SOUTH ASIA REGIONAL INITIATIVE ENERGY PROGRAM

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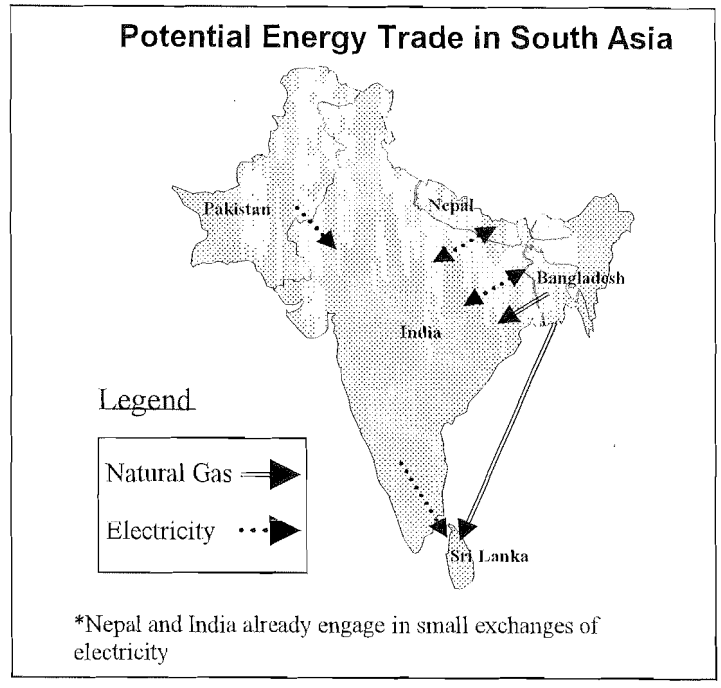
Acronyms and Abbreviations

ADB	Asian Development Bank
ANE	Asia/Near East Bureau
CIDA	Canadian International Development Agency
DA	Development Assistance
DANIDA	Danish International Development Agency
DFID	Dept for International Development (Great Britain)
EIA	U.S. Energy Information Administration
ESF	Economic Support Funds
EXIM	Export Import Bank
FSN	Foreign Service National
GBD	Government of Bangladesh
GON	Government of Nepal
IPP	Independent Power Producer
IR	Intermediate Result
KWh	Kilowatt hour
LPG	Liquified Petroleum Gas
MDB	multilateral development bank
MW	Megawatt
NEA	Nepal Electricity Authority
NER	National Energy Review
NGO	Non-Governmental Organization
NTPC	National Thermal Power Cooperation
OECF	Overseas Economic Cooperation Fund
OPIC	Overseas Private Investment Corporation
PDB	Power Development Board
PSC	Personal Services Contractor
R4	Results Review and Resources Request
SAARC	South Asia Association for Regional Cooperation
SAFIR	South Asian Forum for Infrastructure Regulators
SAGQ	South Asian Growth Quadrangle
SARDI	South Asia Regional Development Initiative
SARI	South Asia Regional Initiative
SARI/Energy	South Asia Regional Initiative/Energy Program
SAP	Strategic Action Plan
SEB	State Electricity Board
SO	Strategic Objective
TA	Technical Assistance
Tcf	trillion cubic feet
USAEP	U.S. – Asia Environmental Partnership
USAID	U.S. Agency for International Development
USG	United States government
USIS	United States Information Service

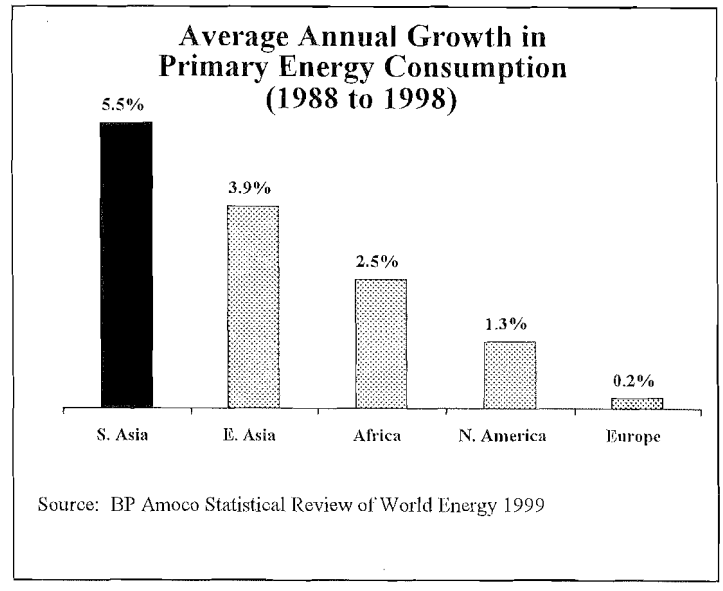
EXECUTIVE SUMMARY: SOUTH ASIA REGIONAL INITIATIVE: ENERGY STRATEGY

I. Overview

The most compelling argument for a South Asia Regional Initiative (SARI) Energy Program lies in the fundamental energy dynamics in South Asia: India now relies on poor quality domestic coal and represents a large and rapidly expanding market for energy; Sri Lanka needs to import more fuel or power. Bangladesh and Nepal could realize significant economic benefits from the development and export of clean energy (natural gas and hydroelectric power), and Pakistan's economy would benefit from both energy imports and exports. Some limited exchange of electricity already occurs between Nepal, Bhutan and India. Supporting and encouraging more robust trade in energy will have far-reaching economic, development and security benefits



