

Evaluation of ESMAP Regional Power Trade Portfolio

March 2004

**TAG Report prepared by
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Under the Supervision of
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Joint UNDP/World Bank Energy Sector Management Assistance Program
(ESMAP)

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Executive Summary

Introduction

According to economic textbooks, trade between countries contributes to economic growth and increased welfare. Trade enhances the competitive advantage of a country or firm such that the output by high-cost producers will shrink and the market share of low-cost producers will increase. This 'efficiency gain' brings economic benefits to all stakeholders.

These effects are a consequence of the long-term effects of trade, and assume that short-term barriers are easily removed.

Energy trade can be analyzed in the context of this basic economic theory of trade, but requires some special considerations. Specifically, these are that:

- energy is a part of infrastructure and therefore plays an essential role in all countries;
- power generation and final sales can be operated as a competitive business, but this business requires power lines to deliver its service and the operation of these lines must be recognized as a natural monopoly;
- regulations to handle the issues of competition and monopoly must be organized in all of the countries that engage in an energy trade, and disputes between the participating countries must be handled in an efficient way;
- these particular issues associated with power trade mean that political involvement is a necessity and must be recognized at an early stage of the process; and
- energy trade can be managed either through a simple bilateral contract or through an integrated market with some form of central dispatch. Any evaluation of power trade projects must also take this into account.

The global trend is to remove the tolls and other barriers that inhibit trade, but progress in some sectors, notably agriculture and energy, has been slow. Farmers, for instance, will protest if competition from abroad reduces their earnings or results in bankruptcy. Similarly energy companies are likely to also protest when their monopoly status is threatened when foreign companies are granted access to their domestic market.

These transitional barriers are fully described in the theory of trade. Cross-border trade gives low-cost energy exporters the opportunity to charge higher prices and thus increase their profit, but their domestic customers may suffer from higher energy bills. The opposite takes place in the importing country: high-cost producers will lose sales and

domestic consumers will benefit from lower prices. In the short term there are winners and losers, and probably no coherent incentives. In the longer term some stakeholders will support the energy trade, but at the same time opposition to this trade may strengthen in other quarters. Bridging this conflict of interests is a major challenge but can be resolved by focusing all parties on the long-term benefits. The challenge will probably be easier where power shortages exist and expansion of supply is needed. . In all cases the objective should be to focus attention on the potential savings that energy trade represents. These include:

- Reduced investment costs as a result of the availability of a wider range of least cost investment options across the whole trade region.
- lower operating costs due to more efficient use of resources
- better handling of peak requirements
- increased system reliability
- environmental gains through the expansion of supply options

ESMAP has supported a number of energy trade programs, but so far feedback from these projects and evaluations of the knowledge gained has been limited. It was therefore decided to undertake a review ESMAP's portfolio of projects related to the international trade of energy. This review was to include not only those projects that have been completed, but also those that currently are under way, and those that are in the immediate pipeline. The review was guided by the Technical Advisory Group to the Energy Trust Funded Programs located at the World Bank.

The Terms of Reference

The terms of reference can be summarized as follows:

- (1) The aim of the evaluation was to investigate whether ESMAP had gained sufficient insights into:
 - The skills and knowledge required
 - The experience gained
 - The development of the mechanisms necessary to facilitate energy trade
 - Whether the focus of support was on the right issues, institutions, political processes and the technical content
- (2) Some critical questions to be addressed by the study were:
 - Whether this an activity for which ESMAP has a comparative advantage?
 - If yes, can generic elements be developed in such a way that the results can be transferred to cover special issues such as access, urban development and poverty alleviation?

- Whether ESMAP participation resulted in additional funding and further engagement?
- (3) TAG was to work closely with the consultant and be responsible for a short version of the findings to the Consultative Group and to the ESMAP management. The evaluation was intended to start in early October and be finalized December 2001.

These tasks proved more demanding than TAG anticipated both in terms of their complexity of the tasks and in terms of the time required to complete them. The process of selecting the necessary documents to support the analysis in particular was time-consuming but essential. Mr. Robert Means was appointed as the consultant to carry out the work and his contribution has been invaluable and is greatly appreciated.

The Main Findings

The report draws three broad conclusions concerning:

- ESMAP's role in regional development;
- The implications of that role for evaluating ESMAP's performance; and
- ESMAP's ability to draw on in its experience in formulating future plans of action.

Implications of regional development

Regional power trade requires the development of political support and the development of institutions capable of dealing with that trade's technical issues. Where neither development is well-advanced, ESMAP can usefully play a broad role in promoting regional power trade. To the extent that such development is more advanced, ESMAP's useful role is likely to be narrower.

Implications for evaluating ESMAP's performance

The role that ESMAP can usefully play is inversely related to the existing level of regional development supporting regional power trade. This means that the importance of ESMAP's contribution should be distinguished from the success (or failure) of regional power trade itself. Its contribution is likely to be most important where the lack of existing development casts doubt on the ultimate success of the regional trade, and least importance where the high level of existing development almost assure that a regional power trade will develop.

Drawing on ESMAP's experience

ESMAP is not able at present to draw systematically on the extensive experience that its representatives have gained in regional power trade. At the time of the review it was concluded that ESMAP lacked (1) any requirement for systematic reports on its projects,

(2) procedures for retaining the written materials developed in those projects, and (3) and a system for identifying and locating the reports and materials that it does possess.

Practical Considerations for Follow-on work by ESMAP on international power trade

The Technical Advisory Group believes that ESMAP does have a role in highlighting the relationships between the countries involved in power trade. It is able to contribute to building a high level of consensus among the various parties. However it is clear that the operation of an energy trading system itself strengthens and improves the quality of the relationship between the countries involved and this has political benefits in the region.

There is an important role for ESMAP to systematically gather together all the experiences gained so far from the projects it has supported, and, if possible, from other agencies as well. The objective of such work would be to build a guide that can be applied to other projects facing similar problems.

In order to organize this synthesis of past experience it will be important to use a methodology that draws attention to the following key issues relating to international energy trading:

- a) The institutional structure that is initially in charge of fostering and managing the project and in obtaining the participation of the countries in the region.
- b) The evaluation of the costs and benefits that result from energy integration at the level of both individual countries and the region.
- c) An analysis of the definition and scope of the integration process
- d) The institutional and organizational arrangements chosen for the market integration system.
- e) An analysis of how the infrastructure needed for market operations was developed and the responsibilities for funding it.
- f) An analysis of the technical and economic rules governing the regional energy market.
- g) The mechanisms for starting up trading activities the processes of integrating market operations.

TAG believes that given the extent of energy trade developments and ESMAP's long experience in this areas that such a synthesis should be undertaken as soon as possible.

Jan Moen and Alfredo Mirkin
TAG Members

ESMAP Management Response

ESMAP's management is grateful to the TAG for having undertaken the review at its request. In particular, it wishes to thank Mr. Robert Means, the consultant hired for the TAG to under this most valuable work.

Background

ESMAP's management was interested in having this segment of ESMAP portfolio reviewed given a) the importance of the resources allocated to this sub-portfolio; and b) the relevance of power trade as an opportunity to identify least cost investments and sources of power, in order to enhance access to affordable and sustainable energy services for poverty reduction and economic growth. ESMAP was also concerned to get an independent assessment that through the various Bank Task Managers and consultants, the technical assistance provided was of the best quality, and the combination of several projects was providing a solid body of knowledge on the experience in developing regional power trade. Continued work on regional power trade is one of the business lines in ESMAP 2002-2004 Business Plan.

Although a number of 'Viewpoints' and reports were published on the subject since ESMAP got involved with regional power trade activities, in order to disseminate the outcome of this work, ESMAP organized a Brown-Bag Lunch workshop on January 21, 2004, which it timed with the TAG meeting of January 2004, in Washington. The task managers associated with the ESMAP program in each of the regions made presentations of the ESMAP tasks and their impact, even when they were not associated to the work throughout. They highlighted the impact of ESMAP's work on both the country and regional activities, as well on specific Bank-lending or other technical assistance activities. The workshop was attended by 65 Bank staff from headquarters, and was video-taped and made available through B-Span to field staff and others who had indicated their interest in the subject but could not be physically present. All the presentations for the BBL were posted the same day on ESMAP's webpage. These presentations are considered an integral part of this management response and are attached in Appendix 4.

This response first provides some general observations, then offers some comments on the specific recommendations and how to take the work further.

General Observations

The report is extremely valuable in the sense that this is the first report, which reviews all the activities on regional power trade that ESMAP has been involved with since the early-mid 1990's. It offers a fascinating description of the different types of involvement of ESMAP and the Bank in regional power trade issues. In that sense, the review plays a very useful role in illustrating the different types of 'entry points' and opportunities to promote regional power trade; how the knowledge from one region can be transferred to another while the specificity of the regional conditions require adaptation and region-specific; and how ESMAP can respond with a range of instruments

instruments, from relatively limited support to one-time workshops (South Africa), to studies (Nile River Basin, CIER, Mekong), patient and sustained support for capacity building (Mekong Basin and West Africa Power Pool), and support to developing political cooperation and commitment (Mekong and Nile River Basin).

It provides a structured picture of how ESMAP contributed in the each case, and a plausible explanation of why it played the role it did in each case.

The report also makes some useful observations and recommendations in particular, on the importance of more just-in-time restitution of experience and knowledge, on maintaining the institutional memory, and on focussing the design of the tasks more rigourously both on the regions' specificity and on the expected outcomes. The Phase I report, in particular:

- provides some very useful guidelines to better understand what worked in what type of project, and what are the key defining parameters to develop a strategy for regional power trade projects. For example, the analysis of the influence of the existing or non existing regional political organization on ESMAP/Bank group (and others) approach is very interesting;
- recognizes that ESMAP's strength is to intervene upstream in the process, and this is what it did in most (all) cases.

More detailed on ESMAP involvement could have been helpful for those who were not closely involved in the projects at the time.

The Phase II report has made a valuable attempt at establishing evaluation criteria for assessing ESMAP's contribution, namely:

- the reasonably chance of success of power trade development, and
- whether ESMAP made a significant contribution.

These criteria seem too restrictive and are operational only in hindsight. Task managers tend to be optimists (fortunately), and ESMAP should give them opportunities to develop innovative approaches, rather than become a risk averse goal keeper, as it may be the case if ESMAP would seek to use the two criteria. Predictably, the application of these two qualitative and judgmental criteria leads to evaluations which are highly debatable and subjective, and therefore not really helpful and operational for the future. It might have been preferable to develop a more comprehensive set of criteria, such as those included in the log-frames used to submit ESMAP proposals since October 1998, which then enable to objectively do evaluations at completion or ex-post.

The Phase II Report is not quite consistent with the Phase I Report. It highlights some information gaps and includes substantial factual inaccuracies both about the projects and the written records (including in the classification of documents in the Bibliography); these were not evident from the Phase I Report. ESMAP's management does recognize that at least for one project, Mekong, there has been an issue in

maintaining the documentation, but it is not clear why the consultant reports not having received the relevant documents for the other projects. The ESMAP team was also most surprised to read that the consultant had not received the semi-Annual Reports or Annual Reports since 1998, since they have been dutifully issued and sent to the donors. They all are either in the ESMAP data base accessible to TAG (semi-annual progress reports), or in the public domain, including on ESMAP's website (the Annual Reports since 1998). Furthermore, the consultant was repeatedly requested by various team members if he needed more information or documents, and he repeatedly indicated that he did not! At no point did he or the TAG members raise the issue of availability of periodic reports. So, the whole presentation of that section of the report and recommendations is based on the wrong facts. For the Nile River Basin project, the consultant was explained that a number of documents were confidential and not released by the governments.

Finally, from ESMAP's management perspective, it is to be noted that the review falls short of *fully* meeting the terms of reference. The report did respond fairly well to the first four questions of the TORs in demonstrating that ESMAP did help the Bank staff and clients acquire skills and knowledge in regional power trade issues, in gaining experience in such projects, in developing necessary mechanisms to promote power trade, and in focusing on the 'right' or necessary issues (institutions, political process, technical content). It actually makes a very useful contribution in staying away from taking a normative approach regarding what is 'necessary' versus what is 'right'. as there may not be a 'correct' answer to these questions given the vastly different conditions from one region to the other. The review could have explained better that one of ESMAP's recognized contribution is to provide a 'safe space' for confidential discussions on very difficult political issues amongst country governments.

However, the review fell short of responding to some of the questions in the TORs. It offers no analysis of the quality of the content of the various reports, nor whether the work done enabled to strengthen the linkages between power trade and the development of least cost services for economic growth and poverty reduction. As the report is silent on this question, it opens the question of whether ESMAP should have supported another set of studies examining the relationship between Energy Trading and Access/Poverty Reduction. As the linkage between energy trade and access is rather indirect (except through prices and distribution from high tension lines), and even more indirect between energy and poverty reduction, we believe that ESMAP did the right thing in focusing on actions which contributed to advance the regional power trade agenda directly. The report should have discussed this point.

Finally, the review does not provide insights on the value of the various knowledge dissemination efforts including how the lessons learned and experience gained in one project (e.g. South Africa) were integrated into the activities in the Mekong or the Nile River Basin, nor if and how ESMAP's involvement contributed to mobilizing other funding or engagement. This is an important point as ESMAP's catalytic role is often viewed as critical to change both in government sector management and investment policies and in Bank lending.

Recommendations and taking the agenda forward

The review has an extended section on the Issue of Institutional Memory, which is most valuable *per se*, in particular as staff change assignments or leave the Bank. The lack of file maintenance system in the anchor departments as compared to regional systems was an often raised management concern, which is finally being resolved in this current fiscal year with the introduction of the extension of IRIS electronic filing system to these units. This system provides for exactly what is recommended in the report – unicity of project files, and thematic search capacity. Regarding ESMAP publications, a thematic search capacity has also been introduced on its website, which also links to the Bank-wide ‘Image Bank’ for all publications. It remains, however, that it is the ultimate responsibility of the task manager and of their managers to ensure that the files are kept up-to-date. When ESMAP allocates project funds, the record-keeping obligations are recorded. Periodic audits are the only tools available to ESMAP management to check on file maintenance. The last comprehensive audit, which dates to fiscal year ’02, had in fact complimented ESMAP for its record keeping throughout the Bank; only one or two pieces could not be identified out of several hundred requested.

The review provides other recommendations, in particular for the *periodic monitoring and report of the projects*. Although these recommendations fall outside the TORS, they are useful. This said, contrary to what is asserted in the report, the Task Managers **do report** twice a year on the status of implementation of each project. The information is collated into a published semi-annual report, which is posted on the donor-reserved segment of the website as well as printed and sent to each donor. Likewise, Annual Reports are produced every year and are in the public domain, both on the website and in printed form. However, ESMAP’s management is of the view that because of the limited staff resources in the ESMAP team, the follow-up of each individual activity during implementation has been insufficient. This is being remedied as two new senior staff are joining the ESMAP team. One will have specific responsibility for the regional power trade portfolio.

The most relevant recommendation is on *dissemination of experience and knowledge*. While the bibliography actually highlights that there have been a number of timely short notes and write-ups on the ESMAP work on regional power trade, ESMAP’s management recognizes the need to do both a short-note summarizing the experience for wide distribution, and possibly a more comprehensive analysis of the portfolio than was possible under this review. As it proceeds to design this work, the list of ‘activities’, which has been proposed in the Review will be a useful guide.

Taking the regional power trade agenda forward, ESMAP management will definitely draw on the general suggestions of what could be the conditions of success of energy trading project suggested in the review, and on the recommendations relative to the rules of engagement of ESMAP in this type of project. Although the criteria on ESMAP rules of engagement were not applied to the five projects under review, they are a useful contribution for the development of a methodology.

Dominique Lallement, Manager, ESMAP

Phase I

This report discusses five regional energy trade projects: Mekong River, Nile Basin, South America, Southern Africa, and West Africa. The report does not attempt to evaluate the projects; that evaluation is to be made in Phase II. Rather, the present report seeks to do two things. One is to provide a summary factual description of each project that may be helpful in determining how an evaluation should be conducted. The other is to put forward some hypotheses regarding the factors that have shaped each project. The hypotheses are not conclusions. They are intended to provide a starting point for formulating questions that might fruitfully be pursued in Phase II.

The five projects are discussed in alphabetical order in the following sections of the report. Each discussion begins with an introduction that identifies factors that appear to have played a significant role in shaping the project. The introduction is followed by a chronological account of the project.

The description for the Nile Basin project is based on discussions with Barbara Miller and Alexandra Planas and on documents they provided; for the other four projects I have relied principally on discussions with Jean-Pierre Charpentier and on documents that he assembled. Those sources were supplemented in some cases by additional research. The information available from the sources and the research varied considerably between the projects. It was most abundant by far for the Mekong River project and least abundant for Southern Africa. To some extent the variation in documentation may reflect differences in document retention, but it appears also to reflect differences in the intensity of the Bank's involvement.

In this report I will sometimes refer to the documents that were provided to me as "the available documents." By this phrase I do not mean that no other documents exist somewhere in the Bank's files. However, serious efforts were made to find documents that might be helpful. In one sense, it does not matter whether other documents do not exist or simply are very difficult to find. In either case, information beyond that contained in the documents I was able to examine apparently has not been available for anyone who might wish to benefit from the experience of the Bank in general and of ESMAP in particular in the regional power trade projects.

The report's concluding section discusses the general nature of Bank involvement in regional power integration projects. This section is more tentative or provisional than the earlier sections. Its purpose is to put forward hypotheses for discussion and for exploration in Phase II.

The concluding section is directed partly at one of the questions to be addressed in Phase II: Has the Bank transferred the lessons learned in the projects undertaken to date? Two kinds of transfer are potentially relevant, one external and the other internal. The external transfer is a transfer of knowledge to the regional power trade institutions. An evaluation of this transfer is potentially part of Phase II. In any event, it cannot be undertaken from the review of documents that is the principal basis for Phase I.

The internal transfer is a transfer of knowledge within the Bank – making the lessons learned in these projects available for future regional power projects or for ESMAP activities in other fields. The question of whether there has been an effective internal transfer of the lessons learned in these projects can be broken down into two more specific questions:

- (1) Is there a discernible pattern in the Bank's involvement in the regional power projects? In other words, do lessons exist?
- (2) Does knowledge of that pattern exist in a form that makes it readily available for new projects?

As discussed in the concluding section, based on the work for Phase I, the answer to the first question appears to be a qualified yes. Based on that same work, the answer to the second question appears to be an unqualified no. In brief – and subject to revision in Phase II – it appears that (i) ESMAP has played a useful role; (ii) that role has varied widely between projects, but it is possible to generalize about the factors responsible for the variation; and (iii) for the reason discussed above, a knowledge of that role and those factors appears to reside almost entirely in the minds of the persons who have been involved in the projects.

MEKONG RIVER

Introduction

Although each of ESMAP's regional power market projects has followed its own course, they have shared two elements. Each project grew out of an informal contact by an official or organization in the region, and one of the essential steps in each case was to identify or create a regional body with which it could cooperate in the project.

In the case of the Mekong project, the initial contact was by the energy manager of the Mekong River Commission (MRC), a non-governmental organization supported by funding from Japan and other countries. The energy manager was working on a regional electricity planning model. In 1995 he approached ADB and World Bank with the purpose of promoting his activity.

The ADB was the first to respond. In 1992 it had established an overall regional cooperation program. Within that program, in 1996 it created the Electric Power Forum (EPF) as a sub-program. The EPF served as the regional body that was the World Bank's formal point of contact in the Mekong River project.

However, the EPF could not serve as the regional partner in discussions of the integration project. It evidently has no secretariat or other permanent structure. It appears to exist principally through its periodic meetings.¹

Those meetings provided the forum for most of the Bank's formal contacts with the region. However, to provide a partner in discussion for those meetings, a separate body was jointly created by the ADB and the Bank.

This body was the Regional Experts Group (REG). It consisted of two representatives from each country. One was from the country's electricity authority and generally was technically oriented, and the other was from the country's energy policy entity and brought a political perspective. Although other parties were to be involved, the process after the initial meeting appears to have consisted in large part of a dialogue between the ADB and the Bank on one side and the REG on the other.

In this dialogue, the REG appears generally not to have been the driving force. Rather, it appears that it served two functions. One was to serve as a knowledgeable legitimating body. Even if the ADB or the Bank took the initiative in identifying steps that should be taken, those steps acquired legitimacy through their ratification by REG. The second was to serve as intermediary between the project and the national governments of the region and to help to define the boundaries of political feasibility.

¹ The websites for its meetings are maintained by the Asia Development Bank as part of that institution's website. The websites contain no reference to a secretariat or other permanent organization.

Development of the Mekong River Project

Work on the Mekong River project can be divided into three, partially overlapping phases: (1) securing regional agreement for the project, (2) organizing a series of workshops, and (3) negotiating an Intergovernmental Agreement (IGA)

1. Securing regional agreement

After several discussions, a World Bank team was invited to a December 1996 meeting in Kuming China. At the meeting, the Bank team proposed that a regional market study be undertaken. At this point, there was a consensus in the region that the Mekong river basin represented a common resource, and projects were being constructed and planned to support bilateral trade within the region: the export of hydro power from China's Yunnan province and from Lao PDR and the export of surplus power from Thailand. However, although the Mekong River Commission had begun a Mekong Integrated Transmission Study, and the ADB had recently created the EPF, there was no joint approach to exploiting the resource, and there apparently existed no process for creating such an approach.

The Bank proposal was favorably received, and a November 1997 EPF meeting confirmed cooperation among the ADB, the Bank and EPF activities. That confirmation closed the first phase of the project.

The confirmation and the creation of the Regional Experts Group gave the project a legitimate base in the region. However, it did not represent a formal commitment by the regional governments. Obtaining that commitment is the ultimate purpose of the other two phases.

2. Workshops

The Bank played a role, and perhaps the principal role, in organizing four workshops between June 1998 and December 2001. An initial general workshop on Power Trade Strategy for Greater Mekong Sub-Region was held in Bangkok in June 1998. It was followed by three workshops on specific topics: Coordination of Technical Issues (Bangkok, February 2000), Regulatory and Commercial Issues (Vientiane, December 2000), and Financing and Private Participation (Hanoi, December 2001). Participants in the workshop included representatives of international institutions, international and regional experts, and members of the Regional Experts Group.

Each of the workshops lasted several days. Although the explicit agenda varied from workshop to workshop, the items on it generally fell into three categories: (1) presentation of international experience with power pools or international energy trade; (2) presentation of an expert's report dealing specifically with the region; and (3) discussion of the current draft of the Intergovernmental Agreement.

It probably is not fair to judge the workshops as training programs. The range of topics covered was too wide and the participants probably too heterogeneous for that

purpose. Rather, they probably are best viewed as adjuncts to the essentially political process of creating a basis for regional power trading. For this latter purpose, it was important to familiarize the participants with the benefits of energy trade and with the issues that such trade raises. . Technical training, to the extent it is required, probably is best handled separately.

In addition, like most conferences and workshops, these probably gave the participants an opportunity to establish relationships that would be useful in advancing the regional trade project

3. Negotiation of an Intergovernmental Agreement

The first draft of the IGA was presented to the REG at the February 2000 As a back-to-office report notes, the document was presented at an early stage in its drafting because of the “need to capture the attention of the local people as early as possible to avoid any political bottleneck at a later stage.”

A second draft was presented at the December 2000 workshop in Vientiane, and final approval was obtained from the REG at the December 2001 Hanoi workshop. The agreement was endorsed by the Thai government on September 12, 2002. EPF representatives of the other countries have reviewed the IGA and have no objection, but their endorsement will come only after the Regional Ministers’ meeting scheduled or December 2003.

Following that endorsement, it still will be necessary to secure ratification of the agreement by the countries’ parliaments. The time from the informal initiation of the process in 1995 to final ratification thus is likely to be nine years or more.

NILE BASIN

Introduction

The Nile Basin regional power project is part of the broader Nile Basin Initiative (NBI). The power component of the NBI can usefully be compared with the Southern Africa project. In both cases a single dominant fact explains much about both the project and the role of ESMAP. For the Southern Africa project, that fact has been the leading role played by ESKOM, the large South African national utility. For the Nile Basin regional power project, it has been its relationship to the broader Nile Basin Initiative.

The links to the broader Nile Basin Initiative has had several implications for the power project:

- (1) The broader program provided the initial forum within which representatives of the region’s power ministries and national utilities could meet and discuss power integration issues.

- (2) The importance of water issues to the riparian countries has given the program a much higher political visibility than any of the other regional power programs. For the other projects, the impression from reviewing and discussing documents is that one of the tasks for the international bodies was to place and keep the projects on the political agenda. That task appears to have been entirely unneeded for the Nile Basin.
- (3) The first two implications generally have benefited the regional power program, but the linkage to the broader program also has introduced a level of political and organizational complexity that does not exist for the other regional projects. This complexity does not appear to threaten the regional power program, but limits on the pace of development for the program may now be found as much in the links to the broader program as in issues relating to the power program itself.

The links to the broader program also has affected the role played by ESMAP and by the Bank in general.

- (1) It has narrowed ESMAP's role. ESMAP has provided funding for a scope study and for the initial development of a power forum. This contribution is considered to have been important, perhaps essential, to getting the program under way. However, the early workshops and meetings that in other projects were funded by ESMAP appear for the most part to have been funded by other international donors in the Nile Basin project.² Also in contrast to the other regional projects, ESMAP does not appear to have had a significant hands-on role in the Nile Basin project.³ That role was subsumed in the Bank's participation in the broader project and therefore was undertaken by other parts of the Bank.
- (2) It also has narrowed the role of the Bank in general. Even for the parts of the Bank that were directly involved in the Nile Basin project, the hands-on role appears to have been more limited than in some of the other projects. Because of the importance that the riparian countries have attached to the project, there appears to have been little need for the Bank to coordinate meetings or to provide the impetus to move the project forward.⁴

² The early support came from CIDA, UNDP, and the Bank. Based on ESMAP's Phase I and Phase II proposals, it appears that ESMAP funded two meetings. One was a workshop to disseminate the results of the Phase I scoping study; the other was the Nile-COM meeting that approved Nile Basin Initiative documents that were presented to the international donors in June 2001.

³ The distinction between these two roles is discussed in the concluding section of this report.

⁴ The number and frequency of the regional bodies' meetings supports this conclusion. For the period 1999-2001, the NBI web site lists more than 30 meetings held by one or another of the regional bodies involved in the project. It is doubtful that this pace could have been sustained if the initiative for the meetings did not come primarily from the regional groups themselves.

Development of the Nile Basin project

Like the other regional projects, the Nile Basin project has a pre-history. A 1989 UNDP study⁵ discussed the need to develop regional hydropower and power transmission, but the actual amount of cross-border power trade has continued to be small. Uganda had been exporting a modest amount of power to neighboring countries since the 1950s, but there appears to have been no cross-border power trade involving Egypt, Ethiopia, or Sudan.

There also were earlier regional programs involving some of the riparian states. Hydromet was formed in 1967 with UNDP support to foster the collection of hydrological and meteorological data. Hydromet ceased operation in 1992, but in 1993 some of the riparian countries formed the Technical Cooperation Committee for the Promotion of the Development and Environmental Protection of the Nile Basin (TECCONILE) with a broader and more action-oriented agenda.

Also in 1993, the Canadian International Development Agency (CIDA) began supporting a series of annual meetings of the Council of Ministers of Water Affairs of the Nile Basin States (Nile-COM). Nile-COM became the regional legitimating body for the Nile Basin project.

These two developments came together in the Nile River Basin Action Plan (NRBAP). The plan was prepared by TECCONILE and approved by Nile-COM in February of 1995. The following month Nile-COM asked the World Bank to take a lead role in coordinating inputs of external agencies to finance and implement the plan.

The request received no response – or at least no favorable response. From the Bank's perspective, the plan submitted by Nile-COM suffered from two defects. One was that it did not include all of the riparian states; the other was that it consisted of a series of disconnected projects with no organizing regional framework.

Nile-COM renewed its request in March of 1997. This time the Bank quickly accepted the request. Its acceptance marks the formal beginning of the Bank's role in what was to become the Nile Basin Initiative.⁶

⁵ Nile Basin Integrated Development, Fact-Finding Mission Report.

⁶ That formal beginning presumably was preceded by some period of informal involvement directed at reshaping Nile-COM's original proposal. Although there is no record of this informal involvement in the available documents, a plausible sequence of events might be as follows. In March 1995 Nile-COM submitted its initial proposal. As discussed in the main text, the Bank viewed this proposal as being defective. During the following months, this view presumably was communicated to Nile-COM, which reformulated its proposal to take account of the Bank's objections. In the light of subsequent developments, it appears likely that the first objection was met directly by opening participation to all of the riparian countries, but that the second objection was met to the Bank's satisfaction primarily by agreeing to a process that would lead to a coherent plan, rather than by submitting such a plan. The revised proposal submitted in 1997 thus was essentially pre-approved, and quickly received formal approval.

