wind industry, and led some times to sub-optimal investments. In that context, the benefits of the wheeling and banking procedures are somewhat disputable, but this does not imply that the same procedures in a different context cannot bring substantial benefits.

Also, the rules must be framed in such a way so as to reduce transaction costs and to reflect unambiguously the priorities: for instance, standardized power purchase agreements (PPAs) that are technology specific will help in the dissemination of renewables.

It was emphasized that there was already a large body of experience in designing such policies throughout the world, both in developed countries and in developing ones, as in India and Brazil, for example. The direct transposition of any model should never be encouraged, and local realities necessitate tailor-made instruments to fit country situations. But the development of mechanisms providing for a more efficient and wide-spread sharing of experiences was identified by the participants as a crucial issue to assist governments, regulation authorities and any other entities involved in the reform process (including the consulting firms) to elaborate their own framework.

- c) *Sequencing the policy developments according to the pace of the reform process, the national objectives and the level of commitments required.* In designing new instruments, policy makers have to keep in mind how the systems are expected to change over time. They also have to consider the implications of the instruments to be adopted, namely in terms of costs for the utilities, and consequently for the consumer or the tax-payer.

It was recognized that, from the earlier stages of any reform, specific instruments should be introduced in order to build a “level playing field” for renewable investments. On a single buyer market, and with the introduction of independent power producers (IPPs) schemes, there is a need to develop power purchase agreements (PPAs) adapted to small scale, renewable generation

facilities: without such standards PPAs, the transaction costs of negotiating with the utilities would hamper the development of small projects such as renewables or cogeneration. Participants also stressed the need to adapt other regulations (such as licensing schemes for IPPs, or water licenses in the case of small hydro power plants) with the same objective.

In addition to that, published feed-in tariffs will allow developers to anticipate the viability of their projects, and reduce the risks in the earlier stages of the projects development. Such feed-in tariffs may be based on the avoided costs for the utilities (taking into account the avoided generation capacity, fuel savings and other impacts at the level of the transmission and distribution networks)<sup>5</sup>.<sup>6</sup> In that context, niche markets will emerge, as demonstrated in the case of Indonesia. It was highlighted that the mere recognition of current generation and distribution costs would allow for a substantial development of renewable power in most countries, specifically those being obliged to run isolated diesel systems in small islands or remote regions (northern Brazil). Feed-in tariffs may also be settled at a higher price (see below), expanding the niche market and allowing for a faster and a larger development of renewable capacities.

When the reforms allow for third party access (TPA), the same rules should apply and standardized agreements should be made available so that small-scale generation facilities can benefit from the TPA. A discussion arose concerning the procedures of wheeling and banking developed in India (see above), some participants arguing that such instruments would lead to an

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<sup>5</sup> But feed-in tariffs must build confidence and therefore cannot fluctuate with the international prices of fuel, as it is the case in Sri Lanka. In Portugal, a compromise was found through the following procedure : published feed-in tariffs fluctuate according to the international prices, but once a PPA agreement is signed, the electricity generator is given a guarantee that the price for this contract will not drop under 80% of the agreed for a 10 years period.

<sup>6</sup> The level of the avoided cost for the purchaser depends on the cost he is actually incurring (which may be far from total cost to the economy). Thus it is important that the “avoided cost” represents the actual cost including all stakeholders in the process.

- In the case of the Philippines, distribution co-operatives have monopolies over certain territories and purchase power wholesale from the National Power Corporation (NPC). For remote rural areas (island grids) NPC has an obligation to supply power at a national price of approximately 2 pesos (30 cents) per kWh to the co-operatives. The effective cost of power, generally supplied through small diesel generators is much higher, variable costs reaching at least 4 pesos (60 cents) per kWh. For the renewable energy IPP's, the avoided cost against which to compete is therefore subject to who the client is (NPC or the co-operatives?).
- In the case of Indonesia, the PLN (state monopoly) supplies power to isolated areas through diesel units and purchase diesel at a subsidized price from the oil company (the price paid for being 1/6 of the international price). As a result, the kWh cost for the nation is almost 3 times the cost to PLN, the cost of small hydro alternatives being typically between the two levels.

inefficient incentive of capacity development, while others considered that it may be a transitory solution to attract the industrial sector in those countries where capacity development is badly needed: it is a bonus given to the producers/consumers through the banking system being a transposition in a developing country context of the monetization of intermittent supply taking place in the developed countries.