South Asian countries need capital and energy to accelerate economic growth and improve the lives of their increasing populations. These needs are intertwined. Reliable energy supplies are a key element in attracting capital investment to South Asia. While the energy resources exist, their development, efficient distribution and utilization require cooperation and expanded trade among the countries of the region. Cooperating effectively to develop energy resources for mutual benefit will also attract the considerable investments required for economic growth. Taken together, these measures will help to promote sustainable development and minimize the associated growth in greenhouse gas emissions from South Asia as a whole.



Policy reforms supported by SARI/E will be fundamental in helping to reduce the long-term threats to the world's environment from global climate change. Under this initiative, economic restructuring and democratic decision-making will support the creation of a policy and regulatory environment that ensures fairness and equity while introducing incentives for environmentally and socially sound trade and investment. Policy reforms, therefore, will encourage decentralized decision-making among participating countries.

II. SARI Energy Program

USAID has focused one element of the South Asia Regional Initiative (SARI) on energy development and encouraging the cooperation and eventual trade in energy resources among the South Asia countries. Achieving this objective will require firm commitments by the governments in the region, through national policies and international agreements, to support cross-border cooperation in energy and to mobilize critical private sector capital, technology and management expertise.

The SARI Energy program will serve as a vehicle to bring together energy sector players from both public and private sectors across the region to discuss and resolve issues that impede cooperation and investment in energy development. Program support will help countries develop the appropriate policy, regulatory and investment environments that will encourage private sector investment. Program support is designed to catalyze and facilitate a long-term process of rationalizing energy supply and distribution across the region, including the development of the cross-border infrastructure and market mechanisms that will be required for eventual trade in electricity, natural gas and other energy resources.

USAID plans a two-phased program, with phase one lasting for four years with an estimated budget of $34 million. Discussion of a possible second phase to the program will be initiated once the first phase is underway. The program's first phase will begin in the first quarter of 2000, and work to:

- Improve the institutional capacity to make decisions in sustainable energy development;
- Promote private sector participation in, and civil society support for, energy development; and
- Create and/or strengthen regional forums, networks and associations for cooperation and advocacy on energy development.

By promoting cooperation that builds on mutual economic interest, the program can help ease political tensions in the region and build confidence between countries, as well as promote the use of clean energy technologies to reduce greenhouse gas emissions.

III. Illustrative Activities

Build Institutional Capacity

Activities will focus on exchange of best practices in energy reform by strengthening institutional capacity within governments, regulatory bodies, utilities, NGOs, and the private sector through discrete events such as training workshops, seminars, formal courses, and study tours. These

events will include participants from across the region, and be held at multiple sites thereby encouraging the formation of formal and informal networks among the region's professionals. Illustrative topics include international practices regarding contracts and guarantees, jurisdiction and roles of independent regulatory bodies, gas pipeline and power transmission access agreements, and energy pricing and tariff determination. The program can also support various kinds of analyses that contribute to the body of knowledge needed to make decisions on energy trade. This includes building capacity to use analytical tools to undertake energy-economic-environment analyses necessary for policy making and planning.

Promote Private Sector and Civil Society Participation in Energy Policy

Effective and efficient energy development requires close cooperation with the private sector. The program, through USIS and other outreach and advocacy mechanisms, can provide technical and coordinating assistance to private sector players in the region, particularly local groups, to become strong champions of cooperative energy development. For example, the program can facilitate networking between local and American businesses and draw upon statistical and anecdotal information to help influence governments in energy sector reform, privatization and regional trade in energy. The program can also support information-based dialogue among non-governmental organizations (NGOs) the private sector and government to assuage concerns related to energy sector reform, privatization, and foreign investment in the energy sector.

Create and Strengthen Regional Forums, Networks and Associations

The program will encourage the formation of regional forums, networks, partnerships, and associations that can influence politicians and decision-makers on energy concerns. Illustrative types of professionals and sectors the program will target include government technocrats, energy professionals, environmentalists, journalists, utilities, regulators, trade and industry associations, and NGOs. For example, the program can support the formation of a network of government technocrats from around the region through which they can exchange ideas, successes, and problems. Similarly, the program can support utility and regulatory partnerships across borders within the region, and the networking of public and private sector stakeholder groups around discussions of sustainable energy issues.