The formal involvement of ESMAP in the Nile Basin program appears to have begun with a Work Program Agreement covering ESMAP's support for an initial scoping study.⁷ That agreement was not executed until February 1999, twenty months after the Bank's acceptance of Nile-COM's request.

During the intervening period, some of the basic institutions of the broader Nile Basin program were created. An International Advisory Group prepared a report on the revised action plan, which was reviewed by the riparian countries in January 1998 at a meeting convened for that purpose. Two months later, Nile-COM created the Nile Basin Initiative Technical Advisory Committee (Nile-TAC).

Nile-TAC has a member and an alternate from each of the riparian countries. Its members appear to have been drawn from the countries' water ministries.⁸ Through Nile-COM, the Ministers of Water Affairs continued to provide political direction and legitimacy for the Nile Basin Initiative. For the next year, however, Nile-TAC became the working body for the broader Nile Basin project, and it was the starting point for the more specific working bodies created after that period. Between July and September 1998, Nile-TAC drafted the policy guidelines that defined the Shared Vision Program – the document that provides the general framework for the Nile Basin Initiative.

For purposes of this report, events since 1998 can be divided into two interrelated lines of development. One has been the identification of projects for which support from international would be requested and the preparation of documents supporting those requests. An ESMAP-funded scoping study helped to provide a framework for this work, but ESMAP appears to have had no direct involvement in the work.

The second line of development consisted of the two phases of ESMAP's support for the Nile Basin project. Phase I financed the scoping study just mentioned. Phase II was directed at the creation of a Power Forum.

Development of Projects

On February 22, 1999, Nile-COM approved the establishment of the Nile Basin Initiative and directed Nile-TAC to prepare a priority list of projects for presentation to donors. In early May a strategic planning and training workshop created a preliminary list of priority projects based on consultation by Nile-TAC and additional sector experts from each country. Later in the month, Nile-COM approved the list, and Nile-TAC formed working groups to develop project concept documents for the projects in preparation for meetings with donors. Each working group consisted of the Nile-TAC

⁷ Although ESMAP presumably could not provide any financial support until the Work Program Agreement was executed, its execution must have been preceded by a period during which negotiations were conducted and a formal proposal was submitted. However, there is no record of this process in the available documents.

⁸ According to Nile-TAC's web site, all of its chairmen after the first one have been drawn from those ministries, and this presumably also generally has been true of the other members.

member and one or more experts from each country. A lead consultant assisted each group.⁹

One of the working groups formed by Nile-TAC was the Power Trade Working Group¹⁰. This appears to have been the first Nile Basin Initiative institution specifically concerned with cross-border power trade.

The working groups met in September and again in December, the latter meeting being held at the newly established NBI Secretariat in Entebbe. At the September meeting, Nile-TAC identified the promotion of regional power trade in the Nile Basin as one of seven priority projects within the Nile Basin Initiative.

Following the December meeting, more than a year was spent in preparing and approving project documents. Draft final documents were reviewed by Nile-TAC in October 2000. Final documents were endorsed by Nile-COM in March 2001 and presented to the first meeting of the international donors (ICCON) at a meeting in Geneva in June.

The Geneva meeting can be considered to have closed the first phase of NBI activity. The focus now shifted to implementation. A series of meetings dealing with overall implementation of the Shared Vision Program were held during the following months. Following an April 2002 meeting of the Power Experts Working Group, it was decided to proceed with the preparation of a Project Implementation Plan for the regional power trade component of the SVP. That plan now is in preparation.

The plan will be implemented by a Project Management Unit, which will also act as secretariat for the Power Forum. A Steering Committee to provide overall guidance and a Technical Committee composed of power experts from each of the riparian countries will be established before the project starts. This is expected to occur in June or July of 2003.

Within the overall framework of the Nile Basin Initiative, two Subsidiary Action Programs have been created: one for the Eastern Nile (EN-SAP), comprising Egypt, Ethiopia and Sudan; and one for the Nile Equatorial Lakes (NEL-SAP), comprising the six countries in the southern Nile Basin (Burundi, Democratic Republic of the Congo, Kenya, Rwanda, Tanzania, and Uganda) plus Egypt and Sudan. This division may reflect – and at least is consistent with – the finding of the scoping study that the best opportunities exist at the level of these sub-basins.

Unlike the geographical division in the South America and West Africa projects discussed later in this report, the division of the Nile Basin Initiative assumes that both regions will be active in the near term. However, all of the projects presented to the international donors at the June 2001 meeting apparently were developed through the

⁹ The NBI web site states that each project was assisted by a lead consultant, but it appears more likely that the consultants assisted at the working group level.

¹⁰ This group sometimes is referred to as the Power Working Group.

Basin-wide program.¹¹ As of mid-2001, both of the sub-programs had identified projects to be examined, but the process of documenting projects beyond those that had been developed through the Basin-wide program apparently had not begun.

ESMAP Support

Three days after Nile-COM approved the Nile Basin Initiative, the Work Program Agreement for Phase I of ESMAP's support of the NBI was certified. The support was for a scoping level assessment to serve as a background study for a report to the international donors. The budget was \$546,000. \$516,000 was to come from ESMAP; the balance was to come from the Bank Group Budget.

The Phase I study was completed in draft form in November 1999 and discussed by the Power Trade Working Group at an ESMAP-funded meeting the following month. Work was to continue on finalizing the study. However, there is no reference in the available documents to the study ever having been formally completed. Technically, the study apparently continued to exist as a consultants' report rather than as an NBI-approved study,¹² but in that form it has helped to provide a framework for the development of projects for international funding.

The Phase I Work Program Agreement certified in February 1999 assumed that Phase II would consist of a series of in-depth studies that would build on the scoping study. By December, however, the concept note for Phase II defined the principal focus as establishing a regional power forum, and the power forum also was one of the two activities contemplated by the formal Phase II proposal of May 2000. The other component was to be a ministerial-level meeting to establish a consensus in support of regional power trade. It appears that this shift in focus may have been the result of consultations during 1999 with the Power Trade Working Group. The proposed budget for Phase II was \$631,060, of which ESMAP was to provide \$504,030.

The ministerial-level meeting presumably was the Nile-COM meeting held in Khartoum in March 2001. That meeting endorsed the Shared Vision Program and the project documents that were to be presented at the international donors meeting at the end of June.

The Phase II proposal and the overall project document for the Nile Basin Initiative¹³ laid out a phased process for creating the Power Forum. Nile-TAC would

¹¹ In the "Sequence of Major Events" on the NBI web site, the first reference to a meeting of national experts for the Nile Equatorial Lakes region is for August 2000, and the first reference for the Eastern Nile is for late January 2001. Since the draft final project documents were circulated in October 2000 and had been in preparation since December 1999, it does not appear that the regional meetings can have played a role in the preparation of documents for the June 2002 international donors meeting.

¹² The "Final Scoping Study" carries a cover date of September 2000. Its cover identifies it as having been prepared by Norconsult for the Bank and ESMAP.

¹³ Shared Vision Program. Nile Basin Regional Power Trade Project Document (Nile-COM, March 2001).

authorize the Power Trade Working Group to create an Interim Technical Committee, which would be responsible for making the Power Forum operational. Most of the initial responsibilities of the Power Forum would be essentially informational. The forum would, for example, gather information, support technical meetings, and commission studies. However, it also would develop the strategic framework and agreements for advancing regional power trade. Additional functions would develop as regional power trade matured.

This plan subsequently was revised. As noted above, the Project Management Unit for the implementation plan will serve as the secretariat for the Power Forum. There will be no Interim Technical Committee.

SOUTH AMERICA

Introduction

A comparison of the South American and Mekong River projects illustrates the importance of context in shaping the regional power project and ESMAP's role. The six countries of the Greater Mekong Sub-Region appears to have had no framework for cooperation prior to 1992, when they entered into a program of sub-regional cooperation, apparently under ADB sponsorship; and there appears to have been no framework specific to electric power prior to the creation of the Electric Power Forum in 1996. As already noted, even today, the EPF appears to exist primarily through its periodic meetings and to have little or no permanent structure.

In contrast, the countries of South America have a long (although often unsuccessful) history of initiatives for general economic integration, of which the most important today is Mercosur linking the countries of the South America's southern cone. For electricity in particular, the Comision de Integracion Energetica Regional (CIER) was formed at a 1964 meeting of Latin American countries and as a result of a Latin American initiative. CIER has a permanent secretariat and website, and since 1991 it has published a quarterly technical review.

Although there is no integrated regional market for electricity in South America, bilateral trade arrangements exist among the countries of southern cone. In addition, at the time of ESMAP's initial involvement, there already existed several proposals for additional cross-border transmission links between countries in the region.

These differences appear to have affected the Mekong and South American programs in at least two ways. One concerns the respective roles of ESMAP and the regional body. It appears that ESMAP and the ADB were the driving force in the Mekong project, at least in its early years, while ESMAP's role in the South American project appears to have been more one of facilitator and funding source.

The second and probably related effect concerns the progress of the projects. In the Mekong project, there was an interval of a year and a half between the first Bank

mission to the region and the first strategy workshop, and there was further slippage in the schedule after that workshop. The corresponding initial interval in South America was shorter and appears to have been due to the differing goals of CIER and ESMAP rather than to any problems of coordination. Once it was under way, the project appears to have remained on schedule at least up to spring 2001. A reasonable inference would be that the slower progress of the Mekong project is due at least in part to the lack of a local centralized driving force like CIER and the consequent need to secure coordinated actions from six national governments.

Development of the South American Project

Some time prior to 1998, CIER and a South American university jointly developed a planning model that included long term planning for the entire South American continent. In 1998 they presented the model to the United States Department of Energy with the purpose of attracting interest and financial support.

The World Bank was invited to the presentation, and following it, the Bank proposed to go beyond modeling to look at the development of a regional market. CIER was interested, but its primary goal initially continued to be financial support for a modeling effort. As a result, there was a delay of about a year before a realistic work program could be developed.

During the first half of 1999, CIER completed an economic study of the potential for interconnecting South American national power systems. The study was discussed with the World Bank, the U.S. Department of Energy, and several private companies. Following the discussions, N. de Franco and Jean-Pierre Charpentier submitted a proposal for ESMAP to support a two-phase follow-up study. The project was to take 16 months and had a budget of \$705,000, of which ESMAP would provide \$430,000.

The project was designed by CIER, US DOE, and the Bank. It was endorsed by the Peruvian Minister of Energy and Mining, and support from other governments was said to be in preparation. Phase 1 of the project was to identify technical and institutional issues affecting regional interconnections. Phase 2 was to develop options for dealing with those issues and developing regional power markets.

The project proceeded with unusual speed. Consulting groups were short-listed in October, and the winning group was selected in November. Work began in December, and the Phase I report was presented in May 2000. The report was well received, and work on Phase II began almost immediately. The first draft of the consultant's recommendations was presented in December, and the final Phase II report was submitted at a March 29-April 2, 2001 meeting.

One of the Phase II recommendations, which apparently was accepted, was to develop two separate regional markets for South America: one for the Mercosur countries of southern South America and one for the Andean countries of the northern part of the continent. Two factors dictated the division. One was the higher degree of general economic integration of the southern countries. Mercosur has ambitions of

following the general path of the European Common Market. It is far from clear whether those ambitions will be realized, but even today, Mercosur has a much better developed framework for economic integration than exists for the Andean countries.

The second factor was specific to electricity. There already exist important cross-border transmission links involving Argentina, Brazil and Chile within Mercosur and a significant bilateral electricity trade based on those links. Comparable cross-border transmission links and trade are lacking among the northern countries.

For the southern countries, the consultants therefore recommended moving directly to the preparation of a memorandum of understanding among the countries to create a regional market. For the northern countries, the initial focus would be on developing interconnection agreements.

At the December 2001 meeting, initial steps were taken towards a Phase III study. To date, however, no further work has been done towards that study.

SOUTHERN AFRICA

Introduction

The most important fact about the Southern African Power Pool (SAPP) is the large disparity between South Africa's national utility, ESKOM, and the other national utilities of the region.¹⁴ ESKOM accounts for more than three-quarters of the pool's total generating capacity; its capacity is roughly four times the combined capacity of the next four largest members of the pool. The difference in size appears to be matched by a similar difference in technical resources.

This fact appears to have had four implications:

- (1) While regional integration offers economic benefits for the region as a whole, an important driver for integration – probably the most important – has been ESKOM's desire to play a larger regional role.
- (2) At a purely technical level, ESKOM probably is capable of dealing with the issues of integration with little or no outside help.
- (3) The role of ESMAP therefore has been to serve as neutral facilitator, to ensure that all of the countries of the region benefit (and believe they will benefit) from the integration.

¹⁴ Brazil and Nigeria are both by far the largest countries in their respective regions, but the difference in size is not matched by a comparable difference in development and technical sophistication between those countries and the other countries of their respective regions. China is a participant in the Mekong River project, but apparently only through its Yunan province.

- (4) This role appears to have required a smaller commitment of ESMAP time and, presumably, resources than was needed for the other three regional projects.

Development of the Southern Africa Project

Although bilateral energy trade had existed among some of the countries of the region since at least the 1950s, the movement towards integration of the regional electricity markets appears to have begun in 1992 with the creation of the Southern African Development Community (SADC) and under it, an electricity sub-committee.

SADC was created as the successor to the Southern African Development Coordination Conference (SADCC), which had been established in 1980. The change in name and organizational form appears to have reflected an increased emphasis on economic integration. South Africa initially was not a member of SADC, and indeed, it appears that SADCC and SADC initially were intended at least in part to provide a counterweight to South Africa. However, South Africa joined in 1994, and it was followed by other states. SADC now has fourteen members.¹⁵ It extends as far north as the Democratic Republic of Congo on the west and Tanzania on the east; Uganda has applied for membership, but at least as of early 2001, its application still was pending.

It probably is not coincidental that in September of 1995, the year following South Africa's accession to membership in SADC, the Southern African Power Pool (SAPP) was created by an agreement signed by seven of the eleven countries that then belonged to SADC. That agreement was followed in December by a memorandum of understanding among the national utilities of the member countries.

Formal Bank involvement in the process appears to have begun with a July 1995 trip to Botswana, South Africa, Zambia, and Zimbabwe. No report appears to be available from the mission, but it presumably was on this mission that the Bank team provided assistance in drafting the memoranda of understanding that were signed by the governments and the utilities.

The 1995 Bank mission was followed the next year by a mission to present recommendations for implementation of SAPP. The recommendations dealt primarily with institutional issues, for example, the need to emphasize swift and effective dispute resolution and to unbundle internal transmission pricing. This was followed in 1998 by distribution of a World Bank paper on Southern Africa sub-regional strategy.

The Bank continues to be involved with SAPP. In June 2001, the Africa Regional Office issued a favorable Project Appraisal Document for support for SAPP Coordination

¹⁵ Angola, Botswana, Democratic Republic of Congo (formerly Zaire), Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe. As of mid-2001, Angola, Malawi and Tanzania lacked cross-border links to other members and therefore were classified as non-operating members. This presumably also is true of Mauritius and the Seychelles.

Center and for three cross-border transmission projects. There is, however, no indication in the documents of a formal ESMAP involvement after 1998. In any event, the involvement during the 1995-1998 period appears to be fairly representative of the ESMAP's role in the Southern African region, which has been more that of advisor and facilitator than of prime coordinator and driving force.

WEST AFRICA

Introduction

In certain respects, the West African development parallels that of South America. In both cases, the original initiative was taken by an individual whose concerns were related to, but not identical with, those of ESMAP. Also in both cases, it was possible to use an existing regional organization that had at least some permanent organizational structure.

In the West African case, the initiative was taken by the Côte d'Ivoire Minister of Energy, and she continued to take an active role in pushing the project after her initial contact with the Bank. Her immediate concern was the development of a market for the Côte d'Ivoire's then-existing power surplus. As in the South American case, the initial contact was followed by discussions directed at broadening the focus to regional integration.

The existing regional body was the Economic Community of West African States (ECOWAS)¹⁶, which had been created in 1993. Unlike CIER, ECOWAS does not have a specific focus on electricity or even on energy, and it appears that its permanent structure may have been less developed than CIER's. However, it did have a secretariat, which could take responsibility for organizing meetings, and US AID already was using it as the regional political framework for the Nigeria-Ghana natural gas pipeline.

One obvious difference between the West African and South American cases is South America's higher level of development – both in general and in electric power systems in particular. This difference affects the kind of projects that can and should be undertaken and the kind of near-term integration that can realistically be considered. Within its own scope, however, the West African project appears to have progressed about as rapidly as the South American project over the 1999-2001 period.

A second difference is that the forces driving the South American development appears to have been generated by developments within the existing regional institution while the West African development also has been affected by external events in the electricity industry and outside it.

¹⁶ As of 2000, ECOWAS members are Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea-Bissau, Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo. (Cape Verde sometimes is not included in the list of ECOWAS countries.)

The 1998 drought led to reduced hydroelectric power and, as a result, to major power curtailments. Those curtailments appear to have focused attention on the desirability of cross-border transmission ties.

A possibly more important external event was the large involvement of US AID. Its involvement may have been part of the more general United States effort to put more emphasis on African development, but it also was more specifically related to the proposed regional gas pipeline that was to take away surplus Nigerian natural gas that now is being flared.

In the Mekong River project, the World Bank shared major responsibility with the Asia Development Bank, and so far as can be judged from the available documents, the Bank-ADB collaboration has operated without friction. There is, on the other hand, some suggestion of significant differences of approach between the Bank and US AID in the West African project documents.

Development of the West African Project

ESMAP's involvement began some time before 1999. There had been general discussions of West African regional power pool, but those discussions acquired a specific focus only with the visit to Washington of the Côte d'Ivoire Minister of Energy.

At the time of her visit, the Côte d'Ivoire had a power surplus. The minister's aim was to develop a market for the surplus. Côte d'Ivoire power already was being wheeled through Ghana for sale to Togo and Benin. The minister presumably sought to establish direct or indirect interconnections with other West African countries and/or to expand the capacity of the existing cross-border transmission line.

Through discussions between the minister and the Bank, the purpose was broadened to regional electricity trade, and around early 1999, S. Mikhail and Jean-Pierre Charpentier submitted a proposal for support of a West Africa program. The initial concept was to build on the existing interconnections that linked the Côte d'Ivoire, Ghana, Togo and Benin. These countries would be treated as the core of a power pool, which would be expanded to neighboring countries as additional transmission links were constructed. Nigeria in particular was considered as a possible future candidate for participation, but only after cooperation among the first four countries was firmly established.

During the following months, a West Africa power pool was discussed at several meetings with various organizations. These included US AID, which was heavily involved with developing a regional natural gas pipeline. These meetings led to a decision to launch a program for regional electricity trading. US AID already was using ECOWAS as the regional political framework for the pipeline project, and it was decided to use it for the power trading program as well.

In December 1999 an ECOWAS-sponsored meeting of West African Heads of State established an initial regional political basis for the program by proposing a

preliminary agreement aimed at fostering regional cross-border energy exchanges. The first regional discussion meeting to define the program was held in Abidjan the following June. ECOWAS and UEMOA (the regional organization of francophone countries) were invited to the June meeting, as were several donors, including US AID and the Agence Francaise de Developpement.

Three determinations were made at the Abidjan meeting: (1) ECOWAS would serve as the regional counterpart. (2) The focus initially would be on a limited group of countries within ECOWAS that were interconnected or soon to be interconnected, with the ECOWAS Secretariat to determine the membership of that group. (3) The ECOWAS Secretariat and the Bank team would coordinate exchanges of information between donors. Two working groups were to be established, one for technical matters and the other for institutional issues, and two agreements were to be prepared, one for the regional governments and the other for the regional national utilities.

The second of these determinations, regarding the initial focus of the project, maintained the original concept of a core group, although perhaps with more countries than originally had been envisioned. The fact that the project was to operate within ECOWAS probably carried with it at least an implicit undertaking that the project ultimately would be expanded to the other ECOWAS countries. In the near term, however, the countries outside the core group would in effect be observers of the process.

A draft Memorandum of Understanding for development of a regional power pool was prepared at a July meeting. In September, it was signed by the energy ministers of fourteen of the ECOWAS countries at a meeting organized by the ECOWAS Secretariat and sponsored by US AID. In December 2000, the West African heads of state agreed to create a West African Power Pool.

Some time earlier – perhaps at the September meeting – agreement had been reached on the difficult issue of which ECOWAS countries would be part of the core group on which attention initially would be focused. It was decided that those countries – known as Zone A – would be Benin, Burkina, Côte d’Ivoire, Ghana, Niger, Nigeria and Togo. Zone A thus consisted of the four countries of the core group in the original ESMAP proposal plus Niger and Nigeria. The inclusion of Nigeria presumably was dictated by its importance and by the fact that it would be the point of origin for the proposed gas pipeline.

A kick-off meeting or seminar for the project was held in Bamako, Mali in March 2001, and a further meeting was held in Dakar later that month. At the latter meeting, the national power utilities signed a Memorandum of Understanding for the Inter-Utility Project Implementation Committee.

With the latter meeting, the basic tasks that had been set out at the June 2000 meeting had been completed. Two working groups had been established; the core and non-core countries had been identified; and agreements had been signed by the regional

governments and the national utilities. ESMAP appears to have taken the leading role in coordinating these developments.

After the March meetings, there appear to have been two largely separate lines of development. One was a US AID-sponsored study of institutional issues, which was presented in draft form at a July 2001. One element of the study was an Energy Charter Treaty, modeled on the European treaty. The consultant placed considerable emphasis on the importance of such a treaty, but this was received with some skepticism by the Bank mission and by at least some of the countries. This issue was to be taken up again at a September meeting, and some of the institutional issues still are under discussion with the regional institutional working group.

The second line of development was directed at preparing a Project Concept Document (PCD). At about the time of the July 2001 meeting or shortly thereafter, the World Bank Africa Region decided to launch an investment program to complement the technical assistance program. Since that time, ESMAP and the Regional Bank have been working together to prepare a PCD, with the aim of going to the Bank board for financing in 2003.

The most recent version of the PCD was prepared in July 2002 and is being circulated among the concerned countries for approval. The document proposes two major activities. One is investment in strengthening existing regional transmission lines and constructing new ones. This activity would be financed by donors, presumably meaning sources other than the Bank.

The second activity is the creation of an information center to exchange information between the countries and to stimulate cooperation. The goal would be for this center to develop later into a coordination center like the one serving the Southern Africa Power Pool.

Some Tentative Conclusions

One of the questions to be addressed in the evaluation of ESMAP's role in the regional power trade projects is whether the Bank has transferred the lessons learned in the projects undertaken to date. As noted in the general introduction to this report, two kinds of transfer are relevant: an external transfer to the regional power institutions, and an internal transfer within the Bank.

Based on this report, it can be suggested that the importance and nature of the external transfer will vary substantially between regions. It appears to have been most important for the Mekong River and West African projects and least important for the South American project.¹⁷ Beyond that, an evaluation of the external transfer will

¹⁷ It may, however, become more important in South America when the focus shifts from the countries of the Southern Cone to the Andean countries. For Southern Africa, the question of the external transfer of knowledge is complicated by the great disparity between South Africa and ESKOM on one hand

require a methodology that goes beyond the review of Bank documents and discussions with Bank personnel that are the principal bases for this report. The evaluation therefore must be deferred to Phase II.

The present report can, on the other hand, cast some light on the question of an effective internal transfer of lessons learned from the regional power projects undertaken to date. As noted in the general introduction, this question can be broken down into two more specific questions:

- (1) Is there a discernible pattern in the Bank's involvement in the regional power projects? In other words, do lessons exist?
- (2) Does knowledge of that pattern exist in a form that makes it readily available for new projects?

As already noted, the answer to the second question appears clearly to be no. There appears to be nowhere in the Bank where one might go to obtain an overall analysis, or even a factual overview, of the regional projects undertaken to date. The following discussion therefore will focus on the question of whether there are general lessons that can be drawn from the Bank's experience with the five projects.

Do Lessons Exist?

Useful lessons can exist only where there is a discernible pattern. If each regional power project were entirely unique, no possible examination of earlier projects would provide any guidance for future ones.

It sometimes has been suggested that each of the five regional power projects undertaken to date is in fact unique, and up to a point that is true. However, the differences that exist between them -- and more specifically, the differences in the role played by ESMAP and the Bank -- can be explained in substantial part by general features of the context out of which the project developed. A corollary is that it should be possible to make reasonable, if not infallible, predictions about the role of ESMAP in a new project by examining the initial conditions for the project.

Potential Roles

For this purpose, it is useful to distinguish between four roles that ESMAP might play in the projects:

and the other regional countries and their national utilities on the other. Probably little transfer of knowledge was relevant for ESKOM. The potential usefulness of an external transfer in the Southern African context therefore probably lay in allowing the other countries and their national utilities to negotiate and coordinate more effectively with South Africa and ESKOM. In this sense, the external transfer of knowledge might be viewed as part of the more general function of assuring the other countries that they as well as South African would benefit from regional power integration.

- (1) Working with individuals or institutions from the region to define the scope and purpose of the project.
- (2) Creating regional counterpart institutions.
- (3) Providing financing for initial activities such as meetings, workshops and scoping studies.
- (4) Providing hands-on assistance in coordinating and promoting the progress of the regional project.

1. Defining the scope and purpose of the project

All five projects apparently began with a proposal to the Bank or other international lenders, and in each case the proposal came from the region -- from a company like ESKOM or an individual like the Côte d'Ivoire Minister of Power, or from an existing regional body like Nile-COM. In at least four of the projects, the Bank considered this initial proposal to be too narrow. The first task therefore was to secure regional agreement to a broader and more rationally defined program.

The possible exception is the Southern African Power Pool. The initial proposal presumably came from ESKOM. The available documents do not describe ESKOM's proposal. Possibly it already was broad enough to satisfy the Bank's standards. Even if it was, however, there was a perception that an ESKOM-dominated project might serve principally to advance the interests of ESKOM and South Africa. It therefore was necessary to assure other regional participants that they also would benefit from the project.

In principle, the role of defining the scope and purpose of the project might be played by any international organization whose own scope includes the entire region. In practice, it probably is most naturally and efficiently played by the same organization that would provide hands-on assistance in coordinating and promoting the project after it is begun. There may be continuity between the personal contacts involved in the two tasks. In addition, while an initial definition of the scope and purpose of the project is a necessary basis for international support, the practical meaning of that scope and purpose is likely to be defined over the course of the project's execution. The question of whether ESMAP should be responsible for working with the region in initially defining the scope and purpose of the project therefore is linked to the question of whether ESMAP is the appropriate body for providing a continuing hand-on assistance in coordinating and promoting the project, discussed below.

2. Creating Regional Counterpart Institutions

Two kinds of regional counterpart institutions have been involved in some or all of the projects. One is an institution that can provide the project with regional political

legitimacy. The other is an institution to carry out or at least participate in the technical work of developing regional power trade.¹⁸

Legitimizing institutions. A regional institution can simplify the task of legitimating the project, since the alternative is to deal, directly or indirectly, with all of the regional governments. However, a regional power project by itself probably does not carry enough weight to support the creation of a legitimating institution.

In the Southern African and West African cases, the project could use existing political institutions for this purpose: SADC and ECOWAS. No such institution existed for the Mekong River or South America cases, and nothing comparable to SADC or ECOWAS was created. The Mekong River Regional Experts Group served as an intermediary between the project and the regional governments, and it also could legitimate the study of regional power trade. However, it lacked the political weight to legitimate the actual development of that trade or, apparently, even to convene the kind of high-level meeting of regional governments that could do so. For that legitimation, the project therefore has had to deal individually with the regional governments.

CIER perhaps also served as at least a de facto intermediary between the project and the regional governments of South America. As in the Mekong River project, however, approval for the project apparently had to be obtained individually from the regional governments. In practice, this necessity apparently has caused less delay in South America than in the Mekong River region. This difference perhaps has more to do with the stronger tradition of regional cooperation in South America than with any differences specific to the power projects.

The one case in which a legitimating institution was in some sense specially created for the project was the Nile Basin. If that project is defined broadly to include the preparatory work preceding the Bank's formal involvement, then Nile-COM was a creation of the project. The explanation for the Nile Basin exception, as for other features of that project, lies in the importance of the overall Nile Basin Initiative to the riparian countries. It is doubtful that the NBI's regional power component would by itself have led to the creation of a ministerial-level body like Nile-COM.