The common characteristic of the instruments described above is that they establish a “level playing field” for small scale projects in the context of the reform process, but that they do not modify the conditions of economic competition (with the exception of the banking system). This means that institutional and regulatory barriers to renewables development are being removed, and that renewable capacity will expand in so far that the generation costs remain lower than the fossil fuels alternatives. But a country may wish to go further based on the recognition of some positive externalities (see point a). In a monopoly system open to IPPs, incentives can be passed on through the feed-in tariffs. In a highly deregulated power sector, renewable portfolio standards (RPS) and green certificates pursue the same objectives, allowing for procedures compatible with a competitive environment. But the participants in the working group also recognized that the experience is still limited, and that the establishment of such procedures requires a well-established framework, namely at the level of the regulation authorities.

- d) *Financial implications.* It was then stressed that the options described in section c) have very different implications. The instruments aimed at reducing the transaction costs and establishing economic rules based on a more transparent recognition of the effective generation and distribution costs of the utilities present an up-front cost (design, negotiation) but no running cost. On the contrary, it is clear that most instruments developed to internalize externalities will induce permanent financial implications<sup>7</sup>. If, at a macro economic level, such externalities legitimate a strong commitment in favor of renewables, the extra-costs have to be met either by the consumers, or the tax-payers, the former being the more desirable. However, other considerations may force policy makers to abandon such initiatives, when considering the limited capacity to pay of low-income families, and the impacts on prices of the reforms themselves. On the other hand, as long as renewable energies are limited to a very small share of the generation capacity, the incremental costs may be covered through limited, almost insignificant increase of tariffs<sup>8</sup>. It was also stressed that several countries already operated incentives procedures, some of them based on capacity development subsidies, considered a costly and sub-optimal option compared to energy delivery incentives.

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<sup>7</sup> But there are also non monetary ways of internalizing externalities (e.g. guaranteeing supply)

<sup>8</sup> India is currently in the process of establishing a renewable energy fund through the creation of a tax on fossil fuels.

Consideration was also directed to issues related to the clean development mechanism (CDM). It was first agreed that building a “level playing field” for renewable energy projects was a necessary, preliminary step to be considered by the countries willing to attract CDM investments in that field. According to the assumptions that can be made on the future value of carbon certificates, CDM is expected to modify substantially the economic viability of renewable energy projects, but this will not be sufficient if the basic conditions for project development are not in place in the host countries. Once a supportive policy framework is established, CDM might offer an opportunity for grid-connected renewables, adding the “carbon value” of the electricity generated to the basic valorization obtained through the grid. This can be made on a project by project basis, but it is also possible to imagine that country incentive schemes may take advantage of the CDM to establish some sort of “clearing-houses”, depending on the outcomes of the discussions on issues such as south-south projects and fungibility.

- e) *Interlinkages between energy efficiency and renewable energy.* Discussion also focused on the importance of energy efficiency in supporting the development of renewables. It is already recognized that renewable energy projects in isolated situations (such as rural electrification) should include a strong energy efficiency component in order to maximize the impacts of renewables and define the least cost solutions. Yet what happens to be true at the local level remains valid at the macro-economic level, and there would be no point in developing a strong program of renewable energy when a large share of the electricity generated in a country is wasted in low-efficient end-uses. However, power sector reforms also strongly affect the former avenues to deliver energy efficiency, and diminish, if not eliminate incentives for utilities to do demand side management (DSM). This is particularly expected to be the case in the residential sector, which accounts for a large share of the electricity consumption of developing countries. Unlike the industrial and commercial sectors where ESCOs could play a role to promote energy efficiency, few institutional and financial mechanisms are in place to improve end-use efficiency in the residential sector of those countries. Experience has shown the possible impact of appropriate instruments (mortgage incentives, regulations, efficiency standards, procurement, etc.) in the context of industrialized countries and a specific effort is needed to assist the developing countries in a market transformation process along with the power sector reforms. DSM programmes might need to be redefined and redesigned in the new context of a restructured electricity sector.