IV. Illustrative Budget

Illustrative SARI Budget	2000	2001	2002
Development Assistance Funds	$5,000	$7,000	$7,000
Economic Support Funds	$5,000	$5,000	$5,000
Total	**$10,000**	**$12,000**	**$ 12,000**

V. Program Management

USAID plans to place a program coordinator in the region to oversee program implementation. S/he will be assisted by at least one staff person in each country (initially we will postpone hiring a local staff person in Pakistan). Each local staff person will serve as the country program manager. Additional local and U.S. staff will be hired as needed, depending on the level of activity in a particular country.

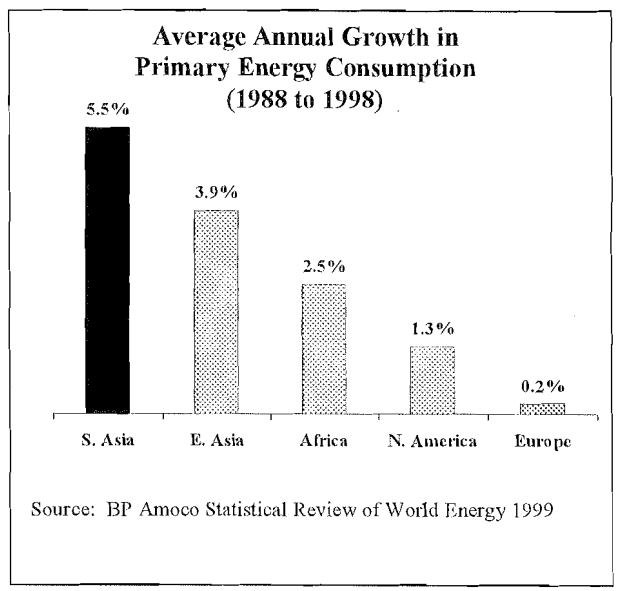
Overall program direction will be defined by a team composed of USAID and State representatives from each participating country and headquarters offices, and led by a representative from USAID's Washington office. This team will provide guidance and direction regarding the types of activities the program will fund, and consult with stakeholders in the host countries and in Washington. All team members will participate in the development and approval of specific scopes of work and serve on review panels to select the contractors or grantees.

USAID will host two annual reviews of the workplan, budget, program and activity performance in order to make adjustments to the changing situation in the region. Key host country counterparts will be invited to these reviews to solicit their input and to help forge effective intra-regional working relationships between the countries.

I. A REGIONAL APPROACH TO ENERGY DEVELOPMENT

A. Overview

Economic and population growth in South Asia have resulted in rapid increases in energy consumption in recent years. The U.S. Energy Information Administration (EIA) estimates that South Asia's primary energy consumption from commercial energy sources increased by around 50% between 1990 and 1997.[1] The countries have been unable to keep up with this rapidly rising demand. Shortages of commercial energy are manifest through frequent, costly and widespread electricity outages. Given this situation, improving the supply of energy is a major concern among regional governments. Greenhouse gas emissions are also an issue for the countries of the region.



To increase available energy for domestic consumption, South Asian countries must diversify their traditional energy supply sources. They should promote additional foreign investment for energy infrastructure development, improve energy efficiency, reform their energy sectors, and expand regional energy trade. To contribute to economic growth, countries with the available resources should expand their export of energy. Providing sufficient energy for economic growth is a major challenge, and creates incentives for South Asian countries to develop a common vision of cooperation in energy issues.[2]

United States government bilateral assistance, as well as aid from other donors, is contributing to energy sector reform in each country. However, to fully realize economic gains from energy sector development to meet their energy needs, and to benefit in South Asia from best practices, countries must look outside their borders. Conversely, to effectively cooperate on energy matters, countries must improve the performance of their domestic energy sectors. To help countries realize the gains from regional cooperation, USAID has designed the South Asia Regional Initiative/Energy Program (SARI/Energy).

[1] Commercial energy sources excludes animal waste, wood, or other biomass, which accounts for more than half of the South Asia's total final energy consumption.
[2] See Annex B for an overview of the state of energy development in South Asia.

SARI/Energy will serve as a vehicle to bring together energy sector players from the region to share experiences and lessons learned, and discuss ways to cooperate on energy matters, as well as bring together relevant actors within the USG. USAID's support is designed to catalyze and facilitate a long-term process of rationalizing energy supply and distribution across the region. Through the SARI/Energy program, USAID will help set the groundwork for the development and improvement of policies and agreements for cross-border cooperation, and eventually trade, in energy. This will be achieved through work to:

1) Create institutional capacity to make decisions supporting sustainable energy development;
2) Increase private sector participation in, and civil society support for, energy development; and
3) Create and/or strengthen regional forums, networks and associations for cooperation and advocacy on energy development.