Working institutions. An institution with sufficient political weight to give political legitimacy to a regional power project is unlikely to be a useful working organization. For at least three of the projects, it therefore was necessary to create one or more organizations to carry on the work of the project: the Regional Experts Group for the Mekong River region, the Power Trade Working Group for the Nile Basin, and the ECOWAS Secretariat and two working groups for West Africa.

In the case of South America, a working organization already existed in the form of CIER. The record is unclear for Southern Africa. The Southern African Power Pool (SAPP) now has a Coordination Center. One would expect that kind of institution to be

¹⁸ A related but separate issue is the need for a regional institution to serve as the recipient for World Bank funding (including ESMAP) funding that cannot or should not be given to individual countries.

the product of a previous temporary working organization. The available documents note the existence of an electricity sub-committee under SADC, but there is no indication as to whether it served as a working organization.

3. Providing financing for initial activities

This is ESMAP's core role. The Nile Basin Initiative illustrates its importance. ESMAP does not appear to have played a role in defining the scope and purpose of the regional power component of that project, and it also does not appear to have provided continuing hands-on role in coordinating and promoting the project. Because of the project's links to the broader program, those roles apparently were taken by other parts of the Bank.

However, ESMAP appears to have made the largest financial contribution to the activities necessary to get the project under way – a total of more than a million dollars for the initial scoping study, a meeting to disseminate the study's results, and activities directed at the eventual creation of a regional power forum.

These activities were essential to the project, and there appears to have been no practical alternative to ESMAP for funding them. It appears that other units of the Bank are available to provide funding in the tens of thousands of dollars for similar activities, and millions of dollars for hard investments. But only ESMAP appears to be able to provide funds measured in hundreds of thousands of dollars for the initial activities that are required in order to get the project under way.

4. Providing hands-on assistance

There are two issues regarding hands-on assistance. One concerns the extent to which such assistance is necessary or at least useful. The other concerns who is to provide it.

The need for hands-on assistance. Consider two extreme versions of the Bank's hands-on involvement. In Version A, Bank personnel make frequent trips to the region and play an active role in ensuring that meetings are scheduled and organized and in defining the meeting agendas. In Version B, the Bank provides funds to cover the expenses of meetings, but its hands-on role is limited to ensuring that the funds are used for their intended purpose.

The Mekong River region appears to have come close to Version A. None of the four projects for which there is detailed information – that is, excluding Southern Africa – fully corresponds to Version B. However, South America and the Nile Basin appear to have been closer to that version than to Version A.

The difference between the Mekong River on one hand and South America and the Nile Basin on the other evidently stems from a difference in the strength of the regional institutions. For the Mekong River, there were no pre-existing institutions, and

the ones that have been created over the course of the project do not appear to be particularly strong. For South America, CIER provided a well-established institutional base. No similar base existed for the Nile Basin, but the high-level political commitment of the major regional countries has created a different kind of base.

Who is to provide it? ESMAP would appear to be the logical organization for providing hands-on assistance where the project is limited to regional power trade. On the other hand, where regional power trade is part of a broader project, as in the Nile Basin, it would seem that ESMAP's role would have to be subordinated to a unit of the Bank that would have responsibility for the broader project. The issue of the specific contribution of ESMAP within that role then would appear to turn on the practical question of the availability of personnel with the required background.

What Matters? A Tentative Checklist

The preceding discussion suggests that ESMAP's role is to a considerable extent defined by factors that generally should be identifiable at the beginning of the project:

1. What is the motivation of the initial regional proponent of the project? In two of the cases – Southern Africa and West Africa – the proponent was in fact seeking cross-border trade, and it should have been relatively easy to link that motive to a broad regional power trade initiative. The linkage may be more difficult where the proponent initially had a different aim, as was the case for the Mekong River and South America.
2. Does the region already have a political organization that would be willing to take a regional power project under its wing? As illustrated by the Mekong River and South American projects, it is possible to proceed without such an organization. As the Mekong River project probably also illustrates, however, dealing individually with the regional governments may make it difficult to achieve the necessary political approvals within a short period of time.
3. What is the level of commitment of the regional governments? The Nile Basin presented some obvious problems, including recent armed hostilities involving some of the region's countries. Those problems appear to have been more offset by the high level of commitment to the project.
4. Is there an existing organization that can participate effectively in the technical work? Such an organization existed most clearly for South America, but it appears that the ECOWAS Secretariat also has played a useful role for the West African project. In Southern Africa, ESKOM certainly was capable of playing a technical role, but it is not known whether it was politically feasible for it to do so.

It will be noted that all of these points are concerned with institutional factors. Different kinds of factors will affect the substantive nature of the work – whether it should be directed at creating a power pool, or whether bilateral cross-border trade is a more realistic first step. However, it is not obvious that these factors by themselves affect the role that is played by ESMAP or the Bank.

PHASE II

EXECUTIVE SUMMARY

HISTORY OF THE POWER TRADE PORTFOLIO

Since 1994, ESMAP has considered support for cross-border trade in at least eight developing country regions, and it has formally initiated projects in five regions. A project supporting development of a Southern African Power Pool was initiated in 1996. Projects subsequently were initiated for the Mekong River Sub-Region (1996), the Nile River Basin (1997), South America (1999), and West Africa (1999).

Southern Africa. ESMAP failed to find an important role in Southern Africa. Development of a power pool was already well under way by the time it became involved, and the project consisted principally of supporting a single workshop. The project was closed by around the end of 1998.

Mekong Region. ESMAP's role in the other four regions was more significant, and the projects for all of those regions still are active. The longest-running project is for the Mekong region. The development of power trade in that region has been jointly supported by the World Bank and the Asia Development Bank (ADB). ADB had supported the creation of an Electric Power Forum (EPF) prior to the Bank's formal involvement in the region. Following the first Bank mission to the region, a Regional Experts Group (REG) was created, which has served as the local working group for Bank-ADB activities relating to regional power trade. Even today, however, neither the EPF nor the REG has developed a formal institutional existence apart from their periodic meetings.

Working with REG, the Bank and ADB organized four regional power trade workshops between 1998 and 2001. One of the topics discussed at the workshops was a draft Intergovernmental Agreement (IGA) on power trade. The draft was approved by EPF and REG at meetings held at the last of the four workshops, and it was approved by the regional heads of state in November 2002. The member countries still must ratify the IGA, but approval by the heads of state has been considered an adequate basis for further action.

The Bank also supported three studies between 1999 and 2002. The most recent of these, an options paper, defines the next steps in developing regional power trade. These are to begin with an October 2003 meeting. A formal proposal for ESMAP support of the meeting has been submitted.

Nile Basin. The regional power trade project for the Nile Basin is part of a much broader program of regional economic integration known as the Nile Basin Initiative (NBI). Bank involvement in the broader program began in 1997, and ESMAP's formal involvement began in February 1999. A Power Trade Working Group was established a few months later as the first NBI institution specifically concerned with cross-border power trade.

ESMAP has provided support for two lines of development. One is the identification of projects for which support from international agencies would be requested and the preparation of documents supporting those requests. The list of projects was presented to an international donors meeting in June 2001.

The second line of development has been directed at the creation of a Power Forum. The Power Forum initially is to service principally as an informational body, but it also was to develop the strategic framework and agreements for regional power trade.

South America. ESMAP's South America project was initiated in 1999 and has operated within the framework of an existing regional body, the Comision de Integracion Energetica Regional (CIER). In principle, the project includes all of South America. Subsequent to the beginning of ESMAP involvement, however, , it was decided to develop two separate regional markets, one for the countries of southern South America and the other for the Andean countries.

ESMAP has supported two studies conducted under CIER auspices. A Phase I study identified technical and institutional issues affecting regional interconnections; a Phase II study then developed options for developing regional power markets. The Phase II report was submitted at a meeting held March 29-April 2, 2001. A Phase III report was planned, but there appears to have been no further ESMAP-related activity since 2001.

West Africa. Development of regional power trade in West Africa has been jointly supported by ESMAP and US AID. AID's interest is linked to its support for a pipeline to carry stranded Nigerian gas to regional markets. Within the region, ESMAP and AID have worked through the Economic Community of West African States (ECOWAS).

ESMAP's involvement in the West Africa region began some time in 1999. By March 2001, memoranda of understanding had been signed by the regional countries and by the national utilities, and the heads of state had agreed to the creation of a West African Power Pool. There have been two largely separate lines of development since that period. One is an AID-sponsored study of institutional issues. One of the study's proposals was an Energy Charter Treaty modeled on the European treaty. This proposal has been controversial, and the issue appears not to have been resolved.

The second line of development was the preparation of a Project Concept Document by ESMAP and the Regional Bank. It was planned to use this document as the basis for requesting financing from the Bank some time in 2003.

EVALUATION

Institutional Memory

ESMAP lacks an institutional memory. Knowledge of each project resides principally in the minds of the persons involved in the project. The knowledge is not

conveniently accessible to other persons, and it is lost when those who possess it leave the Bank.

Specific Problems. This general deficiency arises from several more specific deficiencies. First, there is no index or database that can be used to identify all of the documents relevant to a project or area of activity. The set of documents relied on for this report were assembled with the assistance of a number of persons, and even with their assistance, the set almost certainly is not complete.

Second, the reports issued by ESMAP have limited value for someone attempting to follow its projects.

- (1) ESMAP's project monitoring includes the publication of semi-annual reports and Annual Reports, but the information is inconsistently recorded.
- (2) Information on projects can sometimes be obtained from external sources, but the availability of detailed project-specific information from within the Bank depends largely on the timing of Bank missions (which produce back-to-office reports), the existence of proposals for follow-on phases (which summarize the project to that point), and the existence of formal reports supported by a project.

Third, workshops and training programs are not adequately documented, and often are not documented at all.

Recommendations. It is the consultant's understanding that ESMAP's activities will be integrated into a general World Bank database. This should remedy the lack of a general database, at least for future documents. The report's recommendations therefore focus on the kinds of documents that should be created:

- (1) ESMAP periodic reports summarizing the status of all of its projects during the report period. The status reports that it issued during 1997 and 1998 can serve as models.
- (2) Reports describing work on specific projects during the report period should be filed at reasonable intervals.
- (3) For workshops and training:
 - a. Basic information on all workshops and training should be filed.
 - b. Materials used in the workshops and training should be compiled, preferably in electronic format.
 - c. A system of evaluation should be created at least for programs that are intended to serve a self-contained training function.

The Role of ESMAP in Promoting Regional Power Trade

Three broad lessons emerge from the present study. These concern:

- (1) The role of regional institutional and technical development in determining ESMAP's agenda;
- (2) The importance of political support and institutional development; and
- (3) The significance of close links between the ESMAP project and a ministerial-level regional body.

The ESMAP Agenda. ESMAP potentially could support a number of different kinds of activity relating to regional trade, ranging from an initial study of trade opportunities to the preparation of an intergovernmental agreement on trade. However, ESMAP support for some activities may not be needed. In South America, both a well-established regional technical body and agreements for economic integration already existed, and ESMAP's role has been largely limited to support of studies of institutions and trade opportunities. ESMAP never achieved a defined role in Southern Africa. If it had, the role probably would have been limited to supporting the new Coordination Center.

In regions with wide disparities in the development of national power systems, ESMAP appears also to have played another role. That is to assure the countries with less developed systems that the benefits of power trade would be equitably shared.

Political Support and Institutional Development. It is important to distinguish the success and importance of ESMAP's role in supporting the development of regional power trade from the success of that development. Within the universe of developing country power trade, the Southern African Power Pool (SAPP) must be counted as an outstanding success, but ESMAP support has made at most only a marginal contribution to that success. In the Mekong region, on the other hand, progress has been slow and the long-run prospects for power trade are uncertain. However the progress that has been made has depended heavily on the impetus provided by ESMAP-ADB support. Without that support, it is likely that there would have been no progress at all.

West Africa may resemble the Mekong region, both in the importance of outside support – from ESMAP and US AID in the case of West Africa – and in the still uncertain prospects for success. In South America and the Nile Basin, on the other hand, ESMAP's contribution has been useful but probably less critical than in the Mekong region, and the prospects for success appear significantly greater than in the Mekong.

Lying behind these differences in the relationship between ESMAP support and the success of regional power trade is an important distinction in the nature of the role played by ESMAP. For present purposes, the specific roles played by ESMAP noted in the preceding section can be divided into two categories. In one category, the inputs provided by ESMAP can largely determine the outcome of the activity it supports; in the other, they cannot.

An example of the first category is support for a survey of existing regional opportunities for cross-border trade. If the funding is adequate and the firm selected to conduct the survey is competent, a useful survey should be almost certain. A short course for the participating national utilities' technical staff generally would also fall into this category.

The prime example of the second category is the promotion of an effective political consensus in favor of regional power trade. In some regions this may not be necessary. In others, it may be the most important activity undertaken by ESMAP. Yet no possible input by ESMAP can guarantee that the consensus will be created or sustained.

This distinction is closely related to the definition of ESMAP's agenda, discussed above. The existence of effective political support for regional power trade means that the tasks requiring support from ESMAP are likely to fall under the first of the above categories. It also means that efforts to develop regional power trade are likely to be successful. Where effective political support does not already exist, or its continued existence is uncertain, the creation and maintenance of that support may become the most important element in ESMAP's role, but even with ESMAP support, long-run success is likely to be uncertain.

Links to Ministerial-Level Regional Bodies. Projects in the Southern Africa, Nile Basin and West Africa regions have been formally linked to ministerial-level regional bodies, and CIER's existing structure probably provides a similar link for South America. A similar link does not appear to exist for the Mekong region. While that region demonstrates that progress is possible without such a link, the region also demonstrates that progress is likely to be slow in the absence of a high-level organization with both the interest and the power to keep regional power trade on the political agenda.

CONCLUSION

The report has implications both for the selection of regional power trade projects to be supported by ESMAP and for the evaluation of ESMAP's performance in that support.

Project Selection. Two criteria appear to be appropriate for the selection of projects: that there be reasonable prospects for the successful development of power trade in the region, and that ESMAP be able to make a significant contribution to that development. Southern Africa probably fails the second criterion. It is understandable that ESMAP agreed to support regional power trade in Southern Africa. At the time, no other regional power trade project was in prospect. For ESMAP, rejecting Southern Africa could have appeared tantamount to turning its back on a potentially important area of developing country activity. For the future, however, it is questionable whether the prospect of such a very marginal contribution would justify an ESMAP commitment.

In contrast to Southern Africa, there is little doubt that ESMAP's Mekong project has had a significant impact. If there is a question about the selection of the Mekong project, it concerns the first criterion: that there be a reasonable prospect of success. The

basic problem in that region – a lack of strong regional political support – was obvious at the time. If ESMAP had used the existence of strong political support as a screening factor in assessing proposed regional power trade projects, the Mekong project would have been rejected.

That probably would have been a mistake. The lack of strong political support has meant that progress has been slow, and it may mean that ESMAP support must continue for a number of years. It may even mean that in the end regional power trade will not develop. However, to require certainty of success appears inconsistent with ESMAP's mission of supporting reform in developing countries' energy sector. What should be required is that the support be a gamble at decent odds: that the cost of the support be commensurate with the potential benefits and the likelihood of achieving them. The Mekong project appears to satisfy that standard.

Project Evaluation. The distinction between the two categories of activity supported by ESMAP discussed above is relevant to an evaluation of ESMAP's performance. If the success of an activity is largely determined by the input supplied by ESMAP, it is reasonable to judge ESMAP's performance by the success or failure of the activity. Such a judgment requires that one know whether the activity has succeeded or failed, that is not possible at this point because of the lack of documentation. However, the means for remedying that problem are straightforward and were noted earlier.

Even with better documentation, the kind of relatively mechanical evaluation procedure that can be used for training programs is not suitable for evaluating ESMAP's role in promoting effective political support for regional power trade. The alternatives for that evaluation are to evaluate one or more projects based on extensive interviews with persons involved, both at the Bank and in the region or to base the evaluation on documents supplemented by interviews with a limited number of people.

The first alternative would be relatively costly but could produce results that are firmly grounded and nuanced. The second alternative is the one used for this report. The conclusions that can be drawn on that basis are:

- (1) ESMAP's involvement in Southern Africa probably was a mistake, but one that was understandable under the circumstances.
- (2) ESMAP's flexibility in providing funds for meetings, reports and training has made a useful contribution in South America and the Nile Basin.
- (3) The combined contribution of ESMAP and the ADB has been essential to progress in the Mekong region.
- (4) ESMAP's role in West Africa may ultimately resemble its role in the Mekong, but it is too early to assess ESMAP's contribution in the West Africa region.

Introduction

This report is the product of Phase II of an evaluation of the ESMAP regional power trade portfolio. It is divided into two parts. Part One describes the history of the portfolio. Part Two presents the evaluation. Part Two is followed by a list of the documents that have been available for this report.

Some Notes on Terminology

Regional power trade, power pools, and bilateral trade. “Regional power trade” is used here as the generic term covering both power pools and bilateral cross-border trade provided that the trade takes place within some form of regional institutional structure. The proviso is needed in order to distinguish the developments supported by ESMAP from the limited bilateral trade that already existed in some of the regions discussed in this report. In the restricted sense of the term used here, only Southern Africa had a regional power trade prior to ESMAP’s involvement.¹⁹

Regional power trade and ESMAP support. It is important to distinguish the development of power trade from ESMAP’s support of that development. The development of regional power trade may begin prior to ESMAP’s involvement and may continue after its involvement has ended. More importantly, the success or failure of power trade is not a reliable measure of the value of ESMAP support. In one region, power trade might develop rapidly and successfully with ESMAP support but might have developed with equal rapidity and success without that support. In another region, power trade might develop slowly and with uncertain prospects, not because of any failings in the support it received from ESMAP but because that support was given in a difficult context.

The reasons for the less-than-perfect correlation between the value of ESMAP’s contribution and the progress of regional power trade are discussed in Part Two²⁰. They arise from the varying nature of the activities supported by ESMAP. For some of those activities, there is a clear relationship between input and outcome. This is true of a survey of existing regional opportunities for cross-border trade. If funding is adequate and the firm undertaking the survey is competent, a reasonably satisfactory outcome – that is, a useful survey – should be almost certain. It also may be true of a short course for the participating national utilities’ technical staff.

It generally is not true of activity directed at fostering an effective political consensus favoring regional power trade. In some regions this may be the most important activity undertaken by ESMAP. Yet no possible input can guarantee its success. The appropriate criterion for judging ESMAP’s performance in such an activity therefore cannot be that the political consensus was quickly created, or even that it was

¹⁹ Southern Africa has had some form of regional power institutional structure since 1980. See page 4 below.

²⁰ See in particular the discussion below at pages 30-33.

created at all, but that ESMAP undertook the activity in a well-conceived way that substantially increased the odds for success.

To make clear the distinction between the development of regional power trade and the value of ESMAP's support for the development, its support in each region will be referred to as a "project" – for example, ESMAP's Southern African power trade project – and the project terminology will not be used to refer to the regional power trade development that ESMAP supports.

Formal and informal ESMAP projects. A further distinction is needed within the category of power trade projects. Up to a point, ESMAP is able to support the development of cross-border trade in a region without establishing a formally defined project with its own budget. In the Mekong region in particular, there was no formal ESMAP project until more than a year after the first Bank mission to the area.

In general, a formally budgeted project appears to become necessary only when support in a region moves from the occasional mission and consultation to studies and workshops. In this report, the entire course of ESMAP support of power trade in a region will be referred to as the project, and the transition to a formally budgeted project (when it can be identified) will be noted.

Nile Basin regional power trade and the Nile Basin Initiative. An additional distinction is necessary in the case of the Nile Basin. In all of the regions, power trade has been only one of several areas in which economic cooperation has been pursued, or at least considered. Outside of the Nile Basin, however, the development of regional power trade has been clearly distinct from other elements of regional economic cooperation. This has not been true for the Nile Basin. Regional power trade is an integral part of a broader program of regional economic cooperation known as the Nile Basin Initiative (NBI), and ESMAP's support for regional power trade is given within the framework of Bank support for the broader program. To avoid confusion, NBI will be used only to refer to the broader program, and the development of power trade in the Nile Basin will be explicitly identified as such.

Available documents. Finally, this report will refer frequently to the "available documents." This term is not intended to cover all documents that may have been produced by the Bank, or even to all documents that may now reside somewhere in the Bank. It refers only to the documents that have been available to the consultant in preparing this report.

Part One. A History of the Power Trade Portfolio

Part One presents a factual history of ESMAP's involvement with regional power trade. The history is divided into six sections. The first section describes ESMAP's involvement in general terms. Each of the following five sections then sets out the history of one of the regional power trade projects so far undertaken by ESMAP. These sections are arranged in the order of ESMAP's initial involvement in the region: Southern Africa (1996), Mekong River (1996), Nile River Basin (1997), South America (1999), and West Africa (1999).

1. ESMAP's Involvement with Regional Power Trade

ESMAP's involvement with regional power trade is comparatively recent. ESMAP was established in 1983. Support for a Southern African regional transmission project appears to have begun around 1990²¹. However, the available ESMAP reports make no reference to power trade for that or any other region before 1994.²²

ESMAP's annual report for 1994 refers in general terms to enhancing international power trading in different regions, and it specifically mentions the southern Mediterranean, southern and western Africa, Southeast Asia and South America. However, the first formally budgeted ESMAP regional power trade project – for Southern Africa – was not initiated until 1996. The only budgeted projects concerned with power trade undertaken during 1994 appear to have been the preparation of two reports on interconnections and power trading – one consisting of a general overview of experiences within different regions and the other focusing on pricing of bulk supply and transmission.²³

Possibly these reports were the activities enhancing international power trading that are referred to in the annual report. Alternatively, ESMAP may have begun encouraging regional power trade without formally initiating a budgeted project.²⁴ Whatever the precise nature of ESMAP's regional power trade activities in 1994, the beginning of its interest probably was linked to the creation in January of that year of an Interconnection Operating and Planning Committee (IOPC) linking the national utilities of South Africa and other members of the Southern African Development Community

²¹ The list of projects in progress as of September 30, 1992 in ESMAP, *Annual Report 1992*, Annex 3, p. 42 includes SADCC Power Interconnection II, initiated 1 October 1991. Presumably Phase I began some time before that date.

²² Annual reports are not available for all years prior to 1994. For the general ESMAP documents available for the pre-1994 period, see the bibliography in the appendix to this report.

²³ Unlike some ESMAP annual reports, the report for 1994 does not include a formal list of activities initiated, completed or continuing.

²⁴ Activities in the Mekong region support the latter explanation. There were Bank missions to that region in late 1996 and again in early 1997, and these missions worked with the Asia Development Bank on the initial steps towards regional power integration. Yet reports for that period do not include the Mekong region in their lists of ESMAP projects.

(SADC).²⁵ The object of the IOPC was to create a loose power pool, and by the middle of the following year, the basic documents for the pool existed in draft form.

ESMAP did not formally initiate a Southern African project until 1996. Well before then, however, the movement towards creating that pool probably influenced ESMAP's view of the appropriate scope for its activities. By 1994 there were power pools linking national and state systems in Europe and North America, but none existed in the developing countries that are ESMAP's area of concern. Southern Africa provided a concrete example of the possibility of a developing country pool.

The formal initiation of ESMAP's support for SAPP in May 1996 was followed by the Mekong River project in December of that year, the Nile Basin in 1997, and South America and West Africa in 1999²⁶. ESMAP also has considered support for regional power projects in the North African Maghreb and in Central America. The North African project apparently never went beyond initial consideration. The Central American project became a formal (but unfunded) activity proposal but apparently went no further as an ESMAP project²⁷.

No new projects have been undertaken since 1999. ESMAP's Southern African project has been concluded. Formally, all of the other four projects appear still to be under implementation. At the time of this writing – August 2003 – there is current activity in at least the Nile Basin and Mekong projects.

2. Southern Africa

Southern Africa is unique among the five regions in having begun the movement towards a regional power pool prior to ESMAP's involvement. The Southern African Development Coordination Conference (SADCC) had established a Technical and Administrative Assistance Unit in 1980 to act as coordinating agency for the regional power sector, and in 1992, the national utilities of three SADCC members – Botswana, Zambia and Zimbabwe – had created an Interconnection Operating and Planning Committee (IOPC).

In 1994, South Africa joined SADCC's successor, the Southern African Development Community (SADC).²⁸ South Africa's accession to the SADC

²⁵ As discussed in the section on Southern Africa, an IOPC linking only the national utilities of Botswana, Zambia and Zimbabwe had been created in 1992.

²⁶ These are the dates (or approximate dates) for the first known formal Bank activity in each region. The dates of formal initiation of the projects are not known for all of the projects.

²⁷ In 1996 the Central American countries signed the Tratado Marco del Mercado Electrico de America Central. A 2002 report describes the results achieved since the treaty signing as "lento pero estable e irreversible." Proceso de integracion y creacion de mercados regionales en centroamerica y region andina (Documento SECIER CIG&T-06-2002, Medellin, July 19, 2002). As of the time of that report, loans had been finalized (apparently from the Inter-American Development Bank), and construction of transmission links was to begin in 2003.

²⁸ SADCC had been formed partly as a counterweight to South Africa. South Africa's accession to membership followed the end of the apartheid regime.

dramatically changed the potential scope of a regional power pool. It also added a strong and technically sophisticated proponent of regional power trade in the form of ESKOM, South Africa's national utility. It presumably was these developments that led to the creation of a new IOPC in 1994, this time including South Africa and other SADC members.²⁹

The purpose of the new IOPC was to create a loose power pool among the members of SADC.³⁰ Work on the founding documents must have started almost immediately. By May 1995, an Agreement among Operating Members had been drafted;³¹ by the following month, an Energy Protocol was in second draft.³² On September 28, 1995 an Intergovernmental Memorandum of Understanding creating the Southern African Power Pool (SAPP) was signed.

These activities were paralleled by the initial stages of Bank involvement in the power pool's development. A Bank mission visited the region in July 1995, and a report on its visit and recommendations was published in July 1996.³³

The recommendations dealt with a wide range of topics. The first might have been included in the recommendations for almost any developing country power sector reform. It concerned the need to develop financially viable, credit-worthy power utilities. The other recommendations were more specifically concerned with the proposed power pool. Most were concerned with the power pool itself or with its relation to the national power systems. Under the first head, the recommendations noted the need to operationalize the pool's Coordination Center and to broaden its membership criteria to include institutions that control or influence significant amounts of generation or transmission, and the need for swift and effective dispute resolution procedures. Under the latter head, recommendations concerned the need to unbundle internal transmission and the Pool's compatibility with ESKOM's internal pool and with national regulation.

The report was issued by the Bank's Africa Region, which presumably also had supported the 1995 mission. By the time the report was published, ESMAP also was involved in supporting the proposed power pool. By March 1996, a project with a relatively modest \$130,000 budget had been proposed but was still unfunded.³⁴ Funding

²⁹ It is not known how many SADC members were signatories to the 1994 agreement creating the new IOPC. By mid-2001, however, all eleven members of SADC were signatories of the later documents that created the power pool: Angola, Democratic Republic of Congo, Botswana, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe. Angola, Malawi and Tanzania lacked cross-border links to other members and therefore were classified as non-operating members.

³⁰ Development of Regional Electric Power Networks (UNDP/ESMAP, October 1994), p 13 and Annex I, p. 2.

³¹ A draft Inter-Utility Memorandum of Understanding dated May 16, 1995 is referenced in World Bank, Proposals to Support the Implementation of the Southern African Power Pool, July 1996.

³² Id.

³³ Id.

³⁴ ESMAP Status of Ongoing Activities as of March 31, 1996 (April 1996) includes support for a Southern African Power Pool in its list of prospective activities, with an unfunded budget of \$130,000.

was received and the project launched in May.³⁵ A second Bank mission visited the region in November of that year.³⁶

The report of the July 1995 mission had recommended support for SAPP on a number of fronts.³⁷ It appears that most of the recommended support was provided by the Africa Region. ESMAP's budget was directed principally at support for a three-day workshop to draw the attention of key regional decision makers to the issues.³⁸ This plan was modified at the request of the SAPP Executive Committee. Rather than a general workshop for decision makers, a small workshop would be held in conjunction with the Committee's annual meeting. The subject of the workshop would be project financing, and other issues facing SAPP would also be discussed. Key issues identified in those discussions would be investigated by ESMAP over a period of two or three months, and a report would be prepared and discussed with a selected number of representatives of the Executive Committee during a one-week visit to Washington.³⁹

The workshop was held in May 1997. According to an October 1997 ESMAP report, several issues were identified, including the compatibility of the national regulatory systems, the governance of the pool's regional coordinating center, a review of the SAPP agreements, and analysis of the potential legal status of the coordinating center.⁴⁰ Upon additional funding availability and a request from the SAPP's Operating Committee, a joint ESMAP/Bank-SAPP team would investigate these issues in the forthcoming year.