#### **2.4.3 Requisites of the overall regulatory and financing context conducive to renewables and energy efficiency deployment in the context of power sector reforms**

The objective of this theme was to discuss the requirements of the overall regulatory environment of (private) power sector investments, looking in particular at investment financing instruments, conducive to promoting energy efficiency and renewables in the prevailing context of power sector reforms. The main issues highlighted are summarised as follows:

- a) *Priority given to energy efficiency and renewables is a national and country specific decision.* This “consensus phrase” resulted from a discussion where perspectives from different national contexts were expressed. In some countries such as China, the environment is not the main focus but the priority is to provide affordable power in large quantities and quickly. Renewables are not (and by far) on a macro basis the cheapest option, and the end-user will not agree to pay more (form of green pricing) for a power service. Security of supply, which can in certain contexts be a catalyst to investment in renewables, is also not an issue. As a result, investments which are taking place are: improved (coal) generation efficiency as they generate immediate financial benefits; in marginal remote rural areas, investments in renewables where they are the least cost option; otherwise, additional international money is a requirement. The situation in Small Island Developing States (SIDS) is in contrasting opposition – a small system would be 10 kW, a large one 200 kW. As there are no fossil and hydro resources, the only available options are solar or wind energy, or extremely costly imported diesel. As electricity is both a commodity and a public good, it must be produced as efficiently as possible given local conditions. The prime objective which leads to putting a priority on renewables, is to cut down life cycle costs, not to mitigate environment impacts.
- b) *Renewables and Energy Efficiency require an apex institutional arrangement.* The exact nature and power of this institutional arrangement depend on political priorities and national context. What is central is the “single window approach” to address the full range of issues including research, implementation and delivery. The Government of India has created a dedicated Ministry, the Ministry of Non Conventional Energy Sources (MNES) to this effect, and further set up a dedicated financing agency (IREDA – Indian Renewable Energy Development Agency). Its role is to centralize concessional financing and create a track record in the perspective of commercial dissemination, developing a network and creating appropriate delivery mechanisms. Small Island Developing States requirements are different, as renewables are a fully integrated option in utilities. The felt need is more in the realm of research and information, particularly best practices and success stories. The apex institutional arrangement could take the form of a regional based center of excellence. The need for a specific agency was also questioned in the discussion, as it was suggested that in certain situations, a solid framework, implemented by existing institutions would be the most effective approach. The point of consensus was that the role of this “apex arrangement” was to mainstream renewables and energy efficiency as effectively as possible and that in all cases it should not have any regulatory or licensing function.
- c) *The reform process is not conducive to the deployment of renewables and energy efficiency.* This was overall recognized as being the case, mainly due to the lack of proper information and more fundamentally a misperception in the traditional power sector. In many cases, renewable energy and energy efficiency are becoming the least cost options, though some times only in terms of levelized cost, which may not be the cheapest up-front. High capital costs are generally dissuasive to private investors.

- d) *Information available is often confused and there remains a gap between “awareness building information” and actual availability of services.* One example of confusion highlighted in the discussion was the multiplicity of international initiatives (CDM, GEF, REEF, SDC, PVMTI, ...) which become difficult and extremely time consuming to handle from a developing country perspective. In order to better understand the various possible routes for the deployment of energy efficiency and renewables, it was suggested to develop an analytical framework in a matrix form at which could reflect the various approaches tried out internationally (Figure 1).

	Institutional Organization	Financing	Incentives / risk coverage
<i>Drivers</i>			
Policy			
Technology			
Environment			

Figure 1: Suggested Analytical Framework Indicatory Routes for the Deployment of Energy Efficiency and Renewables