These efforts will lead to an enhanced understanding of the perceptions and concerns of the various participating countries, and engender mutual trust and confidence in the region. The SARI/Energy program will complement and enhance the effectiveness of the bilateral mission programs in India, Bangladesh, Sri Lanka, and Nepal, and would involve Pakistan through the U.S. Embassy. If it becomes appropriate for select activities to involve all SAARC countries, Bhutan, and the Maldives may also participate on a limited basis.

Furthermore, by encouraging intra-regional cooperation and trade in sustainable energy development, SARI/Energy will expand U.S. investment and export opportunities, and help to address climate change concerns. Policy reforms, supported by SARI/E will be fundamental in helping to reduce the long-term threats to the world's environment from global climate change. Under this initiative, economic restructuring and democratic decision-making will support the creation of a policy and regulatory environment that ensures fairness and equity while introducing incentives for environmentally and socially sound trade and investment. Policy reforms, therefore, will encourage decentralized decision-making. Realizing cross-border cooperation in a region noted for state-owned and inefficient utilities, complex bureaucracies, corruption, and a historical lack of cooperation between countries will require a regional approach aimed specifically at creating relationships, networks, partnerships, institutes and trust that will continue after SARI/Energy ends.

SARI/Energy will be a two-phased program, beginning in FY2000. Phase I will last up to four years, with a total estimated budget of $34 million.[3] Phase II will be contingent upon the experience of Phase I. The SARI/Energy program should be viewed in the context of the larger South Asia Regional Initiative (SARI), a USAID-led effort designed to promote regional stability. The U.S. has a vital interest in helping stabilize the region, both in terms of eliminating the potential for armed conflict that can have global impact, and integrating this significant region into the growing global economy. SARI includes three overlapping and mutually reinforcing components: regional economic integration, equitable economic growth, and a third cross-cutting component—measures that build and strengthen the confidence among governments and peoples in the region. The elements that compose SARI are in various stages of development. SARI/Energy will form the

[3] Funding will be provided from both Development Assistance (DA) and Economic Support Funds (ESF).

centerpiece effort to strengthen private sector relationships and economic cooperation between countries.

B. Opportunities and Constraints for Regional Cooperation and Trade in Energy

Cooperation and trade in clean energy offers great potential for advancing sustainable development across the South Asian region, and significant investment opportunities for domestic and international private companies. South Asian countries share a common set of root causes behind their inadequate, inefficient, and polluting energy sectors, including:

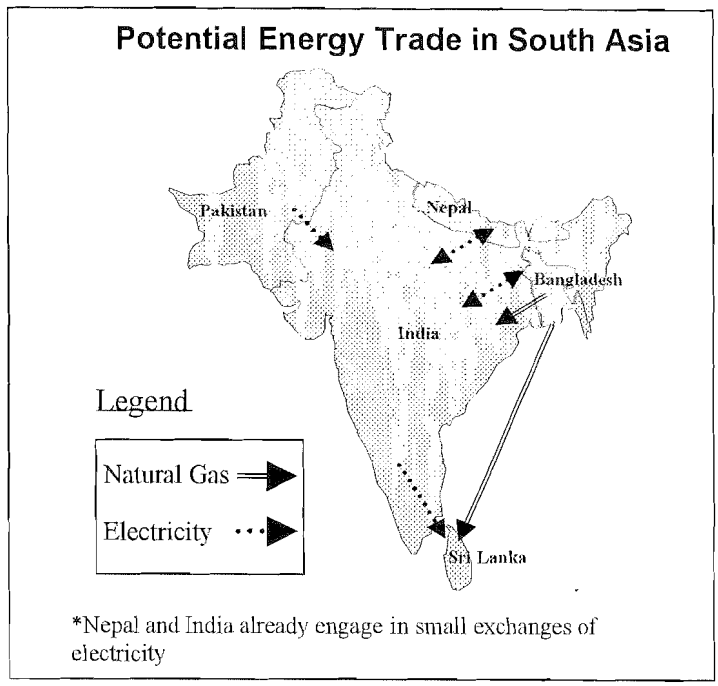
1) Over-reliance on state management and control of the economy, especially the energy sector.
2) Limited separation of policy, regulatory, and operational functions.
3) Failure to operate the energy sector on a commercial basis, by treating energy as a public good to be subsidized rather than as a basic economic commodity whose prices must cover costs, and where billings must be accurately metered and fully collected.
4) Operation of all three components of the energy sector — generation, transmission, and distribution — under one enterprise, which diminishes incentives for efficiency.
5) Over-emphasis on the quantity of energy while overlooking its quality, especially in the context of the environmental and social impacts, as well as in the technical areas of voltage, frequencies, and harmonics.
6) Long-standing regional conflicts and animosities that prevent robust intra-regional trading relationships, especially in energy commodities.