The investigation apparently was never carried out. A lack of funding may have been the reason: a November 1997 ESMAP report noted that the Operating Committee needed additional support to study the identified issues and to combine the analysis with the simulation works carried out with the University of Purdue under U.S.-DOE funding. The remaining funding from the original \$130,000 budget would be used to support part of this effort, and a mission to the region was tentatively scheduled for March 1998. However, the full scope of the proposed work would require a search for additional funding.⁴¹

There is no indication that the planned March 1998 mission took place. A June 1998 report suggests a possible reason. The report anticipated a mission for the last quarter of 1998 with the main objective of identifying the Executive Committee's future

³⁵ Table 2.2 of ESMAP 1996 Annual Report (n.d., presumably 1997) sets out activities launched during 1996. They include the South African project with May 1996 launch date and \$130,000 in funds received.

³⁶ Back-to-office Report, December 18, 1996.

³⁷ See report cited above, note 13.

³⁸ ESMAP, Activity Proposals (March 1997).

³⁹ ESMAP, Status of Ongoing Activities as of March 31, 1997 (April 1997).

⁴⁰ ESMAP, Status of Ongoing ESMAP Activities as of September 30, 1997 (October 1997).

⁴¹ ESMAP, Status of Ongoing ESMAP Activities as of September 30, 1997 (November 1997). The title of this report is the same as that of the report cited in the preceding footnote but the date of issuance is a month later.

support requirements. Elsewhere in the same report, the objective was stated in broader and more pessimistic terms. It was to clarify the kind of support needed by the Executive Committee and to secure a commitment of their interest in continuing the work. If that commitment could not be obtained, the project would be closed. It was expected that the project would be closed by the end of 1998.⁴²

Apparently the necessary commitment of interest was not obtained and the project was in fact closed at the end of 1998 or shortly thereafter.⁴³ The Southern African Power Pool itself continued to develop. SAPP's Coordination Center became operational in 1999, and in April 2001 a market in monthly, weekly, daily and hourly energy contracts began operation.⁴⁴ In December 2001 that market was supplemented by an hour-ahead market for bids not matched in the short-term energy market.⁴⁵

The amount of power traded still is small.⁴⁶ However, SAPP continues to be the only functioning power pool outside of Europe and North America.

SAPP has continued to receive international support. USAID may now be its principal external source of support,⁴⁷ but it also continued to receive support from the Bank after 1998. In June 2001, the Africa Regional Office issued a favorable Project Appraisal Document for support of the SAPP Coordination Center and for three cross-border transmission projects.⁴⁸ The Bank also has supported the attendance of SAPP personnel at training workshops during 2000-2001.⁴⁹ There is, however, no indication of any formal ESMAP involvement after 1998. The list of ESMAP projects completed, launched or ongoing during 2000-2001 does not include support for the Southern Africa Power Pool.⁵⁰

3. Mekong River

The Bank's initial contact with the Mekong region was initiated by the energy manager of the Mekong River Commission (MRC), a non-governmental organization supported by funding from Japan and other countries. The manager was working on a regional planning model. In 1995 he approached ADB and the World Bank with the

⁴² ESMAP, Status of Ongoing ESMAP Activities as of May 31, 1998 (June 1998) (revised).

⁴³ ESMAP, Annual Report 2000-2001, lists ESMAP projects that were active during those two years. The list does not include Southern Africa.

⁴⁴ South Africa Power Pool Annual Report 2001/2, Management Committee Report.

⁴⁵ Id.

⁴⁶ By July 2002, the monthly volume traded had reached 116 GWh. South Africa Power Pool Annual Report 2001/2, Operating Sub-Committee Report.

⁴⁷ This is inferred from the SAPP website's current listing of meetings and other events, which notes only US AID support. According to USAID, Initiative for Southern Africa FY 2002, Activity Data Sheet, USAID assistance for SAPP coordination center will continue to develop, test and put in operation a real-time electricity market in the region. This will allow regional electricity trading to shift from the current ad-hoc arrangements to market-driven agreements.

⁴⁸ Project Appraisal Document, June 18, 2001.

⁴⁹ South Africa Power Pool Annual Report 2001/2, Operating Sub-Committee Report.

⁵⁰ ESMAP, Annual Report 2000-2001, Annex 4.

purpose of promoting his activity. The ADB responded in 1996 by creating the Electric Power Forum (EPF)⁵¹ under the program of regional cooperation it had established in 1992.

In December of 1996, a World Bank team from ESMAP and the Bank's East Asia Region attended an EPF meeting in Kuming, China.⁵² At the meeting, the Bank team proposed that a regional market study be undertaken.⁵³ At that point, there was a consensus in the region that the Mekong river basin represented a common resource, and projects were being constructed and planned to support bilateral trade within the region: the export of hydro power from China's Yunnan province and from Lao PDR and the export of surplus power from Thailand. However, although the Mekong River Commission had begun a Mekong Integrated Transmission Study, and the ADB had recently created the EPF, there was no joint approach to exploiting the resource, and there apparently existed no process for creating such an approach.

The Bank proposal was favorably received⁵⁴, and a November 1997 EPF meeting confirmed cooperation among the ADB, the Bank and EPF. By that time, a second regional body had been created, the Regional Experts Group (REG), consisting of two representatives from each country – one from the country's electricity authority and usually technically oriented, and the other from the country's energy policy body.⁵⁵

The EPF and REG have served as the framework for the Bank's involvement in the Mekong region. EPF meetings have served as the forum for most of the Bank's subsequent formal contacts with the region, but it could not serve as the working group for the project, apparently because of the other commitments of its members. That role therefore has been played by the REG, which has served as the Bank's principal partner in discussing regional power trade.

Neither the EPF nor the REG appears to have developed a permanent institutional existence. Both groups appear to exist principally through their meetings, and those meetings appear to be held once or twice a year.⁵⁶ There apparently is no secretariat or similar body. That contemporary badge of institutional existence, a website, also is lacking.⁵⁷

⁵¹ Some documents refer to the Electric Policy Forum.

⁵² Market Structure Options for the GMS Market. A First Overview of Issues and Possible Options (October 30, 2002).

⁵³ Back-to-office report, December 18, 1996.

⁵⁴ Id.

⁵⁵ More recent documents generally refer to the Experts' Working Group on Power Interconnection (EGP).

⁵⁶ According to the account of the December 2001 Hanoi meeting in ADB GMS Updates, the meeting was the sixth meeting of the REG and the eighth meeting of the EPF. The groups also have met informally from time to time.

⁵⁷ The October 2002 options paper, above note 34, recommends the creation of a website for the EPF and REG.

Bank/ADB-Supported Activities

The Bank and the ADB have supported three kinds of regional activity: workshops; the preparation of regional power trade documents; and studies.

Workshops. As late as May 1998, there was no budgeted ESMAP project for the Mekong region.⁵⁸ Bank support for missions to the region up to that point presumably came from the general resources of ESMAP and the East Asia Region. The need for a formally budgeted project appears to have been created by plans to hold a series of workshops.

Working with the REG, the Bank and ADB organized four workshops between June 1998 and December 2001. Workshops have also been a significant part of ESMAP's support of power trade in other regions, but materials on the workshops in other regions range from sketchy to non-existent. Of necessity, therefore, the Mekong workshops must stand as representative of this aspect of ESMAP support.

The workshops probably should not be judged as training programs – that is, programs designed to develop the participants' technical skills. The range of topics covered probably was too wide and the participants too heterogeneous for that purpose. The workshops did provide a means for conveying information relevant to regional power trade. Beyond that, they probably are best seen as serving two related purposes: creating a political base for regional power trade, and giving the participants an opportunity to establish relationships that would be useful in advancing that trade.

In the Mekong region, an initial general workshop on Power Trade Strategy for Greater Mekong Sub-Region was held in Bangkok in June 1998. It was followed by three workshops on specific topics: Coordination of Technical Issues (Bangkok, February 2000), Regulatory and Commercial Issues (Vientiane, December 2000), and Financing and Private Participation (Hanoi, December 2001). Participants in the workshops included representatives of international institutions, international and regional experts, and members of the Regional Experts Group.

Each of the workshops lasted several days. Although the agenda varied from workshop to workshop, taken together the four workshops dealt principally with three subjects: (1) international experience with power pools and cross-border energy trade; (2) experts' reports dealing specifically with the Mekong region; and (3) the draft Intergovernmental Agreement (IGA).

⁵⁸ ESMAP, Status of Ongoing ESMAP Activities as of May 31, 1998 (June 1998) (revised).

Regional Power Trade Documents. The IGA is the basic document of regional power trade. The first draft of an IGA for the Mekong region was presented to the REG at its February 2000 meeting. As a back-to-office report notes, the document was presented at an early stage in its drafting because of the “need to capture the attention of the local people as early as possible to avoid any political bottleneck at a later stage.” A second draft was presented at the December 2000 workshop in Vientiane, and final approval was obtained from the REG and EPF at the December 2001 Hanoi workshop.

Approval by REG and EPF cleared the way for political approval of the document. A January 2000 meeting of regional ministers already had approved a policy statement supporting regional power trade. It had been planned to submit the IGA to a regional ministerial meeting in September 2002. Instead, it was submitted to a summit meeting of regional heads of state in November.

The heads of state approved the IGA at their November meeting. The member countries still must ratify the document, but approval by the heads of state appears to be regarded as a sufficient basis for moving forward.⁵⁹

At least three other regional power trade documents have been prepared or proposed. A May 2002 meeting of the REG reviewed a draft Indicative Master Plan on Power Interconnection in the GMS, and an October 2002 REG meeting adopted guidelines for the establishment of the Regional Power Trade Coordination Committee (RPTCC). That entity eventually is to coordinate preparation of a study on the Regional Power Trade Operating Agreement (PTOA), which would provide the operational guidance for the conduct of GMS power trade. Drafting of the PTOA is scheduled to begin in 2004-2005.⁶⁰

Studies. At least three studies of power trade have been supported by ESMAP: a 1999 study of power trade in the region,⁶¹ a 2001 survey of the regulatory systems and pricing principles of the member countries,⁶² and an October 2002 study of options for the next steps towards creating the regional market (“options paper”).⁶³

The options paper now defines the framework for further actions. A work plan based on the options paper is to be formulated at an October 2003 meeting, and it appears that formal activity on regional power trade may largely have ceased pending the development of that plan.⁶⁴ At one point it was thought that the meeting might be delayed by SARS, but it apparently is to proceed on schedule. It has been proposed that

⁵⁹ Market Options paper, above note 34.

⁶⁰ Id.

⁶¹ Power Trade Strategy for the Greater Mekong Sub-region (World Bank Report No. 19067-EAP, March 1999).

⁶² Development of a Regional Power Market in the Greater Mekong Sub-Region (GMS) (ESMAP Technical Paper 015).

⁶³ Options paper, above note 34.

⁶⁴ This is inferred from the GMS Updates pages of ADB’s web site. As of the end of August 2003, the pages do not indicate any activity in the regional trade area since late 2002.

ESMAP provide \$50,000 in support for the meeting.⁶⁵ Under the recommendations of the options paper, the work plan would include a Bank-supported regulatory and institutional study.

4. Nile Basin

Like the other regional projects, the Nile Basin project has a pre-history. The amount of cross-border power trade was small. Uganda had been exporting a modest amount of power to neighboring countries since the 1950s, but there appears to have been no cross-border power trade involving Egypt, Ethiopia, or Sudan. There had, however, been earlier regional programs involving some of the riparian states.

Hydromet was formed in 1967 with UNDP support to foster the collection of hydrological and meteorological data, and a 1989 UNDP study⁶⁶ discussed the need to develop regional hydropower and power transmission. Hydromet ceased operation in 1992, but in 1993 some of the riparian countries formed the Technical Cooperation Committee for the Promotion of the Development and Environmental Protection of the Nile Basin (TECCONILE) with a broader and more action-oriented agenda. Also in 1993, the Canadian International Development Agency began supporting a series of annual meetings of the Council of Ministers of Water Affairs of the Nile Basin States (Nile-COM).

These last two developments came together in the Nile River Basin Action Plan. The plan was prepared by TECCONILE and approved by Nile-COM in February of 1995. The following month Nile-COM asked the World Bank to take a lead role in coordinating inputs of external agencies to finance and implement the plan.

The request apparently received no response, perhaps because the proposal had not yet been fully developed. At this point it did not include all of the riparian states, and it also still lacked an organizing regional framework. Nile-COM renewed its request in March of 1997. This time the Bank quickly accepted the request. Its acceptance marks the beginning of the Bank's role in what was to become the Nile Basin Initiative.

ESMAP's own formal involvement appears to have begun with a Work Program Agreement covering support for an initial scoping study. That agreement was executed in February 1999, twenty months after the Bank's acceptance of Nile-COM's request. During the intervening period, some of the basic institutions of the broader Nile Basin Initiative were created. An International Advisory Group prepared a report on the revised action plan, which was reviewed by the riparian countries in January 1998 at a meeting convened for that purpose. Two months later, Nile-COM created the Nile Basin Initiative Technical Advisory Committee (Nile-TAC).

⁶⁵ ESMAP Concept Note (2003).

⁶⁶ Nile Basin Integrated Development, Fact-Finding Mission Report.

Nile-TAC consists of a member and an alternate from each country. Members appear to have been drawn from the countries' water ministries.⁶⁷ Its responsibilities include the preparation for the annual meeting of the Nile Council of Ministers.

For the first year following its creation, Nile-TAC was the working body for the Nile Basin Initiative, and it was the starting point for the working bodies subsequently created for specific areas of activity within the NBI, including regional power trade. Between July and September 1998, Nile-TAC drafted the policy guidelines that defined the Shared Vision Program – the document that provides the general framework for the Nile Basin Initiative.

For purposes of this report, most of the events since 1998 can be divided into two interrelated lines of development. One has been the identification of projects for which support from international agencies would be requested and the preparation of documents supporting those requests. The second was directed at the creation of a Power Forum. Both lines of development have been supported by ESMAP.⁶⁸

Development of Projects

On February 22, 1999, Nile-COM approved the establishment of the Nile Basin Initiative and directed Nile-TAC to prepare a priority list of projects for presentation to donors. In early May a strategic planning and training workshop created a preliminary list of priority projects based on consultation by Nile-TAC and additional sector experts from each country. Later in the month, Nile-COM approved the list, and Nile-TAC formed working groups to develop project concept documents for the projects in preparation for meetings with donors. Each working group consisted of the Nile-TAC member and one or more experts from each country. A lead consultant assisted each group.⁶⁹

One of the working groups was the Power Trade Working Group⁷⁰. This appears to have been the first NBI institution specifically concerned with cross-border power trade.

The working groups met in September and again in December, the latter meeting being held at the newly established NBI Secretariat in Entebbe. At the September

⁶⁷ According to Nile-TAC's web site, all of its chairmen after the first one have been drawn from those ministries, and this presumably also generally has been true of the other members.

⁶⁸ An event that does not fall under either of those headings is the clarification of the legal status of the NBI Secretariat. The Secretariat was established in 1999 and began operating in Entebbe in the latter part of that year. However, its operation was considered to be handicapped by ambiguity in its formal juridical status. This problem was resolved in November 2002 by an Agreement between NBI and the Government of Uganda recognizing the NBI as international legally constituted institution and granting it diplomatic status in Uganda. The agreement was described by the NBI web site as a major breakthrough. Why it took three years to achieve the breakthrough is not known.

⁶⁹ The NBI web site states that each project was assisted by a lead consultant, but it appears more likely that the consultants assisted at the working group level.

⁷⁰ This group sometimes is referred to as the Power Working Group.

meeting, Nile-TAC identified the promotion of regional power trade in the Nile Basin as one of seven priority projects within the Nile Basin Initiative.

Following the December meeting, more than a year was spent in preparing and approving project documents. Draft final documents were reviewed by Nile-TAC in October 2000. Final documents were endorsed by Nile-COM in March 2001 and presented to the first meeting of the international donors at a meeting in Geneva in June.

The Geneva meeting can be considered to have closed the first phase of NBI activity. The focus now shifted to implementation. A series of meetings dealing with overall implementation of the Shared Vision Program were held during the following months. Following an April 2002 meeting of the Power Experts Working Group, it was decided to proceed with the preparation of a Project Implementation Plan for the regional power trade component of the SVP. The plan was approved by a formal declaration of the regional power ministers at their first meeting, in Dar es Salaam on May 20, 2003.⁷¹

According to an earlier report, the plan was to be implemented by a Project Management Unit, which would also act as secretariat for the Power Forum. A Steering Committee was to provide overall guidance and a Technical Committee composed of power experts from each of the riparian countries would be established before the project started. This was expected to occur in June or July of 2003. The Dar es Salaam declaration makes no explicit reference to a steering committee but states that the power ministers will meet periodically to review progress of the power trade project.

Within the overall framework of the Nile Basin Initiative, two Subsidiary Action Programs have been created: one for the Eastern Nile (EN-SAP), comprising Egypt, Ethiopia and Sudan; and one for the Nile Equatorial Lakes (NEL-SAP), comprising the six countries in the southern Nile Basin (Burundi, Democratic Republic of the Congo, Kenya, Rwanda, Tanzania, and Uganda) plus Egypt and Sudan. This division may reflect – and at least is consistent with – the finding of the scoping study that the best opportunities exist at the level of these sub-basins.

Unlike the geographical division in the South America and West Africa projects discussed later in this report, the division of the Nile Basin Initiative assumes that both regions will be active in the near term. However, all of the projects presented to the international donors at the June 2001 meeting apparently were developed through the Basin-wide program.⁷² As of mid-2001, both of the sub-programs had identified projects to be examined, but the process of documenting projects beyond those that had been developed through the Basin-wide program apparently had not begun.

⁷¹ Dar es Salaam Declaration on Regional Power Trade, May 20, 2003, available on NBI web site.

⁷² In the “Sequence of Major Events” on the NBI web site, the first reference to a meeting of national experts for the Nile Equatorial Lakes region is for August 2000, and the first reference for the Eastern Nile is for late January 2001. Since the draft final project documents were circulated in October 2000 and had been in preparation since December 1999, it does not appear that the regional meetings can have played a role in the preparation of documents for the June 2002 international donors meeting.

ESMAP Support and the Creation of a Power Forum

Three days after Nile-COM approved the Nile Basin Initiative, the Work Program Agreement for Phase I of ESMAP's support of the NBI was certified. The support was for a scoping level assessment to serve as a background study for a report to the international donors. The budget was \$546,000. \$516,000 was to come from ESMAP; the balance was to come from the Bank Group Budget.

The Phase I study was completed in draft form in November 1999 and discussed by the Power Trade Working Group at an ESMAP-funded meeting the following month. Work was to continue on finalizing the study. However, there is no reference in the available documents to the study ever having been formally completed. Technically, the study apparently continued to exist as a consultants' report rather than as an NBI-approved study,⁷³ but in that form it has helped to provide a framework for the development of projects for international funding discussed above.

The Phase I Work Program Agreement certified in February 1999 assumed that Phase II would consist of a series of in-depth studies that would build on the scoping study. By December, however, the concept note for Phase II defined the principal focus as establishing a regional power forum, and the power forum also was one of the two activities contemplated by the formal Phase II proposal of May 2000. The other component was to be a ministerial-level meeting to establish a consensus in support of regional power trade. It appears that this shift in focus may have been the result of consultations during 1999 with the Power Trade Working Group. The proposed budget for Phase II was \$631,060, of which ESMAP was to provide \$504,030.

The ministerial-level meeting presumably was the Nile-COM meeting held in Khartoum in March 2001. That meeting endorsed the Shared Vision Program and the project documents that were to be presented at the international donors meeting at the end of June.

The Phase II proposal and the overall project document for the Nile Basin Initiative⁷⁴ laid out a phased process for creating the Power Forum. Nile-TAC would authorize the Power Trade Working Group to create an Interim Technical Committee, which would be responsible for making the Power Forum operational. Most of the initial responsibilities of the Power Forum would be informational. The forum would, for example, gather information, support technical meetings, and commission studies. However, it also would develop the strategic framework and agreements for advancing regional power trade. Additional functions would develop as regional power trade matured.

⁷³ The "Final Scoping Study" carries a cover date of September 2000. Its cover identifies it as having been prepared by Norconsult for the Bank and ESMAP.

⁷⁴ Shared Vision Program. Nile Basin Regional Power Trade Project Document (Nile-COM, March 2001).

This plan subsequently was revised. As noted above, the Project Management Unit for the implementation plan will serve as the secretariat for the Power Forum. There will be no Interim Technical Committee.

5. South America

In its 1994 annual report, ESMAP listed South America along with southern and western Africa, Southeast Asia, and the southern Mediterranean as areas where it had launched activities aimed at enhancing international power trading projects.⁷⁵ There are other references to these and other regions in annual reports for 1995, 1996 and 1997 and in other ESMAP documents from this period.⁷⁶ As late as March 1998, however, ESMAP annual reports and periodic status reports make no mention of a South American project, and in contrast to the Mekong region, South America appears also to have received no Bank mission related to regional power trade.

The situation from 1994 to mid-1998 appears to have been as follows:

- ESMAP had become interested in regional power trade.
- Power trade was being discussed in a number of regions, including the Mercosur region of South America, and ESMAP probably participated in some of these discussions
- Outside of southern Africa, however, there were no budgeted projects for support of regional power trade, and outside of southern Africa and the Mekong region, there also were no Bank missions or formal project proposals.

The immediate impetus for the South America project came from a regional planning exercise. The Comision de Integracion Electrica Regional (CIER) and a South American university had jointly developed a planning model that included long term planning for the entire South American continent. In 1998, the model was presented to the United States Department of Energy with the purpose of attracting interest and financial support.

The World Bank was invited to the presentation, and following it, the Bank proposed to go beyond modeling to look at the development of a regional market. CIER was interested, but its primary goal initially continued to be financial support for a modeling effort. This initial difference in the proposed focus apparently resulted in a delay of about a year before a realistic work program could be developed.⁷⁷

Meanwhile, during the first half of 1999, CIER had completed a study of national balances of energy supply and demand and the costs and benefits of regional

⁷⁵ ESMAP, Annual Report 1994.

⁷⁶ ESMAP Status of Ongoing Activities as of March 31, 1996 (April 1996); ESMAP, Activity Proposals (March 1997);

⁷⁷ The preceding two paragraphs are based principally on Back-to-office report of May 3, 2000 and on discussions with Jean-Pierre Charpentier.

integration.⁷⁸ The study was discussed with the Bank, US-DOE, and several private companies. Following the discussions, a proposal for support of a two-phase follow-up study was submitted to ESMAP. The project was to take 16 months and had a budget of about \$500,000 - \$700,000.⁷⁹

The project was designed by CIER, US-DOE, and the Bank and endorsed by the Peruvian Minister of Energy and Mining; support from other governments was said to be in preparation. Phase 1 of the project was to identify technical and institutional issues affecting regional interconnections. Phase 2 was to develop options for dealing with those issues and for developing regional power markets. The work was to be coordinated by Leading Group composed of representatives from the Bank, CIER and US-DOE and executed by a Working Group composed of representatives from the National Committees of CIER.⁸⁰

The project proceeded with unusual speed, perhaps reflecting the fact that, in CIER and the Mercosur national governments, the South America project had access to better-developed bureaucratic resources than were available in the other regions. Consulting groups were short-listed in October 1999, and the winning group was selected in November. Work began in December, and the Phase I report was presented in May 2000.⁸¹ The report reportedly was well received⁸², and work on Phase II began almost immediately. The first draft of the consultant's recommendations was presented in December, and the final Phase II report was submitted at a March 29-April 2, 2001 meeting.⁸³

One of the Phase II recommendations, which apparently was accepted, was to develop two separate regional markets for South America: one for the Mercosur countries of southern South America and one for the Andean countries of the northern

⁷⁸ UNDP/ESMAP, South America Regional Interconnection of Electricity Markets. Project Description. (n.d.). The study is known as CIER-02. Earlier, in 1995, CIER had carried out a study quantifying the hydrological correlation of the region's major hydro river basins, known as CIER-01. CIER may have undertaken the two studies with its own resources. In any event, they apparently did not receive support from the Bank.

⁷⁹ The available documents include two ESMAP proposal forms for the project, one with a budget of \$536,600 and the other with a budget of \$705,350. Presumably one of the proposals superseded the other, but since neither proposal is dated, it is not possible to determine which one is the final proposal.

⁸⁰ This description of the management of the project is from UNDP/ESMAP, South America. Regional Interconnection of Electricity Markets. Project Description (n.d.). The consultants' terms of reference describe the Working Group as the coordinator. See Interconnection of Electricity Markets in South America: Terms of Reference for Consultant Services (n.d. but presumably 1999).

⁸¹ The report was published in December 2001 as ESMAP Technical Paper 016, Regional Electricity Markets Interconnections – Phase I. Identification of Issues for the Development of Regional Power Markets in South America.

⁸² Back-to-office report, May 3, 2000.

⁸³ Regional Electricity Market Interconnections in South America (Project CIER 03). Phase II: Proposals to Facilitate Increased Energy Exchanges (ESMAP Technical Paper 016, April 2002). Although it has the same technical paper number, the April 2002 report is separate from the December 2001 reported cited in note 63.

part of the continent. Two factors dictated the division.⁸⁴ One was the higher degree of general economic integration of the southern countries. Mercosur has ambitions of following the general path of the European Common Market. It is far from clear whether those ambitions will be realized, but even today, Mercosur has a much better developed framework for economic integration than exists for the Andean countries.

The second factor was specific to electricity. There already exist important cross-border transmission links involving Argentina, Brazil and Chile within Mercosur and a significant bilateral electricity trade based on those links. Comparable cross-border transmission links and trade are lacking among the northern countries.

For the southern countries, the consultants therefore recommended moving directly to the preparation of a memorandum of understanding among the countries to create a regional market.⁸⁵ For the northern countries, the initial focus would be on developing interconnection agreements.

Following the March 29-April 2, 2001 meeting, it was assumed that the Bank and the CIER Executive Committee would jointly decide on launching the Phase III study within a few months. To date, however, it does not appear that any further work has been done towards that study. In the available documents, there is no record of further ESMAP involvement after 2001. However, CIER has continued to be active. In June 2002, it sponsored a conference on the integration of national power systems in the Andean region.⁸⁶ The conference was held against the background of recent activity in that region. In September 2001 the energy ministers of the Andean countries had signed an agreement for regional transmission links and cross-border trade in electricity, referred to as the Cartagena accord. This was followed in April of 2002 by a second accord, which adopted regulatory principles for the cross-border transmission links and trade. These agreements have been signed by Ecuador, Colombia and Peru, but Bolivia and Venezuela have indicated they will join the agreements.⁸⁷

6. West Africa

Like South America, West Africa is included in the regions for which ESMAP's 1994 annual report appears to indicate it has launched activities intended to enhance international power trade. Also like South America, there is no indication that West Africa was then the subject of a formal ESMAP project or proposal.

⁸⁴ See Back-to-office report, May 10, 2001.

⁸⁵ The precise role of a new intergovernmental agreement is not clear. Ramon Sanz of Mercados Energeticos notes that the Mercosur countries already have agreements allowing regional market development, and the problem now "is to advance in second generation rules and to increase the institutional commitment to allow more interconnections." E-mail communication from R. Sanz, May 13, 2003.

⁸⁶ II Taller Internacional de Interconexion electrica en la Region Andina, CIER 2002-06-14. A summary of the proceedings is posted on CIER's web site.

⁸⁷ Except where otherwise noted, this paragraph is based on Proceso de integracion y creacion de mercados regionales en centroamerica y region andina (Documento SECIER CIG&T-06-2002, Medellin, July 19, 2002). The report is available on the CIER web site.

The first specific reference to a proposal for the West African region is in a March 1997 list of ESMAP activity proposals.⁸⁸ The list included a proposal to support the development of a regional power pool in Central West Africa. The specific subject of the proposal was a three-day workshop that would involve senior power sector officials and would identify the potential benefits of regional power trade. The workshop would be directed “toward capacity building in a participatory environment of senior decision makers.” There is no record of the conference having been held; presumably it never was funded.

The immediate impetus for the West African project came from a visit to Washington around 1998 by the Minister of Energy of the Côte d’Ivoire. The aim of the minister’s visit was to expand the market for her country’s then-existing power surplus. Côte d’Ivoire power already was being wheeled through Ghana for sale to Togo and Benin. The minister presumably sought to establish direct or indirect interconnections with other West African countries and/or to expand the capacity of the existing cross-border transmission line.