- e) *Delivery mechanisms cater to different market segments and are therefore varied in nature and mature over time.* The needs to be satisfied are extremely varied: social needs of a remote rural village are very different from industrial energy efficiency needs, and involve very different actors. Various types of organizations have a role to play including utilities, private sector (from large corporations to rural distribution agents) and NGOs. This was eloquently illustrated through the case of Morocco, where renewables are integrated (i) in the infrastructure by the utility in its Global Rural Electrification Program (PERG) when they are the least option; (ii) as an energy efficiency option through the promotion of Solar Hot Water Systems via private Energy Service Companies (ESCOs); (iii) in remote rural areas through another form of ESCOs (NGOs or “grass roots” rural entrepreneurs). In all cases, it was recognized that understanding these various needs and the possible options in terms of delivery mechanisms and existing players requires time and public support: to develop a “model”, test it at a pilot scale and then support its large scale deployment.
- f) *There are multiple sources of financing (international, national, end-user) which need to be optimally managed.* The issue of how these funds are mobilized and channeled was highlighted as critical. Grants in general and international grants in particular were qualified as “not being renewable” and having to be focussed on testing models and kick starting processes. It was also suggested that main international financing modalities such as IDA should consider a clean environment as a development need and thus make these projects eligible. The main source of financing is national (taxes, cross subsidization, ...): it was recognized that cross subsidization exists and will continue to exist in some form, because it reflects national priorities. The key issue is that these funds must be channeled towards the least cost option (in the long term) and that therefore the instruments developed must be focussed on changing long term economic viability into short term viability from the perspective of investors. In order to effectively mobilize the investors, the overall framework must be stable, transparent and credible.
- g) *In order to mobilize private investors and help them overcome barriers, there is a need to devise specific instruments.* The instruments mentioned in the discussion were related to risk mitigation, equity provision, guarantee funds, the need to cover high pre-investment costs, matching long term financing requirements, bundling of small projects and so forth insufficient time was available to



address these issues in detail.

- h) It was recognized that there is an ongoing process aiming at putting a price on externalities through market mechanisms. Though the global impression was that no investor will today base a decision on anticipating the gains from such mechanisms, it was felt that they can be a way to level the playing field and bring additional financing. In any case, developing countries must keep abreast of the developments both in order to influence their definition and to make the best possible use of them.*

## **SECTION 3: MAIN CONCLUSIONS AND RECOMMENDATIONS FOR GEF**

### **3.1 Main Conclusion**

The central issue emerging from the discussion related to the legitimacy of interfering with the reforms process. To what extent is it possible to integrate environmental concerns into the power sector reforms, while very important other issues are at stake? Is there an inherent conflict between economic efficiency and the environment? It was acknowledged that the reforms would not only result in improved economic performance, but also bring about substantial and positive short-term impacts on the environment. Yet the reforms are also a market driven mechanism, with a strong short-term emphasis. This provides a strong argument for the establishment of rules, allowing for the capital/energy trade off characteristic of renewable energy and end-use energy efficiency projects, which would stimulate the development of technologies with long-term benefits

It was also emphasized that the reasons for embarking on such a process would strongly differ from one country to another. In the case of small island developing states, but also of any country where geographical conditions lead to the existence of isolated, small-scale network systems, renewables are often already a least cost solution when taking into account the life cycle of the generation facility. Small Island Developing States (SIDS) made it clear that their commitment towards renewables does not stem necessarily only from environmental concerns, but is based as well on socio-economic considerations. On the other hand, large countries in a process of industrialization like India, China and Brazil recognize that renewables (with the exception of large hydro power) will only account for a small share of their energy balance in the next decade, and therefore put more emphasis and priority on the development of a sustainable, national industry (see, for instance, the Indian policy regarding wind power). Their different objectives and priorities will clearly lead to different levels of commitment, and therefore to different sets of instruments. GEF being a country driven mechanism has to keep this in mind, in order to design its intervention in a customized way, reflecting the goals and concerns of its client countries.

### **3.2 Recommendations**

On the basis of the discussion which took place both in the electronic forum on power sector reform and the workshop, STAP has formulated the following recommendations for consideration by the GEF on this subject:

#### **(a) *There is a need for GEF to be more present in the reforms process***

GEF has a clear mandate to promote low carbon energy options in order to mitigate impacts on the global environment. One of the outcomes of the workshop was the recognition that environmental concerns are inadequately taken into account in the reforms process, as they are not a central issue for those currently involved in the restructuring. Therefore, a clear added-value exists for the

GEF to contribute in the current context. The question is however, whether its instruments are geared to this.

An assessment must therefore be made on whether the global regulatory framework has been a target for GEF intervention in the framework of OP5 and OP6, and on the impact of GEF projects on the process towards large scale dissemination and acceptance of renewables and energy efficiency. In addition, the need for GEF to be involved in regulatory frameworks should be examined. It nonetheless emerged from the workshop that the level of effort allocated to mainstreaming low cost and mature technologies (such as small hydropower, wind or some biomass technologies) may be insufficient when compared to the funds dedicated to high tech, costly renewables.