They also share several common objectives in developing their energy sectors, some of which are to:

1) Reduce energy infrastructure bottlenecks to support economic growth;
2) Increase access to gas and electricity;
3) Improve efficiencies of both supply and use of energy; and
4) Develop institutional capacity for improving the technical and financial performance of the sector.

Regional cooperation and trade in energy can hasten and enhance the achievement of those objectives. Cooperation and trade can lead to several benefits, including improved security of energy supply, reduced environmental impact, and the possibilities of advancing reforms and energy efficiency.

India is a huge market for energy, Sri Lanka needs to import more power, Bangladesh and Nepal will benefit from becoming major exporters of clean energy, and Pakistan can benefit from both energy imports and exports. Vigorous trade in gas from Bangladesh to India and hydropower from Nepal and Bhutan to India will provide mutual benefits. India is a willing buyer of clean energy, and a small amount of hydropower export is already occurring from Nepal and Bhutan to India.[4] The potential exists for much more trade, once the right skills and policies are in place with both buyers and sellers. Both private sector and government counterparts agree that the technical necessities of trade, such as transmission lines, synchronization of transmission systems and uniform voltages, will rapidly be supplied once governments remove legal, regulatory, policy, and market barriers.



The barriers to cooperation and trade are complex and interrelated, involving the history of the sub-continent, current politics, a lack of public or private financial resources, and the need for power sector reform and market development.

- Countries in the region fear financial, cultural and economic domination by India, and are concerned that they cannot successfully protect their interests against India. The recent proposed sale of 300 MW of Pakistani power to India fell through not only because of political tensions in Kashmir, but also because pricing could not be resolved. Pakistan insisted that the tariff should be around 7 cents per kilowatt-hour, while India was prepared to pay 3 to 4 cents. Despite belief by the energy industry that Pakistan's price was too high due to its inefficient generation of power, several countries in the region view the failure to close the deal as a result of India's refusal to offer a fair price.
- Although India is the primary market for Bangladesh's gas, Nepal's hydropower, and Pakistan's electricity, these countries question the creditworthiness of Indian institutions that would buy the power and gas. Many of India's State Electricity Boards (SEBs) are bankrupt, and are propped up only by central and state government resources that make up for the financial losses resulting from subsidized electricity prices and the SEB's inability to appropriately bill and collect fees.

[4] Nepal is a net importer of electricity from India, rather than a net exporter. Furthermore, the transactions to date between these two countries have been through exchanges, rather than the sale, of electricity.

- India's preference to deal with its neighbors on a bilateral basis has hampered regional cooperation in energy. Given its geographical, military, economic, and political weight vis-à-vis the other South Asian countries, India believes its interests are better served by dealing with the countries one by one rather than simultaneously on a regional basis.[5]

A regional energy development program can build the trust and confidence among countries that helps reduce these barriers. While Pakistani-Indian and Bangladeshi-Indian relations are strained at the political level, discussing shared problems and finding solutions on a technical level could help build cross-border networks that can ultimately influence political decisions bearing on trade. Furthermore, energy development is one path that can help influence the overall commercial environment for trade in general, as well as contributing to a stable political environment.

C. Why a Regional US Government Program

The USG, working primarily through USAID, has been a key player in promoting sustainable energy development in South Asia on a bilateral basis, and can be increasingly influential in the future. USAID's engagement in the energy sector not only promotes sustainable development in the region, but also contributes to U.S. national interests in the region. SARI/Energy can help to: 1) ease political tensions in the region and build confidence between countries by promoting cooperation in an area in which countries have an economic interest to collaborate; 2) promote the use of clean energy technologies to reduce greenhouse gas emissions; and 3) increase opportunities for U.S. private investment.

USAID has a strong presence in the region, with missions in four of the five principal target countries, extensive expertise in energy sector reform, and a proven ability to work with public, private, and NGO stakeholders. The long-standing energy program in USAID/India and the new energy program being launched in USAID/Bangladesh are important components to successful regional cooperation in energy. These programs target energy sector reform, restructuring and institutional strengthening, private sector participation, economic competitiveness, efficiency improvements, expanded access to energy services, and the environmentally sound development of natural resources.

The USAID/Nepal program, although not as large as the others in financial terms, focuses on helping government institutions better manage private sector investment in hydropower. Although the program's emphasis is on small-to medium-scale projects for domestic consumption, it has wider implications for large-scale private development that will affect clean energy use throughout the region. The mission in Sri Lanka is supporting a U.S. Energy Association Utility Partnership being launched through the joint effort of the mission, USAEP, and the Global Bureau. In all five of the principal SARI target countries, governments are aware of the need for energy sector reform and private sector participation (sometimes including privatization), and have begun to encourage both in varying degrees.