As already noted, ESMAP already was considering undertaking a project in central Africa. Through discussions between the minister and the Bank, her purpose was broadened to regional electricity trade, and around early 1999, S. Mikhail and Jean-Pierre Charpentier submitted a proposal for support of a West Africa program. The program probably was formally initiated some time that year.⁸⁹

The initial concept was to build on the existing interconnections linking the Côte d’Ivoire, Ghana, Togo and Benin. These countries would be treated as the core of a power pool that would be expanded to neighboring countries as additional transmission links were constructed. Nigeria in particular was considered as a possible future candidate for participation, but only after cooperation among the first four countries was firmly established.

During the following months, a West Africa power pool was discussed at several meetings with various organizations. These included US AID, which was heavily involved with developing a regional pipeline to take away Nigerian natural gas that was being flared. These meetings led to decisions to launch a program for regional electricity trading. US AID already was using the Economic Community of West African States (ECOWAS)⁹⁰ for the natural gas pipeline project. It was decided to use it as the partner for regional power trading as well.

⁸⁸ ESMAP, Activity Proposals (March 1997).

⁸⁹ ESMAP’s report for 2000-2001 includes Development of Regional Power Market in West Africa with a budget of \$257,558 in its list of projects “under implementation” during 2000-2001.

⁹⁰ ECOWAS was formed in 1993. As of 2000, its members were Benin, Burkina Faso, Cape Verde, Cote d’Ivoire, Gambia, Ghana, Guinea-Bissau, Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo. (Cape Verde sometimes is not included in the list of ECOWAS countries.)

The project appears to have proceeded with little delay over roughly the next two years.⁹¹ In December 1999 an ECOWAS-sponsored meeting of West African Heads of State established an initial regional political basis for the program by proposing a preliminary agreement aimed at fostering regional cross-border energy exchanges. The first regional meeting to define the program was held in Abidjan the following June. ECOWAS and UEMOA (the regional organization of francophone countries) were invited to the June meeting, as were several donors, including US AID and the Agence Francaise de Developpement.

At the Abidjan meeting it was decided that two working groups would be established, one for technical matters and the other for institutional issues, and that two agreements would be prepared, one for the regional governments and the other for the regional national utilities. In addition, three determinations were made at the meeting:

- (1) ECOWAS would serve as the international donors' regional counterpart.
- (2) The focus initially would be on a *limited group of countries* that were interconnected or soon to be interconnected, with the ECOWAS Secretariat to determine the membership of that group. For the near term at least, the countries outside the core group would in effect be observers of the process.
- (3) The ECOWAS Secretariat and the Bank team would coordinate exchanges of information between donors.

A draft Memorandum of Understanding for development of a regional power pool was prepared at a July meeting. In September, it was signed by the energy ministers of fourteen of the ECOWAS countries at a meeting organized by the ECOWAS Secretariat and sponsored by US AID. In December 2000, the West African heads of state agreed to create a West African Power Pool.

Some time earlier – perhaps at the September meeting – agreement had been reached on the issue of which ECOWAS countries would be part of the core group on which attention initially would be focused. It was decided that those countries – known as Zone A – would be Benin, Burkina, Côte d'Ivoire, Ghana, Niger, Nigeria and Togo. Zone A thus consisted of the four countries of the core group in the original ESMAP proposal plus Niger and Nigeria. The inclusion of Nigeria presumably was dictated by its importance and by the fact that it would be the point of origin for the proposed gas pipeline.

A kick-off meeting or seminar for the project was held in Bamako, Mali in March 2001, and a further meeting was held in Dakar later that month. At the latter meeting, the national power utilities signed a Memorandum of Understanding for the Inter-Utility Project Implementation Committee.

⁹¹ It has been suggested that the 1998 drought with its resulting reduction in hydroelectric power and major power curtailments served to focus regional attention on the desirability of cross-border transmission ties.

With the latter meeting, the basic tasks that had been set out at the June 2000 meeting had been completed. Two working groups had been established; the core and non-core countries had been identified; and agreements had been signed by the regional governments and the national utilities.

After the March meetings, there appear to have been two largely separate lines of development. One was a US AID-sponsored study of institutional issues, which was presented in draft form at a July 2001 meeting. One of the study's proposals was an Energy Charter Treaty, modeled on the European treaty. The proposal was received with some skepticism, and the issue was to be taken up again at a September 2001 meeting. As far as can be determined from the available documents, it still has not been resolved.

The second line of development was directed at preparing a Project Concept Document (PCD). At about the time of the July 2001 meeting or shortly thereafter, the World Bank Africa Region decided to launch an investment program to complement the technical assistance program. Since that time, ESMAP and the Regional Bank have been working together to prepare a PCD, with the aim of going to the Bank board for financing in 2003. The most recent version of the PCD was prepared in July 2002 and is being circulated among the concerned countries for approval.

The document proposes two major activities. One is investment in strengthening existing regional transmission lines and constructing new ones. Donors, presumably meaning sources other than the Bank, would finance this activity. The second activity is the creation of a center to exchange information between the countries and to stimulate cooperation. The goal would be for this center to develop later into a coordination center like the one serving the Southern Africa Power Pool.

Part Two. Evaluation

This part of the report evaluates two aspects of the ESMAP regional power trade portfolio. Sub-Part A evaluates ESMAP's institutional memory for that portfolio – the knowledge of the regional power trade projects that is practically accessible within ESMAP to persons who have had no involvement in the projects. Sub-Part B discusses the lessons that can be learned from the projects themselves.

This organization may strike the reader as perverse since it places an evaluation of bureaucratic record keeping before evaluation of ESMAP's substantive work. In this case, however, the limitations of ESMAP's institutional memory of its regional power trade portfolio are also limitations on an evaluation of that portfolio. To understand what an evaluation of the portfolio can and cannot do, therefore, it is necessary to understand something of those limitations.

The difference in subject matter of the two sub-parts dictates a difference in organization. Sub-Part A identifies several specific weaknesses in ESMAP's institutional memory and makes several equally specific recommendations for dealing with them. The lessons that are discussed in Sub-Part B are more general. They do not lead to the kind of specific recommendations set out in the preceding sub-part but rather to more general recommendations regarding the selection of projects and their evaluation.

A. Institutional Memory

1. The Problem

ESMAP's ability to draw lessons from its experience is seriously limited by the lack of a satisfactory institutional memory. The knowledge of each project appears to reside principally in the minds of the persons involved in the project. As a result, the knowledge is fragmented. Persons involved in one project may know little of other projects and, indeed, may not even know of another project's existence. The knowledge also is subject to inevitable decay as individuals retire or move to positions outside the Bank.

This general problem of institutional memory is composed of a number of more specific problems. These include:

- 1) The lack of a centralized index of documents relevant to ESMAP's projects.
- 2) The lack of two kinds of regular reports:
 - a) A sustained and consistent series of periodic reports describing the nature and status of ESMAP's projects.
 - b) Periodic narrative description of the events and progress of individual ESMAP projects.
- 3) The lack of any procedure for documenting ESMAP workshops and training programs.

a. Lack of Centralized Index

The consultant has had the assistance of a number of individuals within and outside of ESMAP in assembling documents relevant to its regional power trade projects. Without that assistance, this report would not have been possible. Even with that assistance, however, additional documents have continued to surface throughout the work on the report⁹², and it is likely that still more documents would surface if that work was extended.

The problem is that there exists no index or database that can be used to identify the full set of documents relevant to a project or to a general area of activity like regional power trade. As a result, the set of documents that are relevant and available can be identified only by canvassing individuals' recollections or a physical reconnaissance of likely repositories

b. Reports

(1) Lack of Consistent Periodic Reports

The table on the following page lists the ESMAP annual reports and other reports that, by their title or format, appear intended to be part of a periodic series – referred to collectively here as periodic reports. The table also indicates whether each report includes a list of current or proposed projects.

The most striking thing about the table is the lack of continuity in the reports. ESMAP now has been in existence for approximately twenty years. Annual reports are available for each year from 1992 to 1997. However, there are gaps in the annual reports both before and after those years, and within the 1992-1997 period, some annual reports list current projects and some do not. No other category of report is available in continuous series for more than two years.

It is possible that periodic reports in addition to those listed in the table have been issued but are not among the available documents. To the extent this is true, that is of course itself a problem. However, the unavailability of existing documents is unlikely to be the principal explanation for the lack of continuity. It is very unlikely, for example, that reports on the status of ongoing activities have been issued continuously but that reports in that category since June 1998 are not available. The discontinuities in the table might be less extensive if it had been possible to locate every report ever issued by ESMAP, but it is unlikely that the picture shown by the table would be fundamentally different.

⁹² For example, the consultant only recently became aware of the existence of two recent studies and copies of the studies were obtained while this draft was in its final stages. The studies in question are Bradley O. Babson, Cross-Border Economic Cooperation in the Mekong Region (October 11, 2002); and Market Structure Options for the GMS Market. A First Overview of Issues and Possible Options (October 30, 2002).

Table 1: Periodic ESMAP Reports

| <i>Report</i> | <i>Lists Projects?</i> |
|---|------------------------|
| Annual Report (April 1987) | No |
| Work Program 1992-1993. Part II. Country Summaries (Oct. 1991) | No |
| Annual Report 1992 | Yes |
| Annual Report 1993 | Yes |
| Annual Report 1994 | Partial ⁹³ |
| Annual Report 1995 | Yes |
| Status of Ongoing Activities as of March 31, 1996 (April 1996) | Yes |
| 1996 Annual Report | Yes |
| Activity Proposals (March 1997) | Partial ⁹⁴ |
| Agenda, Work Program and Budget for 1997 (April 17, 1997) | No |
| Status of Ongoing Activities as of March 31, 1997 (April 1997) | Yes |
| Status of Ongoing Activities as of September 30, 1997 (10/ 1997) | Yes |
| Status of Ongoing ESMAP Activities as of September 30, 1997 November 1997) | Yes |
| Status of Ongoing ESMAP Activities as of September 30, 1997 November 1997) | Yes |
| Status of Ongoing ESMAP Activities as of December 31, 1997 (February 1998) | Yes |
| 1997 Annual Report | Yes |
| Status of Ongoing ESMAP Activities as of May 31, 1998 (June 1998) (revised) | Yes |
| Energy and Development Report 2000 (first printing April 2000) | No |
| Annual Report 2000-2001 | No |
| ESMAP Business Plan 2002-2004 | Partial ⁹⁵ |

The discontinuities shown in the table probably have two causes. One is the lack of a consistent policy regarding periodic reports. It is understandable that views on the importance and role of reports will change over time. However, in assessing the history and performance of a program or institution, it is useful to have a consistent base line. That base line is lacking for ESMAP.

The second likely cause is a focus on what might be called a thematic approach to periodic reports. In this approach, a report focuses on the broad purposes of ESMAP and

⁹³ The report lists completed activities but not ongoing ones.

⁹⁴ Report lists proposed activities but not ongoing ones.

⁹⁵ Annex V lists formal and technical reports published from January 1, 1999 through December 31, 2002.

on the efforts to achieve those purposes. There is nothing wrong with such an approach. A catalogue of projects with budgets and dates makes dreary reading and probably is neither interesting nor relevant for most readers. It therefore is quite appropriate to place such a catalogue in an appendix to the report or in a separate document. The problem is that for some years the catalogue appears simply not to exist. In the available documents, the most recent report containing a systematic list of ESMAP projects is for May 1998.

(2) Lack of Regular Descriptions of Individual Projects

By its nature, an annual report cannot be expected to provide much more than project titles, budgets and current status. For a little more than a year during 1997 and 1998, a series of reports on the status of ongoing projects gave not only the basic facts but also a narrative account of the recent developments and current status of a project. However, those reports appear not to have been continued after June 1998. At present, a narrative description of a project generally can be found in three places:

- (1) Back-to-office reports.
- (2) Proposals for follow-on phases of the project.
- (3) Introductory discussion in reports funded by the project.

The shortcoming of all of these sources is a failure reliably to provide project descriptions at reasonable intervals. It is possible to piece together a continuous account of a project from back-to-office reports during periods when Bank missions to the region are frequent but not when such visits are rare or nonexistent. Back-to-office report can sometimes be supplemented by follow-on proposals and project-funded reports, but the latter two sources typically provide a description of a project at only one or two points over its life.

In addition to the sources just cited, the available documents for the Nile Basin project includes a document from the “ESMAP Portfolio Tracking System” that includes dated notes on that project, the most recent of which is for January 29, 2002. The name of the system appears to imply that it is capable of producing comprehensive information on all ESMAP projects. However, the available documents include only the single report on the Nile Basin project, and the notes in that report do not provide a continuous narrative.

ESMAP’s own record of its projects can sometimes be supplemented from outside sources, especially the web sites maintained by the regional organizations. However, these web sites are concerned with their respective regions and not with ESMAP’s projects. More fundamentally, a record of those projects should not depend on the decisions of other organizations regarding the scope and content of their web sites.

c. Lack of Documentation for Workshops and Training

One of the commonly accepted goals of the ESMAP programs is to provide the regions with sound technical knowledge relating to power trade. The means used for this

purpose are training and the creation of technical institutions in the region. Both the training and the institutions have taken various forms – workshops and short courses for the training; electric power forums, regional experts groups, and power trade working groups for the institutions. The focus here will be on workshops and short courses, which will be referred to here collectively as training.

In the available documents, the most prominent channels for training are workshops. These are programs generally lasting one or two days in which international experts make presentations on issues related to regional power trade. There also have been at least a few programs that I will refer to as short courses, which are more technical and intensive than the typical workshop

The style of the presentations in this training has varied vary widely. Some presentations provide potentially useful information, such as the kind of power control equipment available from a certain company; others appear intended to promote support for regional power trade or to share international experience. Some presenters have developed exercises that must be worked out by the participants; apparently most have not.

In general, however, specific information on the training is lacking. The available documents include the proceedings for three of a series of four workshops held for the Mekong and for a project finance workshop held for Southern Africa but they include no proceedings for any of the other three projects. They also include the proceedings of a short course, “How to Develop Regional Power Market,” which was held in Washington, D.C. in 2000.

The documents include references to other training. At best, however, the references are limited to a description of the topics covered, and in some cases not even the date of the training is given. Moreover, even where proceedings are available, they consist principally of PowerPoint slides. It can be assumed that these slides provide only the framework of a presentation and that most of its substance usually is delivered orally by the instructor.

The lack of better documentation on training has two implications. The first is that it is impossible to evaluate the training. The training cannot be evaluated in this report, and it would appear that it could not be evaluated by ESMAP. The second and related implication is that it generally is not possible for later training efforts to build on earlier ones. Some individuals have conducted workshop or training sessions for more than one project, and they can draw on their own experience. However, this possibility merely illustrates the more general problem. Knowledge exists in the minds of particular individuals; it is not institutional knowledge that is broadly and conveniently available to anyone concerned with ESMAP projects.

2. Recommendations

a. General Data Base

It is the consultant's understanding that steps already are being taken to integrate ESMAP activities into a general World Bank database. If this is done, it presumably will be possible to identify at least all future documents – including proposals and back-to-office reports – that are relevant to an ESMAP project, and this presumably will be true not only for documents produced by ESMAP but also for documents produced by other Bank units with which ESMAP collaborates. The focus then will shift from the question of whether documents can be found, to the question of whether they have been created. The remainder of this section is concerned with this second question.

b. Reports

(1) Periodic Reports

ESMAP's most recent periodic reports are aimed at a broad public. They have taken a thematic approach and are attractively produced, with color graphics and user-friendly layout.

A report of this kind could incorporate an annex setting out the status of current projects. However, it seems preferable instead to report their status in a separate document. This would free the status reports from the production schedule of the more elaborate reports and should result in documents that can readily be distributed in electronic files of moderate size. The reports on the status of ongoing activities that were issued during the 1997-1998 period could be taken as a model.

(2) Reports on Individual Projects

ESMAP's business plan for 2002-2004 states that it now publishes "Activity Completion Reports – Lessons Learned."⁹⁶ Such reports are potentially very valuable. However, no activity completion report has been available for the preparation of this report. The explanation for this probably has two parts: (1) the practice of issuing such reports probably had not begun at the time that ESMAP completed its work on the Southern African project, and (2) none of the other regional projects has been completed.

The second part of the explanation points up the limitation of activity completion reports: by their nature, they are issued only at the completion of a project. This limitation may not be important if a project is completed in a few months. It is important if a project continues for several years – as seems likely to be typical of regional power trade projects. An activity completion report provides no basis for a mid-term assessment of a project. In addition, if there has been a change of personnel over the life of a project, it may be difficult to prepare an activity completion report if there is no interim documentary record.

⁹⁶ ESMAP Business Plan 2002-2004, Annex XII.

It therefore is suggested that accounts of a project be prepared at reasonable intervals. The status reports issued during 1997 and 1998 include brief narratives. If the practice of issuing status reports is resumed, narratives of this kind may serve the purpose. Alternatively, a separate short report might be prepared. In either case, the purpose should not be to issue an interim “lessons learned” report but, rather, to provide a continuing narrative account of the project. The narrative can be brief, but it should be understandable by someone who is not already familiar with the project.

c. Training

Two straightforward steps can be taken to provide better documentation of ESMAP’s training activities. One is simply to document when and where training sessions are held, the subjects covered, and the persons attending. The second is to compile – preferably in electronic form – the materials used for the training.

By themselves, these steps are likely to be of limited use in evaluating a training session. The information they would provide would be similar to that provided by the syllabus for a college course. Presumably most readers of this report have experienced an interesting syllabus that turned out to be the only interesting or useful thing about the course it covered.

To go beyond this information – actually to evaluate a workshop or training sessions – it is necessary to be clear about what the training is expected to do. Consider several possible goals:

- (1) The relevant organizations in the region are amply supplied with persons who are familiar with the technical requirements for connecting different power systems, but the organizations’ leadership is not convinced of the benefits of cross-border trade. The goal is to convince the leaders of those benefits.
- (2) The benefits of regional trade are generally accepted, but the specific opportunities for trade have not been identified. The goal is to identify those opportunities and/or to develop a regional competence to identify them.
- (3) The benefits of regional trade are generally accepted and known and commercially viable trade opportunities have been identified. However, there has been little effective concern for the implications of regional trade for the environment and for broadened access to modern electric power. The workshops may have a dual goal: to convey information regarding those concerns, and to convince participants of the importance of the concerns.
- (4) The relevant organizations in the region are amply supplied with competent engineers, but the engineers have no experience with the technical requirements of connecting different systems. The goal is to provide a cadre of engineers with training in those requirements.
- (5) Engineers and other technical persons familiar with modern best practices for operating a transmission or distribution grid are in short supply in at least some of the countries in the region. The goal is to upgrade the engineers’ basic technical skills.

These different goals should be pursued in different ways, and their evaluation should be based on different criteria:

- In the first case the appropriate action might be a promotional workshop. It would be pointless to criticize the workshop for a failure to convey the complexities of regional trade because the workshop is intended to be an exercise in political salesmanship rather than education. However, it may be reasonable to criticize a project if it assumes that one or two workshops will be sufficient to achieve the political purpose.
- In the second through fourth cases, an educational workshop or short course is needed, and a failure to convey the complexities of regional trade or of the links between trade and the environment and access to electric power would be a very appropriate ground for criticism.
- The third case probably also requires some amount of political salesmanship, and as in the first case, one or two workshops may not be sufficient for the purpose.
- In the fourth case, something more extensive than the typical workshop or short course may be needed, and the success of the assistance can be judged only over a longer period of time.

It is suggested that ESMAP begin by establishing a system of evaluation at least for workshops and short courses that are intended to serve a self-contained training function – a function corresponding to the second and fourth cases in the above list. For sessions of this kind, the evaluation can be directed at a manageable question: How successful was the session in conveying the intended information to the participants? Formal student evaluations answering that question should not be the sole basis for assessing the training, but they provide information that cannot be obtained in any other way.

B. The Role of ESMAP in Promoting Regional Power Trade

The lessons that can be drawn in this report regarding ESMAP's role in promoting regional power trade of necessity are concerned with the broad structural features of ESMAP's support. It is not possible, for example, to assess whether progress in a certain region would have been faster if workshops had been conducted differently or Bank missions had conferred with different persons. Possibly conclusions on some of these issues could have drawn if more documents had been available. Principally, however, issues such as these would require a different kind of study, one based in part on extensive interviews with persons within and outside the Bank.⁹⁷

⁹⁷ A recent example is Babson's study of cross-border economic cooperation in the Mekong region, cited above note 75. The present consultant has benefited greatly from discussions with a number of persons, which have served to place documents in context and to fill in gaps where the documents are silent. However, it has not been possible to test the views expressed in these discussions against the views of a broader range of persons, including officials in the five regions. For this reason, the

At the broader level, three lessons emerge from the present study. These concern

- (1) The role of regional institutional and technical development in determining ESMAP's agenda;
- (2) The importance of political support and institutional development; and
- (3) The significance of close links between the ESMAP project and a ministerial-level regional body.

These lessons are discussed in the following three sections

1. Regional Development and the ESMAP Agenda

A full agenda for ESMAP support of regional power trade would include at least the following activities:

- (1) Studies of institutions and of opportunities for trade.
- (2) Creation of technical and/or policy-oriented bodies specifically concerned with regional power trade.
- (3) Training for regional personnel.
- (4) Creation and maintenance of effective political support for regional trade.
- (5) Preparation of an intergovernmental agreement.

Regional institutional and technical development may affect that agenda in two ways. First, ESMAP support for some activities may not be needed because the activities already have been completed or are adequately supported by existing institutions. ESMAP's actual agenda in South America and Southern Africa has been much briefer than the full agenda listed above. In South America, CIER already provided a well-established regional technical body, and the existing agreements for economic integration among the Mercosur countries apparently made an intergovernmental agreement unnecessary. Those agreements probably also evidenced political support at least for economic integration in general. ESMAP support in South America therefore appears to have been largely limited to the first item on the agenda: studies of institutions and trade opportunities.

ESMAP's involvement with Southern Africa was even more narrowly focused. This was partly because its involvement before a well-defined agenda could be developed. Even if its involvement had been longer, however, it is likely that the principal and perhaps the only item on its agenda would have been support for the new Coordination Center.

The second potential effect of local conditions arises where there are wide disparities in the development of the region's national power systems. Such disparities exist in Southern Africa and the Mekong region, and in both regions, an additional item

conclusions of this report generally have been limited to ones that receive at least some support from the documentary record.

on ESMAP's agenda has been to assure the countries with less developed power systems that the benefits of power trade would be equitably shared.

2. The Implications of Political Support and Institutional Development

It is important to distinguish the success and importance of ESMAP's role in promoting the development of regional power trade from the success of that development. The importance of this distinction may be seen by comparing the development of regional power trade in Southern Africa and in the Mekong River Subregion.

The Southern African Power Pool (SAPP) is the only functioning power pool outside of Europe and North America. In the other four regions supported by ESMAP, trade has not moved beyond long-term bilateral sales, and in some regions even that trade is very limited in volume and scope. In Southern Africa, trading through the power pool began in 1999 and since then has been expanded to include short-term and hour-ahead sales. Within the universe of developing country power trade, SAPP must be counted as the outstanding success. Yet ESMAP support has made at most only a marginal contribution to that success.

Southern Africa contrasts sharply with the Mekong region. The Mekong is the oldest of the still-active regional projects. ESMAP has been involved with promoting power trade in the region since 1996. After nearly seven years, however, cross-border trade still has not moved beyond a limited amount of bilateral trade. And yet, the progress that has occurred has depended heavily on the impetus provided by ESMAP-ADB support. There was no movement towards regional power trade prior to their involvement and apparently nothing that would have initiated that movement in their absence.

Paradoxically, therefore, ESMAP's Mekong project has been much more successful than its Southern African one. In the Mekong region, ESMAP's joint involvement with ADB appears clearly to have made a difference. Without that involvement, the movement towards regional power trade probably would not exist; with it, there appears to be a reasonable prospect that the movement will – eventually – be successful. In Southern Africa, on the other hand, it is likely that SAPP would have begun operation around 1999 even without any support from ESMAP. That support may have been useful, but if so, its usefulness probably was only at the margin.

West Africa perhaps resembles the Mekong: there is little to suggest that the development of regional power trade institutions would have begun without support from ESMAP and US AID, and the long-run prospects for that development still are uncertain. In both the Nile Basin and South America, on the other hand, ESMAP's contribution has been very useful. However, the movement towards power trade in those regions has not been solely a creation of that contribution, and the success of that movement seems, if perhaps not absolutely certain, at least highly likely.

Lying behind these differences in the relationship between ESMAP support and the success of regional power trade is an important distinction in the nature of the role played by ESMAP. For present purposes, the specific roles played by ESMAP noted in the preceding section can be divided into two categories. In one category, the inputs provided by ESMAP can largely determine the outcome of the activity it supports; in the other, they cannot.

An example of the first category is support for a survey of existing regional opportunities for cross-border trade. If the funding is adequate and the firm selected to conduct the survey is competent, a useful survey should be almost certain. A short course for the participating national utilities' technical staff generally would also fall into this category.

The prime example of the second category is the promotion of an effective political consensus in favor of regional power trade. In some regions this may not be necessary. In others, it may be the most important activity undertaken by ESMAP. Yet no possible input by ESMAP can guarantee that the consensus will be created or sustained.

This distinction is closely related to the definition of ESMAP's agenda, discussed above. The existence of effective political support for regional power trade means that the tasks requiring support from ESMAP are likely to fall under the first of the two categories. It also means that efforts to develop regional power trade are likely to be successful. Where effective political support does not already exist, or its continued existence is uncertain, the creation and maintenance of that support may become the most important element in ESMAP's role, but even with ESMAP support, long-run success is likely to be uncertain.

Figure 1: Political Support and Institutional Development

| | | | |
|-------------------|-----------|------------------------------------|-------|
| | | Regional Institutional Development | |
| | | High | ← Low |
| Political Support | Strong | S. Africa | |
| | ↑ Weak | Mekong | |

Figure 1 offers a framework for thinking about the importance of political support and institutional development and their implications for ESMAP's role. In the figure, Southern Africa stands well up into the northwest quadrant. Regional political support was strong, and SADC provided a well-developed regional institution that already had created subordinate institutions dealing specifically with regional power issues. Within the framework of SADC, the process of creating a regional power pool was well advanced by the time the Bank became involved.

The tasks that remained, such as providing technical support for the power pool's control center, fell under the first of the categories described above. In another setting, ESMAP might have performed an important role in supporting those tasks. In the Southern African setting, the tasks evidently received adequate support from other institutions. The workshop on project financing that ESMAP did support may have been useful, but it could not be regarded as central to the purpose of creating a functioning power pool.

The Mekong region is located at the opposite corner of the figure. There is no evidence of high-level political support for regional power trade during the early years of the ESMAP project, and there still is no evidence of strong support today. The early attitude appears to have been more one of acquiescence than of support. Even today, notwithstanding the February 2000 statement of policy, power trade appears to rank below a number of other activities within the area of regional economic cooperation and integration.⁹⁸

Regional power trade institutions also are less well developed for the Mekong than for the other regions.⁹⁹ The GMS Ministerial Conference meets annually but appears to have no institutional existence between meetings and to have created no standing institutions. For the implementation of its decisions, it relies on another ad hoc body, the Senior Officials' Meeting. There is, moreover, no formal institutional link between the Ministerial Conference and Senior Officials' Meeting on one hand and the Electric Power Forum and Regional Experts Group on the other.¹⁰⁰

The result has been very slow progress. The slow pace may initially have been due to the need to create institutions – the Electric Power Forum and Regional Experts Group – and to conduct studies. Now it appears to be due to the lack of a strong drive towards regional power trade at the highest political levels. The problem now may not be so much one of overcoming political opposition as of keeping regional power trade on the active political agenda, and this task is made the more difficult by the lack of a body such as a Ministerial Conference electric power sub-committee that would have both a vested organizational interest in power trade and the ability to take effective action in support of that interest.

A major role for ESMAP and the ADB appears now to be, in effect, to serve as a substitute for such a body. The commitment of resources required by that role is not large, but it is continuing. The role is likely to end only when it can be passed to a

⁹⁸ On ADB's website, "GMS updates" gives accounts of periodic meetings of the GMS Ministerial Conference and Senior Officials' Meetings. Activities of regional economic cooperation and integration appear always to be on the agenda, but in most of the meetings, regional power trade has not been included in the activities discussed – or at least has not been included in the activities that the ADB considered important enough to include in its accounts of the meetings.

⁹⁹ ASEAN institutions are better developed. However, China is part of the Mekong region but not part of ASEAN, and in the area of power trade, the Bank and ADB have worked through the Mekong institutional structure.

¹⁰⁰ This point is discussed further in the following section.

regional body that has both the interest and the necessary influence to maintain progress towards regional power trade.