Understanding the issues related to the large-scale deployment of these mature technologies requires a global risk analysis from the point of view of potential private developers. As the regulatory framework is still unstable, and under development, there is a market risk related to the off-take of generated power and the sales price. Transaction costs resulting from complex and evolving rules and regulations imply additional up-front costs (and time) and therefore equity. On the financing front, the long-term loans required to match the needs of renewable energy projects are often not available, as the financial community is reluctant to make long term commitments for risky ventures of this type. This is further compounded by the small-scale unit size of investments requiring a cluster approach. It appears from this that there is scope for GEF interventions focussed institutional developments and on the establishment of risk mitigation instruments.

**(b) *GEF has a specific role to play in combining financing of hardware and software***

GEF should intervene at different levels: the institutional, legal and policy framework, financial mechanisms, capacity building, delivery of services. In doing so, GEF can act as a think tank, a service provider, and a catalyst for the creation of a track record.

- There is a role for the GEF to build awareness, confidence, and familiarity with renewable energy and energy efficiency technologies among financial institutions and other investors. This is clearly demonstrated in the case of India, where support for wind power by the GEF included greatly raising the willingness of Indian financiers and investors to finance wind power. The role could be to collect information on on-going processes both in industrialized and developing countries and help to adapt and apply experience from elsewhere on them. Over and above conducting this analysis, an effective way of providing this information to interested regulatory authorities and other stakeholders must be devised. GEF should also support the single window body in providing all relevant information comprehensively to project developers: resource assessments, list of potential sites, local demand forecasts, handbook of procedures, information on local financing possibilities and on local partners;

- There is a role for the GEF to focus on capacity building for the regulators themselves. Such capacity building would help the regulators understand technologies and applications, build confidence in them, and show ways in which they can explicitly support these technologies with regulatory frameworks (linked to the dissemination of "track records" and experience from elsewhere). Often, basic skills may need to be strengthened among regulators (and the utilities they regulate), like lifecycle costing concepts so that renewable energy technologies are not penalized in investment decisions due to their high initial capital costs. Or regulators may need to understand the specific constraints. In order to reduce transaction costs, stable frameworks must be enacted for IPPs. GEF can notably assist in addressing the additional (incremental) complexities of renewable energy when establishing IPPs and standard PPAs and licensing, feed-in tariffs schemes, simplified procedures for access to the grid, and the development of a single window facility as the unique counterpart to a candidate developer;
- There is a role for the GEF to help negotiate "harmonized" policy approaches and help promote "convergence" of donor programs to the goals of power sector reform supportive of cleaner energy technologies.
  - GEF can devote some of its resources to funding various types of risk mitigation instruments: equity funds to cover pre-investment costs, counter-guarantee funds against exchange rate risks and non payment risks, specifically targeted in the case of renewable energy projects when the buyer of the power is a local level actor;
  - GEF must support the emergence of service companies catering to the various market segments (from remote social service providers to relatively high-tech industrial energy efficiency service providers). Such private companies will only emerge if they believe in the targeted market: venture capital funds with simplified procedures could make the difference;
  - Finally, GEF must support the creation of a track record which is the essential stepping stone for acceptance by and large involvement of private developers. A proper balance has to be struck between efforts on the regulatory context and the effective commitment of private investors.

**(c) *There is no clear evidence that a new OP is needed, but there is a need for a specific thrust in order to target GEF interventions***

The question of the need for a new OP was raised at the outset of the workshop. This OP would be dedicated to the power sector and centered on "soft activities" pertaining to the deployment of renewables and energy efficiency in the context of reforms. It was clearly expressed by the workshop participants that such an approach would be insufficient as there is a necessary to-and-fro between actual project implementation and negotiation of the regulatory framework. There must be short-term interest at stake (private investment) in order to build the necessary consensus and

reach an effective agreement between all stakeholders concerned. This is the reason why such an OP would also have to provide for hardware financing. Creating a track record of innovative approaches is needed, and therefore the entry cost of the pioneer should be covered. However, the level of the support provided must in no case create conditions so favorable that they would not be available for subsequent projects.