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[5] Discussion of specific barriers to India-Bangladesh trade in natural gas and India-Nepal trade in hydropower is provided in Annex C.

This is a strategically opportune time to overlay a regional component onto country-specific programs, taking advantage of the existing foundation of nascent reforms. A regional approach will augment the progress already underway by sharing the problems, experiences and successes of key energy development institutions and players in both the public and private sectors across the region.

A regional program can extend beyond the reach of country-specific programs in several ways.

- USAID will be better able to deal with cross-border issues and concerns that cannot be effectively dealt with on a bilateral basis, or that might not be included in the separate bilateral assistance programs. Some countries will have less incentive to proceed with reform or further investments unless their neighbors do so, because the investments could be wasted. For example, large-scale investments in hydropower in Nepal are only economical if barriers to energy trade with India are overcome.

- It may be more palatable for countries that do not work well together bilaterally to come together as a part of a larger, regional group, particularly if the early discussions are taken out of the political arena to a technical level.

- The potential for a "copy-cat" effect exists if one country achieves successes that others want to emulate, which can occur more quickly if players from various countries come together in regional forums or networks. Likewise, the effect of a having a support group may encourage reformers in a hold-out country.

- Economies of scale can be achieved by working regionally, as resources can be used more efficiently and cost effectively when applied to the same purpose across the region, reaching more players with each activity. World-class consultants in power sector reform and privatization, e.g., from Latin America, can be brought to the region for short periods to assist people from several countries at once. This has the added benefit of bringing technical colleagues together to think about common problems.

- Regional institutions can serve as effective partners in promoting the initiative's objectives. Although SAARC has not yet lived up to its expectations, its recent reorganization and new interest in regional energy issues may be a key opportunity for it and for USAID.

- A regional program provides the strategic framework for doing work in a non-presence country. Pakistan, as well as Bhutan and the Maldives may be able to make important contributions to regional energy objectives.

- A regional approach brings together public and private sector energy sector players from neighboring countries, building regional partnerships and networks that promote trust, confidence, and an understanding of one another's issues, and providing opportunities for countries to work together to solve energy-related problems. Later in the initiative, when regional cooperation is heightened and the necessary building blocks are in place, the initiative can more directly target increased cross-border trade.

Furthermore, from a technical standpoint, a regional program can better address the issues of integrated grids, which would increase the reliability of any one country's system and increase the resilience of the entire regional system to natural or man-made disasters. An integrated grid system also increases the market potential for energy, which will attract greater private sector investment.

Finally, until commercial energy systems play a greater role in the economies of the South Asian countries, current patterns of energy consumption, especially in the use of firewood and cow dung for cooking and heating purposes, will continue to damage the health of women and children and harm the environment. Women also spend significant amounts of time collecting traditional fuels, at the expense of being able to earn additional income for their families. The environmental impacts of unsustainable use of traditional fuels impose an additional burden on women, e.g. through longer treks for fuel and scarcer food and drinking water supplies as a result of flooding, droughts etc. from over-harvesting biomass.

Both domestic and foreign private sector firms have been watching South Asia closely for progress in reforms and policies that will encourage private sector investment in energy. Current investor interest is cautious, despite the enormous market for energy in India coupled with the enormous hydropower potential of Nepal and Bhutan, and natural gas reserves of Bangladesh. In all the countries, the time is ripe for increased USG attention and assistance on a regional level, (including Pakistan when this becomes appropriate.) All governments have undertaken some reform, and many public and private parties have expressed interest in exploring links that will help develop their own energy sectors and meet domestic demand.

Social Issues for Energy Sector Reform

As regional program, SARI/E can provide a forum to address social issues connected with energy sector reform. In many countries energy provision is considered a social good, which is the state's proper role to insure. Privatization in the energy sector does not necessarily preclude achieving these social goals, but their continued provision must be built into the design of any reform. Energy sector reforms should not overlook the issue of equitable access to energy services. This should be insured by proper planning for expansion of services to unserved populations, through grid expansion and through rural electrification. Limited transparent subsidies, such as lifeline rates, can ensure that those who genuinely cannot afford to pay can still receive a minimum electricity supply. Privatization schemes should not be blind to the possibility that workers will be displaced in a more efficiently run sector. Plans should include provisions to address legitimate worker concerns. On the positive side, energy and economic growth are closely related. Increasing energy services can provide people an opportunity to escape poverty that simply is not otherwise available. Although some workers might be displaced, economic opportunities for the effected population will increase. Finally, health risks associated with air pollution are real, and not localized. Although hard to quantify, a cleaner energy supply will have a positive effect on the health of the people across the region, as well as reducing problems associated with greenhouse gases.