If placed in the figure, the other three regions would fall somewhere between Southern Africa and the Mekong. In Mercosur and CIER, South America started with regional institutions that were different from those of Southern Africa but at least equally well developed. Neither the Nile Basin nor West Africa began with such institutions. The Nile Basin Initiative has created strong institutions, but successful institution building in that region has been at least partly due to NBI's unique character. Regional power trade is only one part of its broader program. That program carries a political weight much greater than could be expected for a regional power trade project alone. One of the consequences of that importance has been the creation of high-level regional institutions to support the initiative.

Regional power trade institutions also have been created for West Africa. They appear still to be less well developed than those of Southern Africa or the Nile Basin. Unlike the GMS Ministerial Conference, however, ECOWAS has a permanent secretariat and has involved itself in the regional power trade project from an early point. It appears that continued development of those institutions and, more importantly, the maintenance of political support for regional power trade may be more dependent on continued outside support in West Africa than in South America or the Nile Basin.

Where the other regions outside the Mekong appear principally to differ from Southern Africa is in the political commitment to regional power trade. It is not that commitment is lacking. In Southern Africa, however, the strength and focus of the commitment had placed the region on the path to regional power trade even before the Bank become involved in the process. This did not occur in any other region.

3. The Significance of Close Links to Ministerial-Level Regional Body

A third lesson to be drawn from ESMAP's experience concerns the significance of formal links between the project and a ministerial-level regional body. An explicit connection exists for the Southern African, Nile Basin and West African projects. For all three of these projects, it is possible to draw an organization chart with lines leading from the project to the regional political body, and the record of events indicates that these links have more than a paper existence.¹⁰¹ The existing structure of CIER probably provides an effective link between the project and the regional national governments in the case of South America.

No such links appear to exist for the Mekong project. At the project level, there is an Electricity Power Forum and a Regional Experts Group. At the regional level, there is the GMS Ministerial Conference and the Senior Officials' Meeting. So far as appears, there is no formal organizational link between the project-level organizations and the

¹⁰¹ Formal links appear also to be lacking for the South America project. Because of the existing Mercosur agreements, however, this appears not to be a significant problem for that project. See note 60 above.

regional-level ones. There are, for example, no references to a power trade sub-committee of the Ministerial Conference or Senior Officials' Meeting.

As the Mekong project illustrates, progress towards regional power trade is possible without a close link to a high-level regional body. As the Mekong project also illustrates, however, that progress may be slow and may depend on continuing support from ESMAP or other outside institutions. The relevant question for this evaluation is, was this a shortcoming that might have been corrected?

Back-to-office reports and other documents are silent on this point. Possibly the silence implies that no thought was given to the problem, or the matter may have been considered but the Bank and ADB staff involved with the project may have concluded that efforts in that direction would be futile. It also is possible that the project's isolation from any high-level regional body was at least partly a by-product of the Bank's decision to give the ADB the lead in overall Mekong region activities¹⁰². Whatever the reason, the isolation appears to have carried a cost at least in terms of the rate of progress.

¹⁰² See. Babson, cited above note 74.

Conclusion

The preceding discussion has implications both for the selection of regional power trade projects to be supported by ESMAP and for the evaluation of ESMAP's performance in that support.

1. Project Selection

Two criteria appear to be appropriate for the selection of projects: that there be reasonable prospects for the successful development of power trade in the region, and that ESMAP be able to make a significant contribution to that development.

The Southern African project probably fails the second criterion. It is understandable that ESMAP agreed to support regional power trade in Southern Africa. At the time, no other regional power trade project was in prospect. For ESMAP, rejecting Southern Africa could have appeared tantamount to turning its back on a potentially important area of developing country activity.

That, however, is a one-time rationale. A prospect similar to Southern Africa is unlikely ever to present itself again. If it did, however, ESMAP probably should give it at best a low priority in allocating its resources. The Southern African Power Pool almost certainly would have begun operation without ESMAP. ESMAP's support for a workshop on project financing may have had some value, and the use of that workshop to identify issues probably added to its value. In a small program with a limited budget, however, it is questionable whether those sorts of marginal benefits are enough to justify a commitment.

In contrast to Southern Africa, there is little doubt that ESMAP's Mekong project has had a significant impact. It is likely that there would have been no movement towards regional power trade in the Mekong without the joint efforts of ADB and ESMAP. If there is a question about the selection of the Mekong project, it concerns the first criterion: that there be a reasonable prospect of success.

To date, the activity of ESMAP and the ADB in the Mekong region has yielded no concrete result and there is no assurance that it will ever do so. Moreover, the basic problem – a lack of strong regional political support – was obvious at the time and was at least implicitly noted in a back-to-office report.¹⁰³ Quite possibly it was not realized at the time just how much of an obstacle that lack of strong support would be: at the time, ESMAP's only experience with regional power trade was with Southern Africa. Nevertheless, if ESMAP had used the existence of strong political support as a screening factor in assessing proposed regional power trade projects, the Mekong project would have been rejected.

That probably would have been a mistake. ESMAP cannot operate effectively in the face of strong political opposition, but it can operate in the face of something

¹⁰³ Back-to-office report, March 21, 1997, on February 22-March 17, 1997 visits to Thailand, Lao PDR, China, Vietnam and Cambodia.

approaching benign political indifference. The lack of strong political support means that progress is slower, and it may mean that ESMAP support must continue for a number of years. It may even mean that in the end regional power trade will not develop.

However, to require certainty of success appears inconsistent with ESMAP's mission of supporting reform in developing countries' energy sector. What should be required is that the support be a gamble at decent odds: that the cost of the support be commensurate with the potential benefits and the likelihood of achieving them. The Mekong project appears to satisfy that standard. It appears likely that regional power trade ultimately will develop, and the potential benefits if it does so will be substantial. On the other side, although the ESMAP project now has continued for nearly seven years, the cumulative commitment of ESMAP resources does not appear to be very large.

2. Project Evaluation

The distinction between the two categories of activity supported by ESMAP discussed above is relevant to an evaluation of ESMAP's performance. If the success of an activity is largely determined by the input supplied by ESMAP, it is reasonable to judge ESMAP's performance by the success or failure of the activity. Of course, such a judgment requires that one know whether the activity has in fact succeeded or failed. For workshops and training, that is not possible at this point because the documents that would form the basis for such a judgment are lacking. However, the means for remedying that problem are straightforward and were noted earlier.

Evaluating ESMAP's performance in promoting effective political support for regional power trade presents a different kind of problem. Even with better documentation, the kind of relatively mechanical evaluation procedure that can be used for training programs is not suitable for ESMAP's more political role.

For the latter evaluation, there appear to be two broad alternatives. One is to evaluate one or more projects based on extensive interviews with persons involved, both at the Bank and in the region. Such an evaluation would be relatively costly but could produce results that are firmly grounded and nuanced.

The other alternative is something like the present report: an evaluation based on documents supplemented by discussions with a limited number of people. It is to be hoped that any future evaluation would be able to draw on more complete documents. However, it appears unlikely that additional documents would change the general conclusions that, in the consultant's view, can be drawn from those that have been available for this report. Those conclusions are:

- (1) ESMAP's involvement in Southern Africa probably was a mistake, but one that was understandable under the circumstances.
- (2) ESMAP's flexibility in providing funds for meetings, reports and training has made a useful contribution in South America and the Nile Basin.

- (3) The combined contribution of ESMAP and the ADB has been essential to progress in the Mekong region.
- (4) ESMAP's role in West Africa may ultimately resemble its role in the Mekong, but it is too early to assess ESMAP's contribution in the West Africa region.

Appendix 1: Terms of Reference for Evaluation of ESMAP's Trade Portfolio

General

In some countries international trade has been going on for a long time and in recent years developed further to cover power pools to facilitate such trade into a fully commercial business. Evaluations of such trading arrangements are however seldom specially when it comes to access, urban development and poverty alleviation. ESMAP has supported a number of such projects and TAG has recommended that an evaluation seems necessary. The energy sector is being transformed into more competition and privatization and this new environment create new challenges for distribution of gains, profit and governance.

ESMAP's work program is based on seven thematic areas as:

1. Energy Sector Policy and Restructuring
2. Linkages between Energy Use and the Environment
3. Promoting Access to Energy for Rural and peri-urban populations
4. Mainstreaming Renewable Energy Technologies
5. Encouraging More Energy Efficient Practices
6. Facilitating International Energy Trade

International Energy trade has been an important element in energy policy in several areas and has shown to be of increasing importance as sector reforms and restructure are on the agenda.

ESMAP needs special skill, experience and new mechanisms to transform international trade into a well function tool to fit into the priority areas as:

1. market-oriented sector reform and restructuring,
2. access to efficient and affordable energy by the un- or under-served (totaling more than two billion people), especially those in rural and peri-urban areas, and
3. **environmentally sustainable energy practices**

Aim

Mr. Means and the Technical Advisory Group (TAG), will undertake a review of ESMAP's Portfolio of projects related to the International Trade of Energy that are completed, currently underway and in the immediate pipeline.

The aim of the evaluation is to investigate the following issues and try to determine if ESMAP has gain enough insights of:

- Skill, knowledge
- Experience
- Development of necessary mechanisms
- Focusing on the right issues, institutions, political processes and the technical content

To advice, support and be an active part to promote international Energy Trade to reach one or more of the criteria above.

Some critical issues are:

- Is this an activity for which ESMAP should have a comparative advantage?
- If yes, can generic elements be developed in such a way that results can be transferred to cover special issues as access, urban development and poverty alleviation?
- Has ESMAP participation had an impact on other funding and engagement?

Level of Evaluation

This study will cover electricity and both bilateral trade on pool option are included.

Method

Stage 1.

Collect a complete list of projects including reports and written documents

Interview the Task Managers to update information and make an overview of memos, notes etc. that give insights on the development and progress of the projects

Stage 2.

Organize the documentations and prepare review for TAG

Output

Mr. Means will work closely with the TAG and assist in completing a summary (maximum 20 pages) of the findings to be presented to the Consultative Group and to the ESMAP management.

Timing and Logistics

The evaluation should be finalized by December 2003.

Appendix 2: Available Documents

This appendix lists documents that have been available for this report. The documents are broken down by project; general documents not limited to a single region appear at the end.

Within each project, the documents are divided among several categories. The broadest division of categories is between internal Bank documents and external documents. The internal documents consist of back-to-office reports and of what are referred to here as decision-making documents: documents such as proposals and budgets that would have been part of the process of determining Bank support for a project. The external documents consist of articles by Bank staff, consultants' reports, workshop materials and documents obtained from the Internet.

In addition to the available documents, the appendix also includes a few potentially useful documents that are not included in the available documents but are referenced in other documents. These documents are listed in italics.

GREATER MEKONG SUB-REGION

1. Internal Bank Documents

a. Decision-Making Documents

ESMAP Activity Proposal. Development of a Regional Electricity Market in the Greater Mekong Sub-region (probably 1996)

ESMAP Proposal Form. Regional Electricity Market (probably 1999)

ESMAP Concept Document (2003)

b. Back-to-office reports

December 18, 1996, on December 2-11, 1996 visit to Cambodia and December 12-13, 1996 visit to China

March 21, 1997, on February 22-March 17, 1997 visits to Thailand, Lao PDR, China, Vietnam and Cambodia

July 1, 1998, on June 17-25, 1998 Workshop on Power Trade Strategy in the Greater Mekong Sub-Region

December 28, 1998, on December 1-7, 1998 visit to Thailand on ESMAP Energy Efficiency project and December 8-15 visit to Thailand on Power Interconnection in the Mekong Region

February 18, 2000, on February 8-11, 2000 Workshop on “Coordination of Technical Issues” in Bangkok

February 23, 2000, on February 8-11, 2000 Workshop on “Coordination of Technical Issues” in Bangkok (apparently identical to February 18th report except for reference to attached workshop program and list of participants)

January 17, 2002¹⁰⁴, on December 13-19, 2001 meeting of the Greater Mekong Power Forum and Workshop on “Financing Issues and Role of the Private Sector” (Attachments: Workshop program, list of participants, and Work Program suggested by Regional Group of Experts for ADB and ESMAP/World Bank support)

2. External Documents

a. Workshops

Proceedings of workshop on power trade strategy in the Greater Mekong Sub-Region, Rose Garden Country Resort, Thailand, June 19-20, 1998

Proceedings of a workshop on development of a regional electricity market in the Greater Mekong Sub-Region. Workshop 1: Coordination of technical issues. Bangkok, Thailand, February 8-11, 2000 (2 vols.) (Volume 1 contains the main text; volume 2 contains reports and presentations from the workshop)

Proceedings. Greater Mekong Sub-region development a regional electricity market. Workshop 3. Financing issues and role of the private sector. Hanoi, Vietnam, December 17-19, 2001

b. Other Documents

Enrique Crousillat, Developing international power markets in East Asia, Viewpoint, Note no. 143, May 1998

Power Trade Strategy for the Greater Mekong Sub-Region (Report No. 17033-EAP, September 1998)

Power Trade Strategy for the Greater Mekong Sub-Region (Report No 19067-EAP, March 1999)

UNDP/ESMAP, Greater Mekong Sub-Region Development of a Regional Electricity Market. Technical situation of the GMS power systems (consultants report, March 2000)

Development of a Regional Power Market in the Greater Mekong Sub-Region (GMS) (ESMAP Technical Paper 015, December 2001)

¹⁰⁴ Apparently misdated as January 17, 2001.

Jean-Pierre Charpentier and Enrique Crousillat, Towards the Development of a Regional Power Market in the Greater Mekong Sub-Region (PowerPoint presentation, apparently mid-2000)

Compatibility of Regulatory Systems and Pricing Principles in the Greater Mekong Sub-Region. Final report to the expert's group on power interconnection and trade (January 2001)

Inter-Governmental Agreement on Regional Power Trade in the Greater Mekong Sub-Region (adopted by Electric Power Forum December 15, 2001)

Bradley O. Babson, Cross-Border Economic Cooperation in the Mekong Region (October 11, 2002)

Market Structure Options for the GMS Market. A First Overview of Issues and Possible Options (October 30, 2002)

c. Internet Sources

The regional power trade project appears not to maintain its own website, but the ADB website includes a section (GMS updates) with accounts of regional integration activities in general.

NILE BASIN

1. Bank Documents

a. Decision-Making Documents

ESMAP Proposal, Opportunities for International Power Trade in the Nile River Basin (late 1998?)

ESMAP Work Program Agreement, Opportunities for Power Trade in the Nile Basin (February 1999)

Workshop on Opportunities for Power Trade in the Nile Basin. Entebbe, Uganda, October 1999¹⁰⁵

Proposal to ESMAP. Concept Note for Phase 2: Opportunities for Power Trade in the Nile Basin (December 3, 1999)

ESMAP Proposal, Opportunities for International Power Trade in the Nile Basin – Phase 2 (May 2000)

¹⁰⁵ This document appears to be part of an internal Bank document justifying support for a workshop. It describes the planned workshop but does not include any workshop materials.

ESMAP Portfolio Tracking System, Opportunities for International Power Trade in the Nile River Basin (2002)¹⁰⁶

b. Back-to-Office Reports

None

2. External Documents

a. Workshops

No primary documents. See proposal for workshop listed above under Bank Decision-Making Documents.

b. Other Documents

Opportunities for Power Trade in the Nile Basin – Final Scoping Study (Norconsult/Statnett, September 2000)

Council of Ministers of Water Affairs of the Nile Basin States, Nile Basin Regional Power Trade Project Document (March 2001)

International Consortium for Cooperation on the Nile (ICCON), Nile Basin Initiative. Strategic Action Program Overview (May 2001)

c. Internet Sources

The Nile Basin Initiative maintains a website (www.nilebasin.org). Under “Sequence of Events”, the site lists the major events in the development of the Nile Basin Initiative through April 2002.

SOUTH AMERICA

1. Internal Bank Documents

a. Decision-Making Documents

UNDP/ESMAP, South America Regional Interconnection of Electricity Markets. Project Description. (probably earlier than ESMAP Proposal Form)

ESMAP Proposal Form, Regional Power Trade in South America (early 1999?)¹⁰⁷

Interconnection of Electricity Markets in South America. Terms of Reference and Scope of Services for Mercados Energeticos (Argentina). Identification, comparison and

¹⁰⁶ In the document, notes have been added from time to time. The most recent dated note is for January 29, 2002.

¹⁰⁷ There are two proposal forms, which are generally similar but differ in some details. Presumably one form superseded the other, but because neither form is dated, it is not possible to know which is the more recent.

critical analysis of different technical and institutional/regulatory issues (late 1999?)

Interconnection of Electricity Markets in South America. Phase II. Terms of Reference and Scope of Services for Mercados Energeticos (Argentina). Technical and institutional/regulatory options which could facilitate the development of electricity trade in South America (mid-2000?)

b. Back-to-Office Reports

May 3, 2000, on April 26-28, 2000 mission to CIER meeting in Montevideo (paper on regional power trading and the World Bank Group attached)

June 5, 2000, on May 24-25, 2000 mission to CIER meeting in Rio de Janeiro

December 19, 2000, on circa November-December 2000¹⁰⁸ mission to CIER meeting in Buenos Aires to review Phase II

May 10, 2001, on March 29-April 2, 2001 mission to CIER meeting in Punta del Este (summary of Phase II consultant report attached)

May 21, 2001, on March 29-April 2, 2001 mission to CIER meeting in Punta del Este

2. External Documents

a. Workshops

None

b. Other Documents

Situation in Latin America (not earlier than February 1998)

CIER-ESMAP-USDOE, Las interconexiones regionales de mercados electricos, Asuncion, 24 November 1999

CIER-ESMAP-USDOE, Las interconexiones en America del Sud. Evaluacion de las restricciones a su desarrollo y propuestas para su reduccion, Uruguay, April 26, 2000

CIER-ESMAP-USDOE, Las interconexiones en America del Sud. Proyecto CIER-03. Propuestas de desarrollo de la Fase II, Uruguay, April 26, 2000

Mercados Energeticos – PSR – Sigla, Regional Interconnection of Electricity Markets in South America Phase II (May 2000) (proposal of winning consulting firm)

¹⁰⁸ Report does not give separate dates for South American and Mekong parts of the mission.

Regional Electricity Market Interconnections in South America (Project CIER 03). Phase II: Proposals to Facilitate Increased Energy Exchanges (consultant report, n.d.)

Draft summary of first consultant report related to phase 2 of the ESMAP sponsored study of CIER (May 2001)

Regional electricity markets interconnections – Phase I Identification of issues for the development of regional power markets in South America. (ESMAP Technical Paper 016, December 2001)

Regional electricity market interconnections in South America (Project CIER 03). Phase II: Proposals to facilitate increased energy exchanges (ESMAP Technical Paper 016¹⁰⁹, April 2002)

II Taller Internacional de Interconexión Eléctrica en la Región Andina Cartagena de Indias, Colombia, Junio, 3-5/ 2002 (CIER web site posting)

II Taller Internacional de Interconexión Eléctrica en la Región Andina CIER 2002-06-14 (CIER web site posting)

Proceso de integracion y creacion de mercados regionales en centroamerica y region andina (Documento SECIER CIG&T-06-2002, Medellin, July 19, 2002)

c. Internet sources

CIER maintains a website that provides summaries of CIER-sponsored events such as conferences on regional power integration.

SOUTHERN AFRICA

1. Internal Bank Documents

a. Decision-Making Documents

Proposals to support the Implementation of the Southern African Power Pool (July 1996)¹¹⁰

World Bank Africa Regional Office, Project Appraisal Document. Southern African Power Market (June 18, 2001)

b. Back-to-Office Reports

December 18, 1996, on November 25-December 1, 1996 meeting with Management Committee of the Southern African Power Pool (SAPP)

¹⁰⁹ The December 2001 report and the April 2002 report have the same technical paper number.

¹¹⁰ This is not an ESMAP proposal. It is issued by Power Development, Efficient and Household Fuels Division, Industry and Energy Department and Water, Urban & Energy Division 1, Africa Region.

2. External Documents

a. Workshops

Proceedings of the Joint South African Power Pool and World Bank Workshop of Project Finance, Harare, Zimbabwe, May 11-12, 1997

b. Other Documents

Interconnection of the Power Systems of Malawi and Mozambique (Swedpower, June 1996).

Southern Africa Sub-Regional Strategy paper, distributed under SecM98-272, dated April 15, 1998¹¹¹

Donal T. O’Leary and Jean-Pierre Charpentier, Promoting regional power trade – the Southern African Power Pool, Viewpoint, Note No. 147 (June 1998)

Mosad Elmissiry, The Southern African Power Pool and Its Impact on Billing and Metering (2000, available on ESI Africa website)

Modeling Electricity Trade in Southern Africa (2002, available on Purdue University web site)

Power System Development Study and Operation Study (Lahmeyer International, Knight Piesold, and World Bank, December 1998).

U.S. Department of Energy, Energy Information Administration, Southern African Development Community (February 2001, available on EIA website)

SAPP Pool Plan: Report to the Planning Subcommittee by the Generation Planning Working Group (Harare July 2001).

USAID Initiative for Southern Africa FY 2002 Congressional Budget Justification Activity Data Sheet (2001, available on US AID website)

ESKOM Power Pool Rules, Version 4.0 (March 2002)

One-Year Performance of the Short Term Energy Market, April 2001-March 2002 (Dr. Lawrence Musabe, Harare, April 2002).

South African Power Pool Annual Report 2001/2002 (available on SAPP web site)

Development of Guidelines (Market Rules) for the Introduction of Independent Power Producers (IPPs) and Private Service Providers (PSPs) in the South African

¹¹¹ It is not clear from Project Appraisal Document whether this is the date of the document, the date of its distribution, or the date of “SECM98-272” under which it was distributed.

Electricity Supply Industry (ESI). Phase 1: Market Design Principles and Concepts. Final Report. (December 13, 2002)

Development of Guidelines (Market Rules) for the Introduction of Independent Power Producers (IPPs) and Private Service Providers (PSPs) in the South African Electricity Supply Industry (ESI). Phase 2: Review of the Eskom Power Pool. (Draft Report, December 16, 2002)

c. Internet sources

SAPP maintains a website (www.sapp.co.zw) that posts documents such as annual reports.

WEST AFRICA

1. Internal Bank Documents

a. Decision-Making Documents

ESMAP Proposal form. Regional Power Trade in West Africa (May 1999?)

West Africa. Development of a Regional Power Pool. Terms of Reference and Scope of Services for Consultant (mid-1999?)

Regional Electricity Trading in West Africa. ESMAP Work Plan (Revised March 7, 2001). Attached is USAID Draft Technical Assistance Plan 2001-2002)

World Bank Africa Regional Office, West Africa Power Market Development Project. Project Concept Document (July 15, 2001)

b. Back-to-office reports

June 27, 2000, on June 15-16, 2000 meetings in Abidjan

October 13, 2000, on September 25-29, 2000 meetings in Lome, Togo. (WAPP Memorandum of Understanding attached)

July 25, 2001 on July 16-20, 2001 meeting with Institutional Working Group in Abidjan (Terms of Reference for consultant and comments by consultant attached)

2. External Documents

a. Workshops

None.

b. Other Documents

Daniel J. Plunkett, Policy Challenges in the West Africa Electricity Project, African Economic Policy Discussion Paper Number 38 May 2001

Regional Integration Assistance Strategy for West Africa (Report No. 22520-AFR, July 11, 2001)

c. Internet sources

ECOWAS maintains a website, but it appears to contain no references to regional power trade.

GENERAL DOCUMENTS

Memorandum from Robert Sadove, Senior Advisor, EGY, to Yves Rovani, Director, EGY, April 17, 1985. Subject: Review of Energy Assessments and ESMAP

ESMAP Annual Report (April 1987)

ESMAP in the Nineteen-Nineties. The Findings of the Commission to Review ESMAP (October 1990)

ESMAP Work Program 1992-1993. Part II. Country Summaries (October 1991)

ESMAP. A Briefing Note (September 1992)

ESMAP Annual Report 1992 (October 1992)

ESMAP Annual Report 1993

ESMAP Consultative Group Meeting. World Bank, Washington, D.C., April 15, 1994. Proceedings.

ESMAP Annual Report 1994

UNDP/ESMAP, Development of regional electric power markets (October 1994)

ESMAP Annual Report 1995

J. P. Charpentier and K. Schenk, International power interconnections, Viewpoint, March 1995

UNDP/ESMAP, Impact of power sector reforms on international electricity trade, vol. 1 (Main Report) (January 1996)

UNDP/ESMAP, Impact of power sector reforms on international electricity trade, vol. 2 (Annexes: Case Studies) (January 1996)

- ESMAP, Status of Ongoing Activities as of March 31, 1996 (April 1996)
- ESMAP 1996 Annual Report
- ESMAP Agenda, Work Program and Budget for 1997 (April 17, 1997)
- ESMAP, Activity Proposals (March 1997)
- ESMAP, Status of Ongoing Activities as of March 31, 1997 (April 1997)
- ESMAP, Status of Ongoing Activities as of September 30, 1997 (October 1997)
- ESMAP, Status of Ongoing ESMAP Activities as of September 30, 1997
(November 1997)
- ESMAP, Status of Ongoing ESMAP Activities as of September 30, 1997
(November 1997)
- ESMAP, Status of Ongoing ESMAP Activities as of December 31, 1997 (February 1998)
- ESMAP 1997 Annual Report
- ESMAP, Status of Ongoing ESMAP Activities as of May 31, 1998 (June 1998) (revised)
- ESMAP, Energy and Development Report 2000 (April 2000)
- World Bank Institute, How to Develop Regional Power Market. A Two-Day Training Course (Washington, D.C., April 17-18, 2000)
- Handbook on Regional Electricity Trade. Per June 27, 2000 back-to-office report, the handbook is being prepared by the E7 and a first draft is available upon request.*
- World Bank, Toward a Systematic Approach to Regional Integration (Feb. 14, 2001)*
- ESMAP, Annual Report 2000-2001
- ESMAP Business Plan 2002-2004 (April 2002)
- General Documents with No Date Reference**
- Jean-Pierre Charpentier, Regional Power Markets. From Dream to Reality (1999 or later) (attached annexes briefly describe regional power projects except Nile Basin)
- Fiona Woolf, Regional Trading Issues (PowerPoint, 10 pp., no conference reference)

Appendix 3: Persons Contacted

This report is based primarily on documents, but a number of individuals have provided valuable information that has supplemented the documents and provided insights into them:

Jim Barker, Consultant
Jean-Pierre Charpentier, World Bank
Dominique Lallement, World Bank
Barbara A. Miller, World Bank
Diane Minogue, Consultant
Jan Moen, Technical Advisory Group
Alexandra Planas, World Bank
Kazim Saeed, World Bank
Ramon Sanz, Consultant

There are two notable omissions from the list of contacts. It proved not to be possible to establish contact with the World Bank staff that are currently involved with the South American and West African projects. As a result of this, and of the lack of very recent documents, the most recent events discussed in the sections on those projects are now more than a year in the past.

Appendix 4: Appendix to ESMAP's Management Reponse: Presentations at the World Bank informal workshop of January 21, 2004

Regional Electricity Market Integration in South America (by Nelson DeFranco)

1.- Introduction

The Project Regional Interconnection of Power Markets in South America has the general objective of identifying issues and to develop proposals of regulatory guidelines and institutional arrangements related to technical and commercial aspects that would facilitate the increase of regional energy trade in South America. It was designed to be carried out in 3 phases under the support of ESMAP and coordination of CIER-Comisión de Integración Energética Regional (South America Regional Commission for Energy Integration) in collaboration with the US Department of Energy and the World Bank. The first of two phases of the project were completed in May 2000 and April 2002 and published as ESMAP Technical Paper 016. Phase I studied the technical, regulatory and institutional barriers to regional energy trade, whereas phase II defined proposals for overcoming such barriers and providing guidelines for the incentive of interconnections.

Phase III has the objective of implementing some regulatory and structural options to improve the South American electrical integration recommended during phase II.

Previous studies undertaken by CIER¹¹² have determined that the regional electric integration yields an important increase in the efficiency of generation, due to the hydroelectric and hydro-thermoelectric complementarities, hourly load diversity and seasonal complementarity. Furthermore it allows an important saving in the capacity required to ensure the supply of the demand under conditions of severe drought, to meet system maximum requirements, and to face emergency situations. Reserves in the region are usually high and have often exceeded 40% of the required maximum demand. As most countries in the region are highly dependent on hydroelectricity, the region therefore can obtain large benefits with its integration.

These studies have shown that the economic value of integration is equivalent to the reduction of over 6,000 MW of installed capacity in the region, namely some US\$ 6 to 9 billion when considering the benchmarks of US\$1,000 to 1,500/Kw of a competitive hydro capable of producing firm energy at the system load factor.

From an environment point of view, the reduction of capacity requirements that would otherwise come in part from natural gas-fired generation and the possibility of considerably reducing or even phasing out production of some existing coal- and oil-fired generation would bring benefits in terms of reduction of NO_x, SO_x and GHG.