There is no obvious reason in the formulation of OP5 and OP6 why such activities should not be supported in the existing framework. The review of the existing GEF portfolio shows that there are nonetheless few specific projects in this area (see above point a). Though there is nothing specifically hindering them, there are also no particularly conducive elements to their emergence. The weak points which were highlighted during the workshop in the current definition of GEF operational programs relate to (i) the fact that they are technology driven and insufficiently interface with sector issues, in this case the power sector, (ii) the interventions are insufficiently supported by an underlying framework and (iii) the fact that a project-by-project approach does not necessarily lead to long term country commitment in a programmatic sense, i.e. the starting of the process of integration of renewables and energy efficiency in the reforms.

**(d) *There is a need to bring together those involved in climate change issues and those dealing with the power sector***

To facilitate this, it is being suggested that GEF be involved in technical assistance projects on power sector reforms in order to quantify environmental impacts of the restructuring and offer specific expertise on how to provide for renewables and energy efficiency within the global reforms framework. At the country level, GEF should more specifically address sectoral decision-makers and not only those directly involved in the global climate change issue. Country participants in the workshop expressed that the thematic working session like this one involving GEF and World Bank staff, and country level sector experts, was a very effective way for them to better understand the GEF.

**(e) *The challenge is to build on the new programmatic approach being formulated by the GEF in order to ensure long term country level commitments***

Generally, it emerged from the workshop that the integration of energy efficiency and renewables in a reformed power sector demands that a complex set of issues be addressed over time : at the institutional and regulatory level, at the level of private service providers and related to adequate financing instruments. From the country perspective, embarking on such a long-term process requires a certain level of visibility i.e. long-term financial commitment from GEF. This in turn gives country decision makers the possibility of making clear signals to private sector operators who can reasonably expect a certain level and regularity in the pace of business development in the medium term. A long term programmatic approach also gives greater incentives to regulators to use their new skills (fostered by capacity building under the programme) to develop regulatory

frameworks conducive to the long term programme . Without such incentives, skills from stand-alone capacity building might not be translated into actual policies and practices. Reciprocally, the GEF (or any co-operation agency for that matter) needs firm political commitment from the country in order to earmark funds over a number of years. Moreover, such a capacity and institution building initiative can only succeed if it is strongly country driven, and given sufficient priority by national decision-makers.

Better than a new operational programme , it seems that the programmatic approach currently being developed by GEF provides a favorable framework to address the process as described above. Actually, the negotiation of the programmatic approach in itself is a process within which effective capacity building action can be taken and supported by GEF.

In order not to overburden this already complex process, it emerged from the workshop that the approach must be sector based resulting in sector specific programmes. This offers the advantage of bringing a certain level of simplification and a chance of reaching an agreement within a reasonable time frame. Indeed there is relatively little overlap between players and specific issues of different sectors, and furthermore the level of commitment is not necessarily the same between sectors.

The negotiation of the programmatic approach is in itself a means for country level decision-makers to clarify and formulate their objectives. Each national program will as a result be adapted to the level of political commitment and the set objectives. As it also is a process that evolves over time, specific programmatic indicators must be formulated in a way that allows for adapting to the actual pace of implementation. However a certain minimum level of country commitment seems to be a prerequisite to substantial GEF financial involvement given the above. This minimum level of country commitment as a proof of interest is the formulation of the level playing field institutional framework and its step by step implementation (simplified licensing, standard PPAs, ...).

**STAP Expert Workshop on Power Sector Reforms and  
the Role of GEF in Promoting Clean Energy Technologies  
June 26-28, 2000  
Bangalore, India**

**Agenda**

**June 26, Plenary:**

- 9:00 Welcome and opening remarks  
*Madhav Gadgil, Chairman STAP*
- 9:15 Background of the Workshop:  
*Michel Colombier, STAP Member, France*  
*Alan Miller, Climate Team Leader, GEF Secretariat*
- Introduction of Participants
- 9:40 The Evolving Role of the GEF in Promoting Cleaner Energy Solutions in a Sector Reform Context  
*Frank Rittner, Climate Change Program Manager, GEF Secretariat*
- 10:00 Objectives, Approach and Portfolio of the French GEF in the Energy Field  
*Christian De Gromard, French Global Environment Facility (FFEM)*
- 10:20 Coffee break
- 10:40 Discussion: Assessment of the Experience Gained in the Energy Field by the Multilateral and Bilateral Funds: Achievements, Difficulties, Possible Loopholes
- 11:00 Power Sector Reform and Consequences for the Environment—Experiences from Industrialized Countries (25 min. each; focus on questions in Annex 1):
1. EU Perspectives: “liberalisation” and a new market paradigm  
*Philippe Menanteau, French Global Environment Facility (FFEM)*
  2. U.S. Perspectives: “restructuring” for increased competition  
*Jean Paul Acton, Charles River Associates*
  3. Renewable energy under different power sector reform scenarios  
*Jan Hamrin, Center for Resource Solutions*
- 12:15 Discussion