II. STRATEGIC FRAMEWORK AND OBJECTIVES

A. Goals and Objectives

The countries of the region must enter into mutually beneficial arrangements that will allow them to meet their domestic energy needs. To reach a significant level of cross-border cooperation, which ultimately will result in regional trade in energy, several things must occur. Countries must insure their domestic availability of energy before they will seriously consider export. They also require the physical infrastructure, including cross-border pipelines and connected grids for electricity transmission. Lack of infrastructure is a minor barrier however, compared to the market, policy, legal, and regulatory requirements for trade. To meet these requirements, each country must undertake reforms to improve the performance of their energy sectors, including work to unbundle utilities, rationalize pricing policies, adopt transparent regulations, and create regulatory bodies independent of political interference. These reforms will lead to increased and sustained private investment in the energy sector, and increased efficiencies in the generation, transmission, distribution and use of energy. USG bilateral and other donor assistance is addressing several of these needs.

In addition to sufficient supply, infrastructure, and market mechanisms necessary for trade in energy, governments must demonstrate commitments, through national policies and international agreements that support cross-border cooperation in energy. Because USAID's comparative advantage is in providing technical assistance and training to effect policy change, the strategic objective of the SARI/Energy program is:

Strategic Objective:

Improved policies and agreements for cross-border cooperation on sustainable energy.

Towards this end the SARI/Energy program will build upon processes already underway on reform and engage governments, the private sector, and civil society groups in South Asia to work on a regional level to advance sustainable energy development. A regional approach will accelerate progress by fostering cross-border dialogue and the exchange of ideas, creating and strengthening champions for reform, and building trust and confidence. Given the steps necessary to create an environment in which South Asian countries can cooperate on energy matters and eventually trade energy, the SARI/Energy program will promote sustainable regional development through achievement of the following intermediate results:

Intermediate Results:

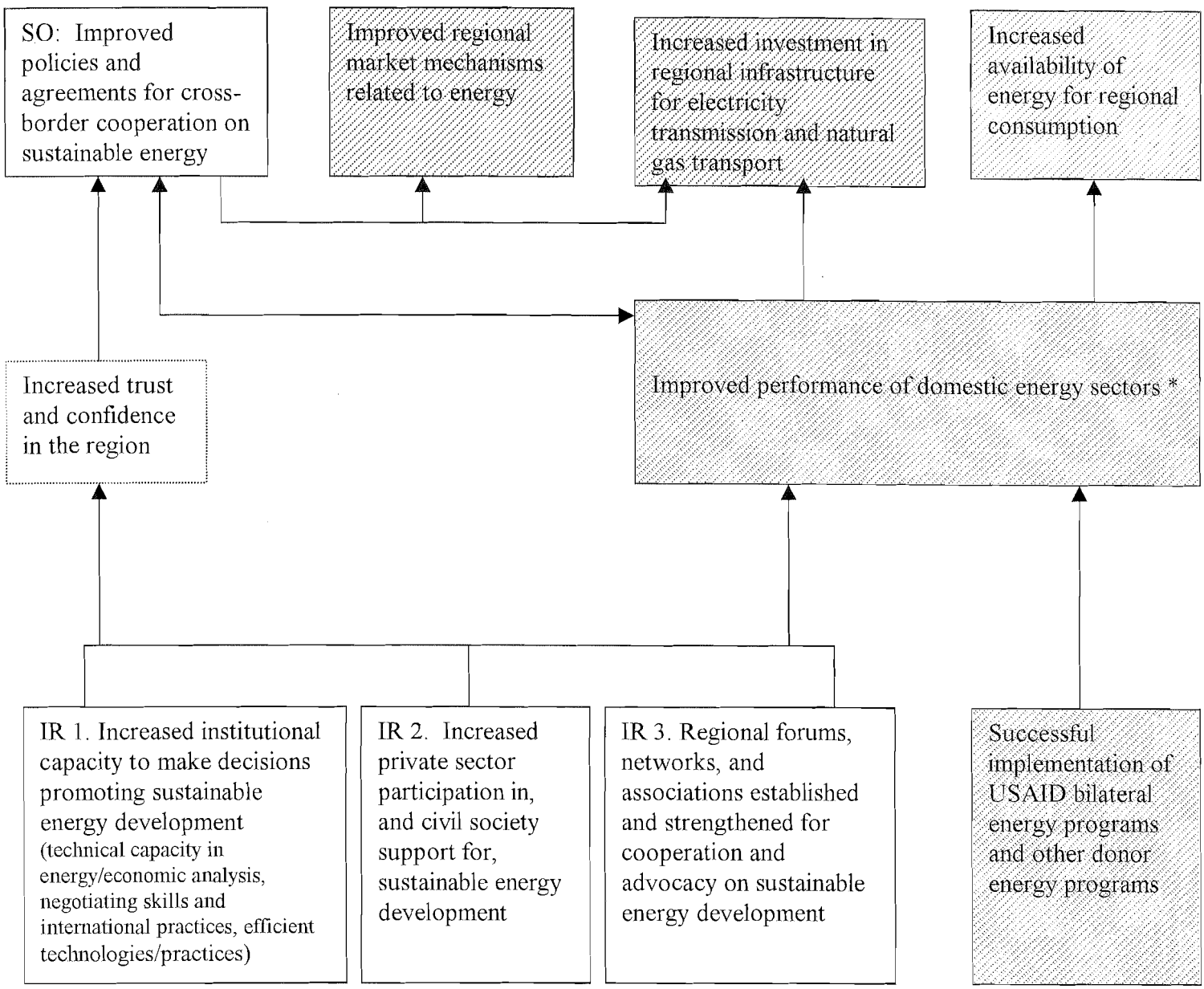
1. **Increased institutional capacity to make decisions promoting sustainable energy development.**