¹¹² Project CIER 02: Wholesale Markets and Interconnections, which preceded the ESMAP-sponsored Regional Interconnections of Power Markets in South America study (Phase I and II)

The promotion of energy integration in South America is therefore a high priority activity. It reduces the amount of investments required to sustain its development, increase the productivity of the capital stock and thus its return, mobilizes the resources in a productive manner and reduces risks. It also helps mitigate price volatility and generate suitable conditions for new investments.

Energy interconnection is taking place in the region, despite the regulatory and institutional barriers to trade and diverse regulations in the countries. The regulatory response of the countries has been to consider in each national market the export or the import as a demand or generation belonging to that market itself. This approach permits to keep the organization and the efficiency of each market under a trade scheme associated to its national characteristic, however it lets forgo the potential efficiency gains from a larger integration, in terms of short term exchanges (spot transactions), complementary (ancillary) services, transits among markets, and capacity support to name a few reasons.

All this notwithstanding, in a first level of integration, efficiency gains can be obtained to warrant some interconnections, utilizing such regulatory response. Along this line, it is worth mentioning the existence of the agreements among the countries of the Southern Cone and the Andean sub-region, which provide the foundations upon which the integration process can be furthered. Also some important interconnections have been built. Some recent examples are the 2,000 MW, 500kV link between Argentina and South Brazil and the 260 MW, 230 kV link between Ecuador and Colombia.

However, as the exchanges increase, it is necessary to better organize the market of such exchanges. It is not feasible to develop efficient regional transactions, if the transactions must be submitted to different, and often restrictive, requirements in each of the interconnected markets and, principally, it is not feasible to develop the required interconnections, when the private sector is supposed to promote them, if those transactions are constrained and their benefits can't be captured by the investor.

The studies already undertaken consider that, under the regulatory environment existing in the region, the sector integration among countries will be preferentially promoted by the private sector, since it does not have borders and will pursue profitable opportunities allowed by such regulations. Under the existing rules, or with minimum agreements towards convergence, an integration driven by the private sector in both the electric and the gas sectors will exist. However it does not reach the optimum level and does not resolve adequately the following issues:

- Inefficiencies due to asymmetries between countries
- Low level of optimization of the complementarities of the electric sectors
- Administrative requirements constraining system transactions when opportunities arise for ancillary services
- Higher regulatory risks for the investors because:
 - i) many of the benefits are measured as differences between these markets and then a small change in the rules of one country could be critical and its risk affects the business being developed; and

- ii) rise of forces against export, when the price for domestic consumption increases in the export market

2. The Proposed Phase III Objectives

Considering the issues identified in the first two phases, a suitable proposal for Phase III would require not only to adapt the national characteristics to the new structure of the national market affected by the interconnections, but also to organize the regional energy market, in order to achieve efficiency levels similar to those obtained at the national level.

Because of that, Phase II in particular developed guidelines for the required regulations and the necessary institutional framework in each characteristic zone and for each bilateral exchange. On the basis of these conclusions and recommendations it is highly desirable and timely to design and implement the activities needed for applying these recommendations on selected projects of the region.

Consequently, the proposed Phase III will cover:

- i) Instruments for the effective implementation of bilateral trade between countries of the Andean region;
- ii) Instruments for the effective implementation of a regional electric market between countries already interconnected in the Mercosur area.

For the bilateral exchanges, the proposal should take into account that the ultimate objective is the formation of a regional electric market, so that the rules to be established for the bilateral trade should allow a suitable transition towards a multilateral market.

3. Scope of the Phase III Activities

The scope of the activities to be developed under the envisaged Phase III can be described by the following tasks:

3.1 Instruments for the effective implementation of bilateral interconnections and trade between countries of the Andean Region

This task will comprise:

- a) Adjustments to the national regulations to facilitate the implementation of bilateral trade.
 - a.1) Prepare proposals to the governments and sector enterprises concerning the adjustments to the national regulations necessary to facilitate the energy trade in spot operations and firm contracts. The criteria to be used, in line with the studies already done, will contemplate:

- To facilitate international spot exchanges without constraints, that result in cost savings for the trading countries;
- No discrimination against agents of the countries involved;
- Reciprocity among countries;
- Respect to the contracts in accordance with the norms of each country;
- Coordination of the system dispatches of the countries to achieve the economic operation of the whole;
- Open access to available transmission capacity; and
- Respect to the general criteria of operational security, and quality and reliability of service agreed to under each bilateral arrangement.

a.2) Prepare an action plan for each country for the adjustment of the principles and regulatory norms currently in force, so that they accept or provide incentive, as the case may be, for the execution of interconnection investments, spot transactions and firm contracts. This action plan will describe the modifications needed in the current dispositions that are incompatible with the expressed market principles, while seeking to minimize the impact on the existing regulations that conform to the peculiarities of the institutions and system of each country and do not oppose those principle.

b) Interconnection agreements

b.1) Prepare proposals to the governments concerning interconnection agreements on a bilateral level, that render feasible firm interconnections as well as spot trade and firm contracts, among the countries, or proposals.

3.2 Instruments for the effective implementation of a regional electric market between interconnected countries of the MERCOSUR Region such as Chile, Argentina and Brazil

This task will comprise:

a) Proposal for a regional electric market

Prepare a proposal to the governments concerning a regional electricity market organization, elaborating Terms of Reference, the planning of the activities and budget required for the instrumentation of the regulation and the institutional set-up required in the region.

The underlining criterion will be that the implementation of such market takes place with the minimum interference and modifications in the remaining mechanisms and regulatory dispositions in force in the countries, respecting the singularities of the systems and institutions that do not interfere in the multilateral trade.

In particular, the following will be contemplated:

- Preparation of a draft agreement of a multilateral regional electric integration that complements or replaces existing bilateral memoranda of understanding and joint declarations among the countries.
 - Preparation of a draft memorandum of understanding that defines the objectives and scope, and functions of the following agencies of a regional market to be created.
 - Coordinating Commission for Regional Regulation (CRR)
 - Coordinating Commission for Regional Operation (CRO)
 - Coordinating Commission for the Commercial management of the Regional Market (CMM)
 - Preparation of the Terms of Reference of a project for the design of a regional electric market, the organizational structure, governance, coordination means of regional market agencies and its budget and implementation plan, with a degree of detail that is compatible with its use by the country authorities and sector enterprises as a basis of discussion for achieving conclusions and that also permits to move towards to the preparation of the respective operating procedures.
- b) Agenda and schedule for implementation of the regional electric market.
- b.1) Prepare a proposal to the governments, containing an agenda and a schedule for the implementation of the regional electric market.

It should carefully reflect the requirements and estimate the time for achieving coverage in regulatory matters, and accordingly establish the phases of a transition process from the existing regulations based on bilateral trade into the multilateral trade.

Evaluation of ESMAP Regional Power Trade Portfolio—Phase II Final Report – Part II-B (by Robert Means)

B. The Role of ESMAP in Promoting Regional Power Trade

The lessons that can be drawn in this report regarding ESMAP's role in promoting regional power trade of necessity are concerned with the broad structural features of ESMAP's support. It is not possible, for example, to assess whether progress in a certain region would have been faster if workshops had been conducted differently or Bank missions had conferred with different persons. Possibly conclusions on some of these issues could have drawn if more documents had been available. Principally, however, issues such as these would require a different kind of study, one based in part on extensive interviews with persons within and outside the Bank.¹

At the broader level, three lessons emerge from the present study. These concern:

- (1) The role of regional institutional and technical development in determining ESMAP's agenda;
- (2) The importance of political support and institutional development; and
- (3) The significance of close links between the ESMAP project and a ministerial-level regional body.

These lessons are discussed in the following three sections.

1. Regional Development and the ESMAP Agenda

A full agenda for ESMAP support of regional power trade would include at least the following activities:

- (1) Studies of institutions and of opportunities for trade.
- (2) Creation of technical and/or policy-oriented bodies specifically concerned with regional power trade.
- (3) Training for regional personnel.
- (4) Creation and maintenance of effective political support for regional trade.

¹ A recent example is Babson's study of cross-border economic cooperation in the Mekong region, cited above note 75. The present consultant has benefited greatly from discussions with a number of persons, which have served to place documents in context and to fill in gaps where the documents are silent. However, it has not been possible to test the views expressed in these discussions against the views of a broader range of persons, including officials in the five regions. For this reason, the conclusions of this report generally have been limited to ones that receive at least some support from the documentary record.

(5) Preparation of an intergovernmental agreement.

Regional institutional and technical development may affect that agenda in two ways. First, ESMAP support for some activities may not be needed because the activities already have been completed or are adequately supported by existing institutions. ESMAP's actual agenda in South America and Southern Africa has been much briefer than the full agenda listed above. In South America, CIER already provided a well-established regional technical body, and the existing agreements for economic integration among the Mercosur countries apparently made an intergovernmental agreement unnecessary. Those agreements probably also evidenced political support at least for economic integration in general. ESMAP support in South America therefore appears to have been largely limited to the first item on the agenda: studies of institutions and trade opportunities.

ESMAP's involvement with Southern Africa was even more narrowly focused. This was partly because its involvement before a well-defined agenda could be developed. Even if its involvement had been longer, however, it is likely that the principal and perhaps the only item on its agenda would have been support for the new Coordination Center.

The second potential effect of local conditions arises where there are wide disparities in the development of the region's national power systems. Such disparities exist in Southern Africa and the Mekong region, and in both regions, an additional item on ESMAP's agenda has been to assure the countries with less developed power systems that the benefits of power trade would be equitably shared.

2. The Implications of Political Support and Institutional Development

It is important to distinguish the success and importance of ESMAP's role in promoting the development of regional power trade from the success of that development. The importance of this distinction may be seen by comparing the development of regional power trade in Southern Africa and in the Mekong River Subregion.

The Southern African Power Pool (SAPP) is the only functioning power pool outside of Europe and North America. In the other four regions supported by ESMAP, trade has not moved beyond long-term bilateral sales, and in some regions even that trade is very limited in volume and scope. In Southern Africa, trading through the power pool began in 1999 and since then has been expanded to include short-term and hour-ahead sales. Within the universe of developing country power trade, SAPP must be counted as the outstanding success. Yet ESMAP support has made at most only a marginal contribution to that success.

Southern Africa contrasts sharply with the Mekong region. The Mekong is the oldest of the still-active regional projects. ESMAP has been involved with promoting power trade in the region since 1996. After nearly seven years, however, cross-border trade still has not moved beyond a limited amount of bilateral trade. And yet, the progress that has

occurred has depended heavily on the impetus provided by ESMAP-ADB support. There was no movement towards regional power trade prior to their involvement and apparently nothing that would have initiated that movement in their absence.

Paradoxically, therefore, ESMAP's Mekong project has been much more successful than its Southern African one. In the Mekong region, ESMAP's joint involvement with ADB appears clearly to have made a difference. Without that involvement, the movement towards regional power trade probably would not exist; with it, there appears to be a reasonable prospect that the movement will – eventually – be successful. In Southern Africa, on the other hand, it is likely that SAPP would have begun operation around 1999 even without any support from ESMAP. That support may have been useful, but if so, its usefulness probably was only at the margin.

West Africa perhaps resembles the Mekong: there is little to suggest that the development of regional power trade institutions would have begun without support from ESMAP and US AID, and the long-run prospects for that development still are uncertain. In both the Nile Basin and South America, on the other hand, ESMAP's contribution has been very useful. However, the movement towards power trade in those regions has not been solely a creation of that contribution, and the success of that movement seems, if perhaps not absolutely certain, at least highly likely.

Lying behind these differences in the relationship between ESMAP support and the success of regional power trade is an important distinction in the nature of the role played by ESMAP. For present purposes, the specific roles played by ESMAP noted in the preceding section can be divided into two categories. In one category, the inputs provided by ESMAP can largely determine the outcome of the activity it supports; in the other, they cannot.

An example of the first category is support for a survey of existing regional opportunities for cross-border trade. If the funding is adequate and the firm selected to conduct the survey is competent, a useful survey should be almost certain. A short course for the participating national utilities' technical staff generally would also fall into this category.

The prime example of the second category is the promotion of an effective political consensus in favor of regional power trade. In some regions this may not be necessary. In others, it may be the most important activity undertaken by ESMAP. Yet no possible input by ESMAP can guarantee that the consensus will be created or sustained.

This distinction is closely related to the definition of ESMAP's agenda, discussed above. The existence of effective political support for regional power trade means that the tasks requiring support from ESMAP are likely to fall under the first of the two categories. It also means that efforts to develop regional power trade are likely to be successful. Where effective political support does not already exist, or its continued existence is uncertain, the creation and maintenance of that support may become the most

important element in ESMAP's role, but even with ESMAP support, long-run success is likely to be uncertain.

Figure 1

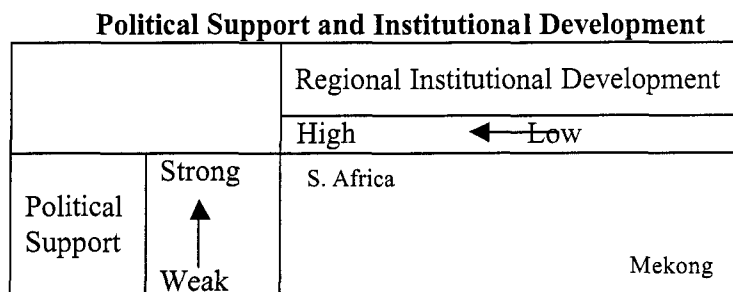


Figure 1 offers a framework for thinking about the importance of political support and institutional development and their implications for ESMAP's role. In the figure, Southern Africa stands well up into the northwest quadrant. Regional political support was strong, and SADC provided a well-developed regional institution that already had created subordinate institutions dealing specifically with regional power issues. Within the framework of SADC, the process of creating a regional power pool was well advanced by the time the Bank became involved.

The tasks that remained, such as providing technical support for the power pool's control center, fell under the first of the categories described above. In another setting, ESMAP might have performed an important role in supporting those tasks. In the Southern African setting, the tasks evidently received adequate support from other institutions. The workshop on project financing that ESMAP did support may have been useful, but it could not be regarded as central to the purpose of creating a functioning power pool.

The Mekong region is located at the opposite corner of the figure. There is no evidence of high-level political support for regional power trade during the early years of the ESMAP project, and there still is no evidence of strong support today. The early attitude appears to have been more one of acquiescence than of support. Even today, notwithstanding the February 2000 statement of policy, power trade appears to rank below a number of other activities within the area of regional economic cooperation and integration.²

Regional power trade institutions also are less well developed for the Mekong than for the other regions.³ The GMS Ministerial Conference meets annually but appears to

² On ADB's website, "GMS updates" gives accounts of periodic meetings of the GMS Ministerial Conference and Senior Officials' Meetings. Activities of regional economic cooperation and integration appear always to be on the agenda, but in most of the meetings, regional power trade has not been included in the activities discussed – or at least has not been included in the activities that the ADB considered important enough to include in its accounts of the meetings.

³ ASEAN institutions are better developed. However, China is part of the Mekong region but not part of ASEAN, and in the area of power trade, the Bank and ADB have worked through the Mekong institutional structure.

have no institutional existence between meetings and to have created no standing institutions. For the implementation of its decisions, it relies on another ad hoc body, the Senior Officials' Meeting. There is, moreover, no formal institutional link between the Ministerial Conference and Senior Officials' Meeting on one hand and the Electric Power Forum and Regional Experts Group on the other.⁴

The result has been very slow progress. The slow pace may initially have been due to the need to create institutions – the Electric Power Forum and Regional Experts Group – and to conduct studies. Now it appears to be due to the lack of a strong drive towards regional power trade at the highest political levels. The problem now may not be so much one of overcoming political opposition as of keeping regional power trade on the active political agenda, and this task is made the more difficult by the lack of a body such as a Ministerial Conference electric power sub-committee that would have both a vested organizational interest in power trade and the ability to take effective action in support of that interest.

A major role for ESMAP and the ADB appears now to be, in effect, to serve as a substitute for such a body. The commitment of resources required by that role is not large, but it is continuing. The role is likely to end only when it can be passed to a regional body that has both the interest and the necessary influence to maintain progress towards regional power trade.

If placed in the figure, the other three regions would fall somewhere between Southern Africa and the Mekong. In Mercosur and CIER, South America started with regional institutions that were different from those of Southern Africa but at least equally well developed. Neither the Nile Basin nor West Africa began with such institutions. The Nile Basin Initiative has created strong institutions, but successful institution building in that region has been at least partly due to NBI's unique character. Regional power trade is only one part of its broader program. That program carries a political weight much greater than could be expected for a regional power trade project alone. One of the consequences of that importance has been the creation of high-level regional institutions to support the initiative.

Regional power trade institutions also have been created for West Africa. They appear still to be less well developed than those of Southern Africa or the Nile Basin. Unlike the GMS Ministerial Conference, however, ECOWAS has a permanent secretariat and has involved itself in the regional power trade project from an early point. It appears that continued development of those institutions and, more importantly, the maintenance of political support for regional power trade may be more dependent on continued outside support in West Africa than in South America or the Nile Basin.

Where the other regions outside the Mekong appear principally to differ from Southern Africa is in the political commitment to regional power trade. It is not that commitment is lacking. In Southern Africa, however, the strength and focus of the

⁴ This point is discussed further in the following section.

commitment had placed the region on the path to regional power trade even before the Bank become involved in the process. This did not occur in any other region.

3. The Significance of Close Links to Ministerial-Level Regional Body

A third lesson to be drawn from ESMAP's experience concerns the significance of formal links between the project and a ministerial-level regional body. An explicit connection exists for the Southern African, Nile Basin and West African projects. For all three of these projects, it is possible to draw an organization chart with lines leading from the project to the regional political body, and the record of events indicates that these links have more than a paper existence.⁵ The existing structure of CIER probably provides an effective link between the project and the regional national governments in the case of South America.

No such links appear to exist for the Mekong project. At the project level, there is an Electricity Power Forum and a Regional Experts Group. At the regional level, there is the GMS Ministerial Conference and the Senior Officials' Meeting. So far as appears, there is no formal organizational link between the project-level organizations and the regional-level ones. There are, for example, no references to a power trade sub-committee of the Ministerial Conference or Senior Officials' Meeting.

As the Mekong project illustrates, progress towards regional power trade is possible without a close link to a high-level regional body. As the Mekong project also illustrates, however, that progress may be slow and may depend on continuing support from ESMAP or other outside institutions. The relevant question for this evaluation is, was this a shortcoming that might have been corrected?

Back-to-office reports and other documents are silent on this point. Possibly the silence implies that no thought was given to the problem, or the matter may have been considered but the Bank and ADB staff involved with the project may have concluded that efforts in that direction would be futile. It also is possible that the project's isolation from any high-level regional body was at least partly a by-product of the Bank's decision to give the ADB the lead in overall Mekong region activities⁶. Whatever the reason, the isolation appears to have carried a cost at least in terms of the rate of progress.

⁵ Formal links appear also to be lacking for the South America project. Because of the existing Mercosur agreements, however, this appears not to be a significant problem for that project. See note 60 above.

⁶ See Babson, cited above note 74.

Greater Mekong Subregion

Options for the Structure of Power Trade Market

Barry Trembath

ESMAP BBL Jan 22 2004



Background

| <i>Country</i> | <i>Population (millions)</i> | <i>GDP (\$ millions)</i> | <i>Electricity Production (kWh mil.)</i> |
|----------------|----------------------------------|------------------------------|--|
| China | 1,272 | 1,237,145 | 1,654,000 |
| Myanmar | 48 | 4,800 | 6,139 |
| Laos | 5 | 1,680 | 3,602 |
| Thailand | 61 | 126,407 | 108,418 |
| Cambodia | 12 | 3,677 | 478 |
| Vietnam | 80 | 35,110 | 35,563 |

Source: SIMA Database, ADB, CIA World Factbook, Economist Intelligence Unit

Chronology of Achievements

- 1995 Electric Power Forum established
- 2000 Policy Statement on Regional Power Trade in Greater Mekong Sub-Region
- Nov. 2002 Intergovernmental Agreement for Power Trade (IGA)
- Nov. 2003 IGA enters into force
- 2004 inception meeting of Regional Power trade Coordinating Committee (RPTCC)

Intergovernmental Agreement on Power Trade

- Establishes Regional Power Trade Coordination Committee (RPTCC)
- Principles:
 - Cooperation and mutual benefit
 - Gradualism (progressive development of regional electricity trade)
 - Environmentally Sustainable Development
- Objectives:
 - Cost minimization in planning and operation
 - Full cost recovery, equitable sharing of benefits
 - Reliable and economic electricity to all parties

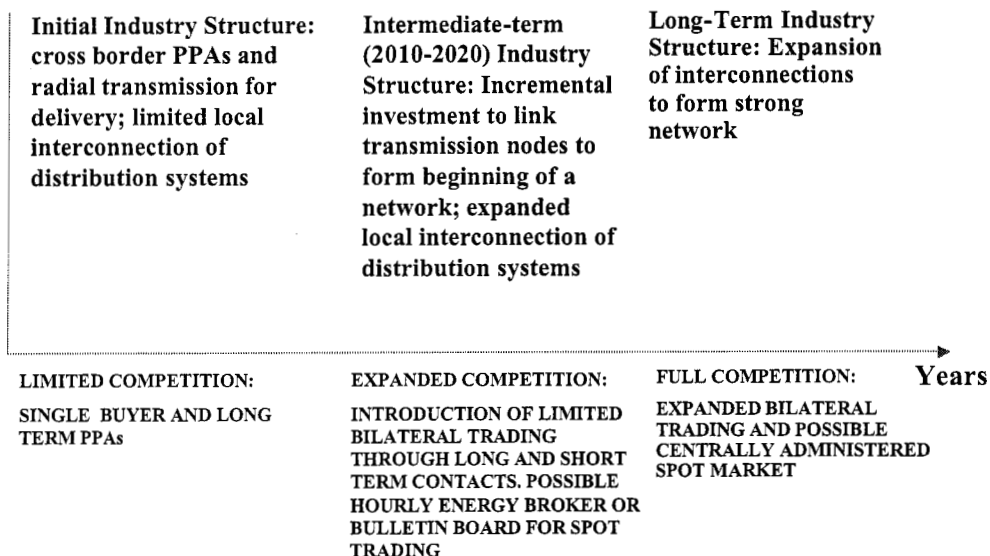
Objectives and Methodology of the ESMAP Report

- Objective: identify options for expanding power trade within the region
- Methodology: *Confidential* meetings with key decision makers to determine issues of concern
- Areas of focus :
 - General investment environment
 - Most likely cross border projects
 - Receptivity to development of uniform procedures and coordination processes

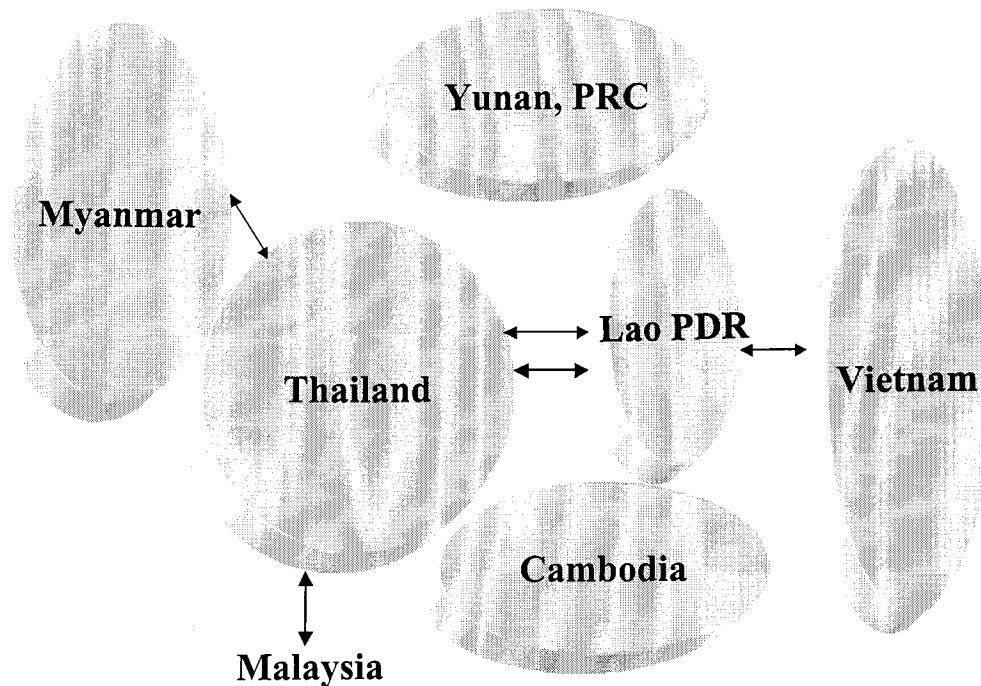
Major findings

- Regional regulation concept acceptable to stakeholders
- Uniform Guidelines are welcomed by all parties
 - government policy officials
 - transmission system operators
 - developers
- Transmission infrastructure, regional and in-country, is inadequate
- A gradual step-by-step development of the regional market is practical and desirable:
 - Initial transactions based on long term contracts (PPA)
 - Bilateral trading for short-term transactions to evolve

Evolution of regional market structures



2003 GMS Transmission Network



Transmission Infrastructure

- Transmission infrastructure is inadequate to support regional market
- New cross border lines are directly related and funded to deliver generation capacity and energy from specific projects under long term contracts
- Rules have not been established in every member country regarding which entities:
 - will build new transmission and
 - have right of access
- Uniform terms and conditions for transmission have not been established within the region

Transmission Infrastructure (Cont.)