12:45 Lunch

14:00 Developer's Perspectives: What are the Requirements for Business Development?  
(20 min. each)

- *Henri Baguenier, President of the European Small Hydro Power Association*
- *Anjali Shanker, International Energy Development*
- *CDM expert, Neil Cohn, Natsource*

15:00 Experiences from Developing Countries: Previous Policies to Support Renewables and Energy Efficiency, Power Sector Reform and Consequences for the Environment and the Promotion of Clean Technologies – (15 min. each; focus on questions in Annex 1)

1. India (*Ajit K. Gupta, advisor to the minister of non conventional energy sources*)
2. Brazil (*Marcello K. Poppe, Brazilian Electricity Regulatory Agency*)

15:30 Questions for clarification

16:00 Coffee

16:15 Experiences from Developing Countries (continued)

3. China (*Dr. Ge Zhenxiang, director of Institute of Power Investment and Financing, Li JingJing, Director, Centre for Renewable Energy Development*)
4. South Africa (*Albert Africa, Eskom*)
5. Sri Lanka (*Bandaranaike Romesh Dias, director of Eco Power Limited*)
6. Morocco (*Mohamed Berdai, Ministry of Energy*)

17:15 Questions for clarification

17:45 Accelerating the Development of Clean Energy Technology in the Power Sector Reform Context: A Review of Key Issues and Strategy and Policy Options  
*Eric Martinot, Global Environment Facility*

18:05 Discussion

18:45 Conclusion of first day

## **Tuesday June 27:**

9:00 Plenary: Constitution of Working Groups 1-3

9:15 Parallel Break-out Sessions on Instruments for Incorporating Clean Energy with Reform :



Three groups; each group should cover these topics:

- Analysis: restructuring effects--experience gained and critical assumptions
- Strategic options: ways GEF could facilitate cleaner energy in deregulated markets
- Instruments: specific tools and services to help GEF clients implement the options

Group 1: Overall regulatory frameworks for investments in cleaner and distributed power sector development. Means to encourage IPP frameworks, self-generation, distributed generation, and village mini-grids. The roles of T&D capacity credits and open-access wheeling.

Group 2: Specific clean energy technology add-ons to basic regulatory frameworks: promoting energy efficiency and renewable energy. Roles and means of facilitating DSM, IRP, RPS, NFFO/EFL, rural concessions, and end-user energy-services (by utilities or private firms) in a reformed power sector.

Group 3. Environmental regulation and mechanisms: the role of CDM, emissions caps, standards and trading, regulatory treatment of new vs. older plants, emissions valuation in planning frameworks, and the role of emissions monitoring and verification.

10:45 Coffee

10:30 Parallel Break-out Sessions (continued)

12:30 Lunch

14:30 Plenary: Presentations/Reports by Working Groups 1-3 (10 min. presentation + 10 min. questions each)

15:30 Plenary: Constitution of Integrative Groups A and B

15:45 Two Parallel Sessions on Integrating the Three Working Group Themes:  
Two "integrative groups" A and B each discuss working group reports and holistic approaches towards "cleaner energy reform." Both sessions should debate issues like: power sector reform vs. environmental regulation; or systemic reform vs. clean technology add-ons; or CDM incentives vs. systemic incentives vs. add-on incentives.

16:45 Coffee

17:00 Plenary Discussion of Integrative Groups, Conclusions and Implications for GEF

18:00 End of second day

**Wednesday June 28 : Morning Plenary Session:**

- 9:00 Introduction : How could GEF adapt its intervention ?  
(*Michel Colombier, STAP*)
- 9:15 Reactions from GEF and IA's (15 min. each)
- *GEFSEC representative*
  - *WB representative*
  - *UNDP representative*
- 10:15 Coffee
- 10:30 Plenary Debate: The GEF perspective and formulation of specific recommendations on how to the GEF should address/integrate energy sector reform concerns in its policy and programming frameworks.
- 13:00 Closing remarks

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