- Recommendation:
 - Establish priorities for transmission projects
 - Identify projects which create regional network
 - Develop Pricing methodology for regional third party access
 - Institutional development study to:
 - Identify which entities may:
 - build new transmission and
 - have right of access
 - Recommend uniform terms and conditions for transmission

Regulation

- Economic regulatory agencies have not yet been established in most GMS countries
- Some countries plan to establish such entities.
- Regional regulation should be built on basis of strong domestic member country regulators

Regulation Recommendations

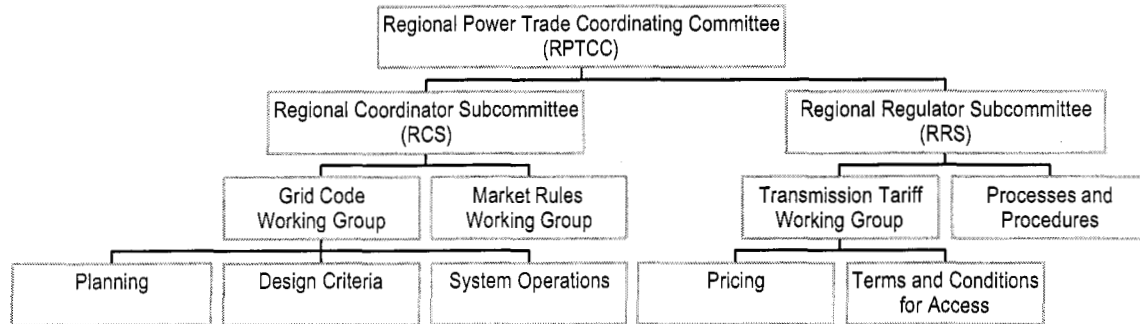
Recommendation:

- An institutional development study to support:
 - division of authority between regional and member country regulators
 - staffing and organization plan for regional regulator
 - processes and procedures
 - terms and conditions for access to and use of the regional network

Role of Regional Power Trade Coordinating Committee

- Facilitate cross-border trading before regional market has been formally designed and implemented
- Act as Project manager and ultimate decision maker
- Establish subcommittees and working groups
- Structure working groups to create “embryo” or shadow institutions
 - regional coordinator (RC)
 - regional regulator (RR)

Illustration of Implementation Organizational Structure



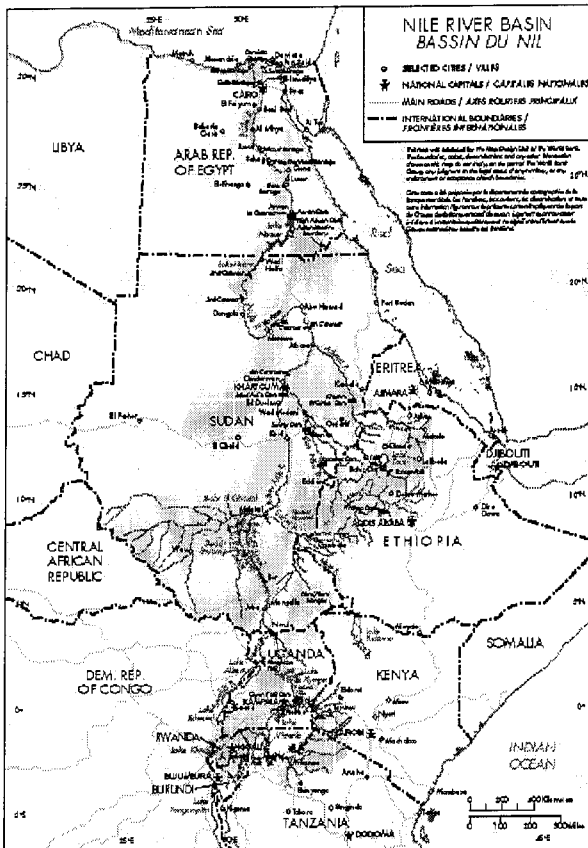
Strategy and Next Steps

- Support Infrastructure investments to expand bilateral trading
- Provide Technical Assistance for clearly defined demand-driven needs
 - Power Trade Operating Agreements (ADB)
 - Institutional Development (WB)



Nile Basin Regional Power Trade Project and Power Forum

- ✍ Overview of NBI
- ✍ Characteristics of NBI power systems
- ✍ ESMAP support
- ✍ Regional Power Trade Project



Nile Basin geography

- ✍ 10 countries: Burundi, D.R. Congo, Egypt, (Eritrea), Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda
- ✍ 300 m people
- ✍ Poverty: 4 of 10 poorest
- ✍ Climate variability
- ✍ Environmental vulnerability

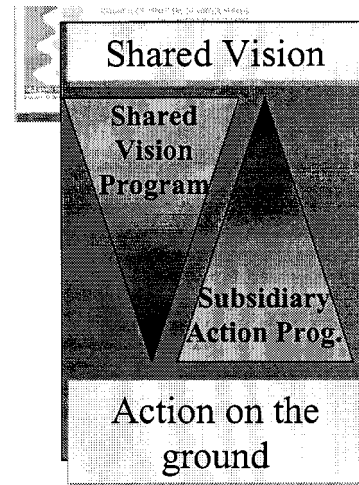
The Nile Basin Initiative

NILE BASIN INITIATIVE
Cooperation for the Development of the Nile

Shared Vision: *to achieve sustainable socio-economic development through equitable utilization of, and benefit from, the common Nile Basin water resources.*

POLICY
GUIDELINES FOR
THE NILE RIVER
BASIN STRATEGIC
ACTION
PROGRAM

- ✍ Riparian owned & managed
- ✍ Highest-level commitment
- ✍ IS NOT a new economic grouping
- ✍ IS managing/developing river; removing barriers because of river; promoting regional cooperation beyond river



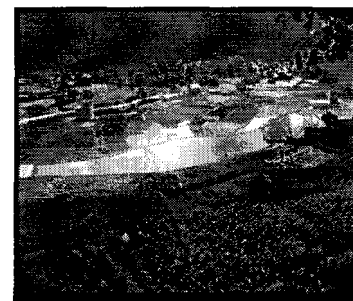
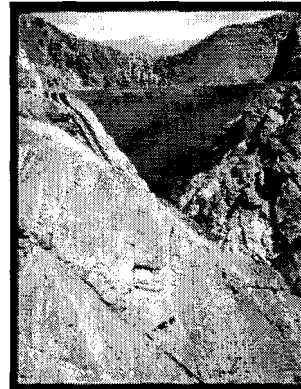
Shared Vision Program: Nile Basin management

- ✍ Basin-wide, riparian-driven, & multi-sectoral
- ✍ Transboundary 'institution' building: relationships/trust; skill/capacity; information/analysis
- ✍ Enabling environment for cooperative *development*
- ✍ Nile Basin TF: NBI-executed grants
- ✍ All roll out during FY2004

| SVP projects | \$m |
|--|------------|
| 1. Transboundary environ. action | 40 |
| 2. Regional power trade | 13 |
| 3. Efficient water use in agriculture | 5 |
| 4. Water res. planning & mgmt. | 28 |
| 5. Confidence building & stakeholder awareness | 15 |
| 6. Applied training | 20 |
| 7. Socioeconomic development & benefit sharing | 11 |
| 8. SVP coordination | |
| Total | 132 |

Subsidiary Action Programs: Nile Basin *development*

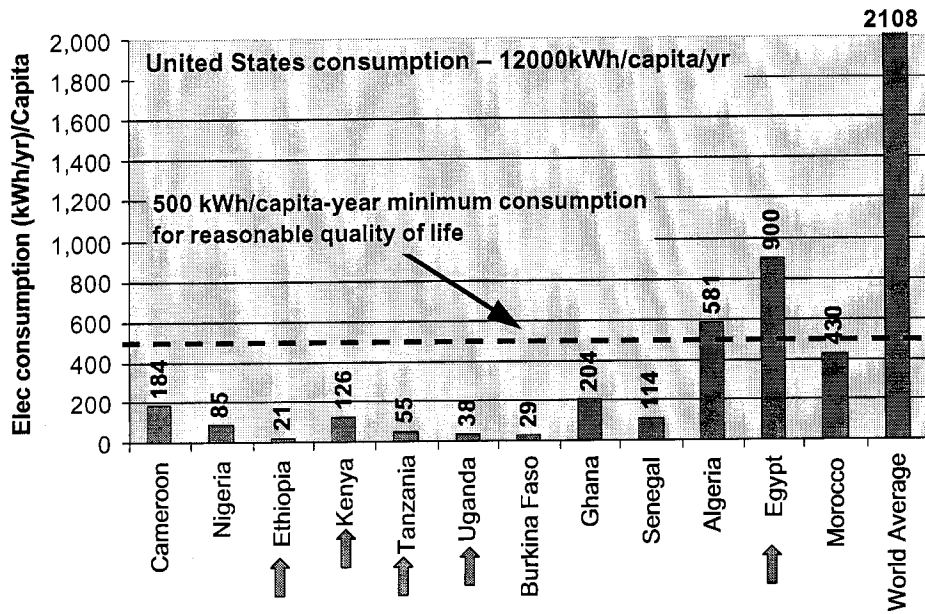
- Major *cooperative* investment programs in 2 sub-basins *agreed* by riparians
- Irrigation, power generation/interconnection, watershed management, fisheries, flood mgmt.
- Strategic social & environmental assessment & options analyses from the start
- 'High-risk/high-reward', likely including dams
- 1st phase c. US\$3bn; public & private financing
- New instruments needed for regional public good investments
- Early projects (Board FY05?): ERR + multiple cooperation objectives



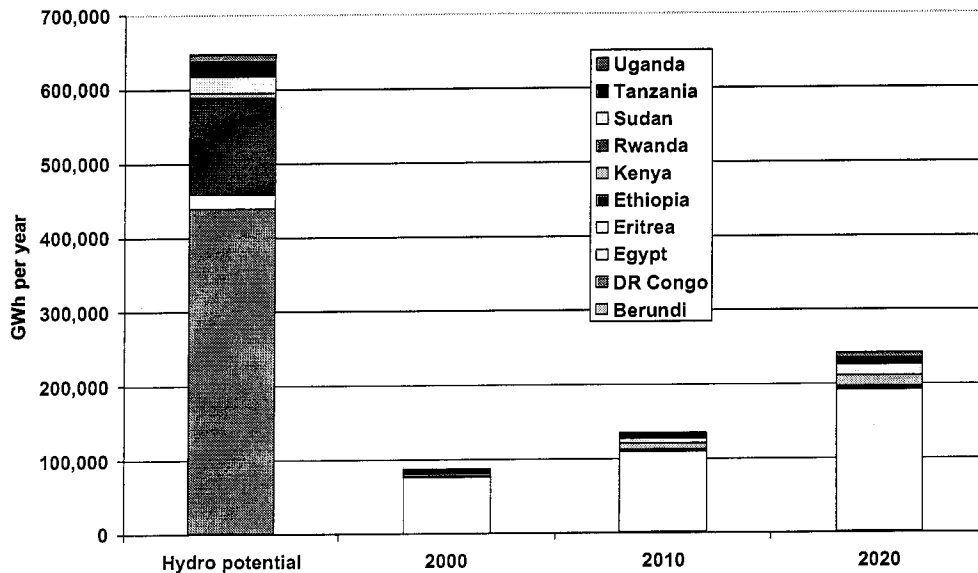
Main power sector issues/characteristics

- Limited access to electricity (<10% in most NBI countries) and unreliability of supply
- Rapid demand growth
- Diversity of resources
- Geography
- Limited cross-border electricity trade (<50 MW)
- Electricity sector reforms underway in most NBI countries

Infrastructure gap: access to electricity



Nile basin has huge potential for co-operative development of hydro-resources and increased inter-connection and trade



Direct benefits of co-operation in power sector

- **Lower energy costs**
 - Imports could be cheaper than self-generation
- **Lower investment costs**
 - Economies of scale: regional projects justify larger generation plant
 - Shared reserve margins
- **New and additional investment possible because risk can be lower in collaborative projects**
 - innovative asset ownership and financing
- **Improved reliability and security of supply**
 - Imports possible during emergency outages or periods of insufficient firm capacity (e.g. national drought)

Potential benefits to wider economy

- **Increased economic activity**
 - More reliable supplies at lower cost
- **Social and developmental benefits**
 - Increased power availability allows parallel electrification programme - urban/rural/services
- **Multi-purpose benefits**
 - e.g. irrigation, navigation, flood and drought management
- **Environmental benefits**
 - Reduction on fossil fuel dependence (e.g diesel)
- **Fiscal benefits**
 - Reduced costs, and increased space for private capital, reduce financial burden on public sector
- **Peace and regional security through economic integration**

The way forward

To be able to realise the benefits, institutional and infrastructure development must be given time and priority.

Path to a regional power market

Institutional and political framework established



Development of infrastructure:
- power lines
- generation capacity



Initial phase of trading:
- bilateral long-term contracts
- emergency support
- loaning



Secondary phase of trading:
- power pools
- spot market trading

ESMAP Role in NBI Regional Power Trade Project

- Supplied critical seed money for essential analytical work on power trade opportunities (Scoping Study)
- Supported the consultative process needed to develop the Power Trade Project
- ESMAP funds were also leveraged to generate other donor pledges (Norway, Sweden, AfDB) towards the project

The Scoping Study...

- Identified several options for increasing power trade in the region;
- Suggested evaluating power trade opportunities in the context of a broader multipurpose approach; and
- Recommended the establishment of a basin-wide power forum.

The Regional Power Trade Project

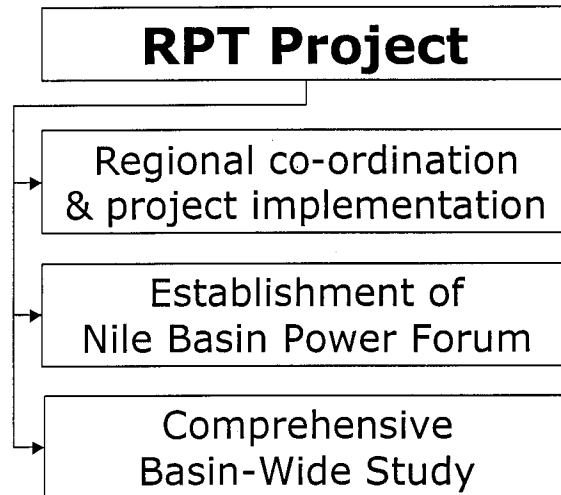
Long-Term Goal

- Improve access to reliable and low-cost power in an environmentally sustainable manner

Development Objective

- Establish the institutional means to coordinate the development of regional power markets among the Nile Basin countries

Project Components



Implemented over a four year period

Establishment of Nile Basin Power Forum

- **Establish Power Forum:**
 - Define its role & functions
 - Define long-term institutional set-up
 - Initiate Forum activities.
- **Includes following activities:**
 - Long-term planning & analytical tools
 - Training and skills enhancement
 - Financial resource mobilization
 - Conduct special studies

Comprehensive Basin-wide Study

- Study objective
 - analyze power supply, demand & trade opportunities in the region
 - in the context of multi-purpose water resources development
- Inception study to be undertaken first
 - Review previous studies
 - Data availability & data requirements
- Sequence full study to incorporate results of SAP studies and operate within funding constraints

PROJECT COST

| Component | Cost (US\$ million) |
|--|---------------------|
| Regional coordination and implementation | 4.23 |
| Establishment Power Forum | 3.40 |
| Basin-wide study | 4.50 |
| Total base cost | 12.1 |
| Contingencies | 0.93 |
| Total project cost | 13.1 |

PROJECT FINANCING

| Estimated Cost | Pledges | | Financing Needed |
|-----------------|----------|----------------|------------------|
| | Partners | Total | |
| US\$ 13 million | Norway | US\$ 4 million | US\$ 5 million |
| | Sweden | US\$ 2 million | |
| | AfDB | US\$ 2 million | |
| | TOTAL | US\$ 8 million | |

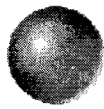
All financing through the multi-donor NBTF

Next Steps

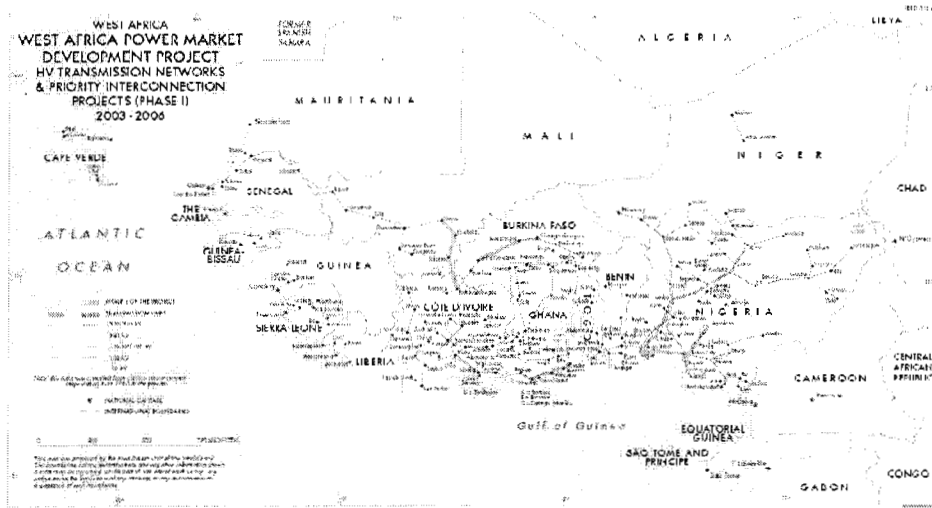
- Project effectiveness by May, 2004
- Parallel development of generation and transmission infrastructure at the sub-regional level

Key Issues and Challenges

- Realize tangible benefits, including facilitation of SAP investments
- Coordinate with other regional initiatives
- Realize benefits of NBI umbrella



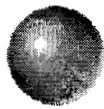
WEST AFRICA POWER POOL (WAPP)



WEST AFRICA POWER POOL (WAPP)

Main Topics

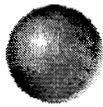
- The WAPP: Main Objective and Scope
- Main Issues Facing Africa's Electricity Sectors
- Expected Benefits
- Sample Electricity Tariffs
- Potential for Electricity Cost Reduction
- WAPP's Phased Implementation
- WAPP's Phase I Components and Schedule
- Additional Support Required



WEST AFRICA POWER POOL (WAPP)

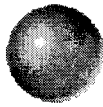
The WAPP: Objective and Scope

- Objective: Development of an efficient power market in the West Africa Region over a 15-20 year period.
- West Africa Region (ECOWAS) includes 15 countries: Benin, Burkina-Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.
- Project supported by NEPAD.



WEST AFRICA POWER POOL (WAPP)





West Africa Power Pool

Main Issues facing the West Africa Electricity Sectors

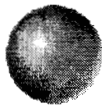
- High Costs of Electricity Impacting on Economic Competitiveness and Social Development.
- Capacity Deficit Leading to Unreliable Power Supply.
- Insufficient Regional Cooperation due to Physical, Institutional , Regulatory and Legal Constraints.
- Poor Power Sector Performance and Slow Sectoral Reforms in Participating Countries.



WEST AFRICA POWER POOL (WAPP)

Expected Benefits

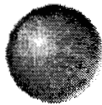
- Alleviate Poverty in the ECOWAS region through Increased Competitiveness and Social Development.
- Foster Regional Integration.
- Promote Use of Environmentally Cleaner Fuels for Electricity Generation.



WEST AFRICA POWER POOL (WAPP)

Sample Electricity Tariffs

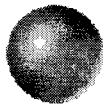
| US cents/kWh | Average Household | Social Tariff | Industrial/ Commercial |
|---------------------|--------------------------|----------------------|-------------------------------|
| Ghana | 5.1 | 3.4 | 7.4 |
| Cote d'Ivoire | 8.5 | 5.0 | 5.5 |
| Togo | 10.7 | 10.5 | 10.9 |
| Benin | 12.4 | 10.4 | 11.2 |
| Burkina-Faso | 14.9 | 13.2 | 15.9 |
| Mali | 15.9 | 12.8 | 13.1 |
| Average Europe | 8.1 | 5.7 | 8.7 |



WEST AFRICA POWER POOL (WAPP)

Potential for Electricity Costs Reduction through the WAPP

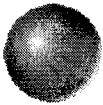
- Oil Thermal Generation in ECOWAS:8.0-10.0 cents/kWh.
- Thermal Generation Costs in landlocked countries such as Burkina-Faso, Mali, Niger:USc12-15/kWh.
- Guinea hydropotential:USc2-3/kWh. (depends on the site)
- Nigerian gas could produce at about USc3.5/kWh.
- Cote d'Ivoire could export at about USc4.0-4.5 c/kWh (natural gas).
- Generation Costs could decrease by a factor of 2.



WEST AFRICA POWER POOL *(WAPP)*

WAPP's Phased Implementation

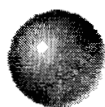
- Such pool can only be implemented in a Phased Approach, say in 4 phases over 15-20 years.
- Phase 1: 2005-2008: Enhancing regional cooperation and increase trade flows .
- Phase 2: 2009-2013: Continued extension of the regional networks and firming-up of the institutions and frameworks.
- Phase 3 and Phase 4: 2014-2020/25.



WEST AFRICA POWER POOL *(WAPP)*

WAPP's Phase I Components (2005-08)

- 1: Establishment of the institutional, regulatory, legal and regional information frameworks (\$8 million).
- 2: Capacity Building (Regional and National Levels) (\$5 million).
- 3: Commissioning of key transmission links , rehabilitation of networks, generating plans, etc. (\$250 million)
- 4: Feasibility and engineering studies of additional generation and transmission investments (\$20 million).



WEST AFRICA POWER POOL *(WAPP)*

WAPP's Phase I Preparation and Implementation Schedule (2003-2008)

- July 2003-July 2004: Technical, environmental, economic and financial studies.
- July 2004-October 2004: Project Appraisal.
- December 2004-March 2005: Boards decisions and initiate implementation.
- March 2005-June 2008: Implementation and



WEST AFRICA POWER POOL *(WAPP)*

Additional Support Required

- Support to preparation/implementation of Phase I of the WAPP currently provided by African Development Bank, BOAD, France (AFD and Ministry of Foreign Affairs), Koweity Fund, USAID and World Bank.
- Additional Support needed now to cover Capacity Building, Feasibility and Engineering Studies and Investment.

Joint UNDP/World Bank
ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)

LIST OF TECHNICAL PAPER SERIES

| <i>Region/Country</i> | <i>Activity/Report Title</i> | <i>Date</i> | <i>Number</i> |
|---------------------------------|--|-------------|---------------|
| SUB-SAHARAN AFRICA (AFR) | | | |
| Ethiopia | Phase-Out of Leaded Gasoline in Oil Importing Countries of Sub-Saharan Africa: The Case of Ethiopia - Action Plan. | 12/03 | 038/03 |
| | Sub-Saharan Petroleum Products Transportation Corridor: Analysis And Case Studies | 03/03 | 033/03 |
| | Phase-Out of Leaded Gasoline in Sub-Saharan Africa | 04/02 | 028/02 |
| | Energy and Poverty: How can Modern Energy Services Contribute to Poverty Reduction | 03/03 | 032/03 |
| East Africa | Sub-Regional Conference on the Phase-out Leaded Gasoline in East Africa. June 5-7, 2002. | 11/03 | 044/03 |
| Kenya | Field Performance Evaluation of Amorphous Silicon (a-Si) Photovoltaic Systems in Kenya: Methods and Measurement in Support of a Sustainable Commercial Solar Energy Industry | 08/00 | 005/00 |
| | The Kenya Portable Battery Pack Experience: Test Marketing an Alternative for Low-Income Rural Household Electrification | 12/01 | 05/01 |
| Mali | Phase-Out of Leaded Gasoline in Oil Importing Countries of Sub-Saharan Africa: The Case of Mali - Action Plan. (French) | 12/03 | 041/03 |
| Mauritania | Phase-Out of Leaded Gasoline in Oil Importing Countries of Sub-Saharan Africa: The Case of Mauritania - Action Plan. (French) | 12/03 | 040/03 |
| Nigeria | Phase-Out of Leaded Gasoline in Nigeria | 11/02 | 029/02 |
| | Nigerian LP Gas Sector Improvement Study | 03/04 | 056/04 |
| | Taxation and State Participation in Nigeria's Oil and Gas Sector | 08/04 | 057/04 |
| Regional | Second Steering Committee: The Road Ahead. Clean Air Initiative In Sub-Saharan African Cities. Paris, March 13-14, 2003. | 12/03 | 045/03 |
| | Lead Elimination from Gasoline in Sub-Saharan Africa. Sub-regional Conference of the West-Africa group. Dakar, Senegal March 26-27, 2002 (French only) | 12/03 | 046/03 |
| | 1998-2002 Progress Report. The World Bank Clean Air Initiative in Sub-Saharan African Cities. Working Paper #10 (Clean Air Initiative/ESMAP) | 02/02 | 048/04 |
| Senegal | Regional Conference on the Phase-Out of Leaded Gasoline in Sub-Saharan Africa | 03/02 | 022/02 |
| | Elimination du Plomb dans l'Essence en Afrique Sub-Saharienne Conference Sous Regionales du Groupe Afrique de l'Quest. Dakar, Senegal. March 26-27, 2002. | 12/03 | 046/03 |
| Swaziland | Solar Electrification Program 2001—2010: Phase 1: 2001—2002 (Solar Energy in the Pilot Area) | 12/01 | 019/01 |
| Tanzania | Mini Hydropower Development Case Studies on the Malagarasi, Muhuwesi, and Kikuletwa Rivers Volumes I, II, and III | 04/02 | 024/02 |
| | Phase-Out of Leaded Gasoline in Oil Importing Countries of Sub-Saharan Africa: The Case of Tanzania - Action Plan. | 12/03 | 039/03 |
| Uganda | Report on the Uganda Power Sector Reform and Regulation Strategy Workshop | 08/00 | 004/00 |

| <i>Region/Country</i> | <i>Activity/Report Title</i> | <i>Date</i> | <i>Number</i> |
|--|--|-------------|---------------|
| WEST AFRICA (AFR) | | | |
| Regional | Market Development | 12/01 | 017/01 |
| EAST ASIA AND PACIFIC (EAP) | | | |
| Cambodia | Efficiency Improvement for Commercialization of the Power Sector | 10/02 | 031/02 |
| China | Assessing Markets for Renewable Energy in Rural Areas of Northwestern China | 08/00 | 003/00 |
| | Technology Assessment of Clean Coal Technologies for China Volume I—Electric Power Production | 05/01 | 011/01 |
| | Technology Assessment of Clean Coal Technologies for China Volume II—Environmental and Energy Efficiency Improvements for Non-power Uses of Coal | 05/01 | 011/01 |
| | Technology Assessment of Clean Coal Technologies for China Volume III—Environmental Compliance in the Energy Sector: Methodological Approach and Least-Cost Strategies | 12/01 | 011/01 |
| Thailand | DSM in Thailand: A Case Study | 10/00 | 008/00 |
| | Development of a Regional Power Market in the Greater Mekong Sub-Region (GMS) | 12/01 | 015/01 |
| Vietnam | Options for Renewable Energy in Vietnam | 07/00 | 001/00 |
| | Renewable Energy Action Plan | 03/02 | 021/02 |
| | Vietnam's Petroleum Sector: Technical Assistance for the Revision of the Existing Legal and Regulatory Framework | 03/04 | 053/04 |
| SOUTH ASIA (SAS) | | | |
| Bangladesh | Workshop on Bangladesh Power Sector Reform | 12/01 | 018/01 |
| | Integrating Gender in Energy Provision: The Case of Bangladesh | 04/04 | 054/04 |
| | Opportunities for Women in Renewable Energy Technology Use In Bangladesh, Phase I | 04/04 | 055/04 |
| EUROPE AND CENTRAL ASIA (ECA) | | | |
| Russia | Russia Pipeline Oil Spill Study | 03/03 | 034/03 |
| MIDDLE EASTERN AND NORTH AFRICA REGION (MENA) | | | |
| Regional | Roundtable on Opportunities and Challenges in the Water, Sanitation And Power Sectors in the Middle East and North Africa Region. Summary Proceedings. May 26-28, 2003. Beit Mary, Lebanon. (CD) | 02/04 | 049/04 |

| <i>Region/Country</i> | <i>Activity/Report Title</i> | <i>Date</i> | <i>Number</i> |
|---|--|-------------|---------------|
| LATIN AMERICA AND THE CARIBBEAN REGION (LCR) | | | |
| Ecuador | Programa de Entrenamiento a Representantes de Nacionalidades Amazónicas en Temas Hidrocarburíferos | 08/02 | 025/02 |
| Mexico | Energy Policies and the Mexican Economy | 01/04 | 047/04 |
| Nicaragua | Aid-Memoir from the Rural Electrification Workshop (Spanish only) | 03/03 | 030/04 |
| Regional | Regional Electricity Markets Interconnections — Phase I Identification of Issues for the Development of Regional Power Markets in South America | 12/01 | 016/01 |
| | Regional Electricity Markets Interconnections — Phase II Proposals to Facilitate Increased Energy Exchanges in South America | 04/02 | 016/01 |
| | Population, Energy and Environment Program (PEA) Comparative Analysis on the Distribution of Oil Rents (English and Spanish) | 02/02 | 020/02 |
| | Estudio Comparativo sobre la Distribución de la Renta Petrolera Estudio de Casos: Bolivia, Colombia, Ecuador y Perú | 03/02 | 023/02 |
| | Latin American and Caribbean Refinery Sector Development Report – Volumes I and II | 08/02 | 026/02 |
| | The Population, Energy and Environmental Program (EAP) (English and Spanish) | 08/02 | 027/02 |
| | Bank Experience in Non-energy Projects with Rural Electrification Components: A Review of Integration Issues in LCR | 02/04 | 052/04 |
| GLOBAL | | | |
| | Impact of Power Sector Reform on the Poor: A Review of Issues and the Literature | 07/00 | 002/00 |
| | Best Practices for Sustainable Development of Micro Hydro Power in Developing Countries | 08/00 | 006/00 |
| | Mini-Grid Design Manual | 09/00 | 007/00 |
| | Photovoltaic Applications in Rural Areas of the Developing World | 11/00 | 009/00 |
| | Subsidies and Sustainable Rural Energy Services: Can we Create Incentives Without Distorting Markets? | 12/00 | 010/00 |
| | Sustainable Woodfuel Supplies from the Dry Tropical Woodlands | 06/01 | 013/01 |
| | Key Factors for Private Sector Investment in Power Distribution | 08/01 | 014/01 |
| | Cross-Border Oil and Gas Pipelines: Problems and Prospects | 06/03 | 035/03 |
| | Monitoring and Evaluation in Rural Electrification Projects: A Demand-Oriented Approach | 07/03 | 037/03 |
| | Household Energy Use in Developing Countries: A Multicountry Study | 10/03 | 042/03 |
| | Knowledge Exchange: Online Consultation and Project Profile from South Asia Practitioners Workshop. Colombo, Sri Lanka, June 2-4, 2003 | 12/03 | 043/03 |
| | Energy & Environmental Health: A Literature Review and Recommendations. | 03/04 | 050/04 |
| | Petroleum Revenue Management Workshop | 03/04 | 051/04 |

| <i>Region/Country</i> | <i>Activity/Report Title</i> | <i>Date</i> | <i>Number</i> |
|-----------------------|--|-------------|---------------|
| | Developing Financial Intermediation Mechanisms for Energy Efficiency Projects – Focus on Banking Windows for Energy Efficiency | 08/04 | 058/04 |
| | Evaluation of ESMAP Regional Power Trade Portfolio (TAG Report) | 12/04 | 059/04 |

Last report added to this list: ESMAP Technical Paper 059/04.