2. **Increased private sector participation in, and civil society support for, sustainable energy development.**

3. **Regional forums, networks, and associations established and strengthened for cooperation and advocacy on sustainable regional energy development.**

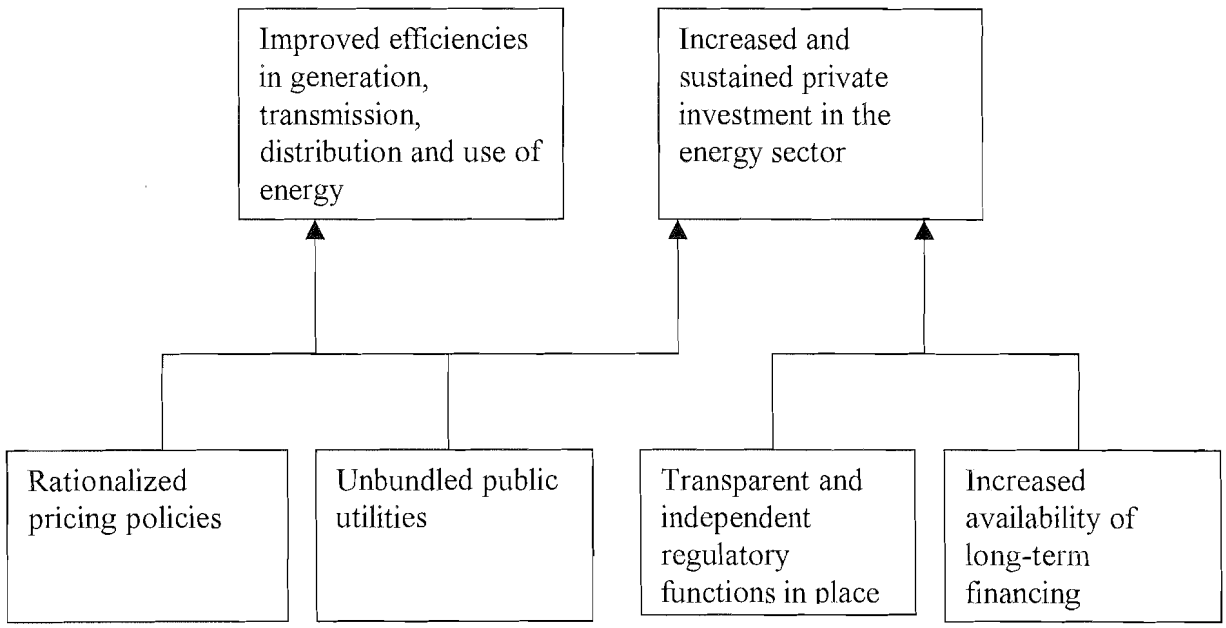
All these results can be achieved on both a bilateral and regional level. SARI/Energy will approach them from a regional perspective, with the acknowledgement that creating and deepening relationships that promote mutual trust and confidence is both a goal of SARI/Energy's activities and a necessity to achieving its ultimate objective.

Strategic Framework



**Elements comprising improved performance are shown on next page.*
Shaded areas indicate areas to which SARI/Energy will contribute, but are not within the program's manageable interests.

Improved performance of domestic energy sectors



B. Intermediate Results

IR 1. Increased institutional capacity to make decisions promoting sustainable energy development.

Appropriate reforms in the energy sector require governments, local businesses, and other stakeholders to have a sophisticated understanding of energy issues on several levels. To make informed decisions in energy development, countries need to know the level of their energy resources and be able to analyze the economic, environmental and social consequences of different energy development scenarios. They also need to be aware of energy efficient and renewable energy technologies and markets, and possess the financial, commercial and technical skills needed to evaluate and negotiate energy sector projects. Finally they need the capacity to effectively implement reforms. The SARI/Energy program will fund technical assistance and training in these areas in regional forums where energy sector stakeholders from different countries can learn lessons from the experience of their neighbors and gain a common base of knowledge regarding successful energy cooperation and trade among countries in other regions. Country-specific technical assistance that can propel a country's readiness to join regional discussions on energy development will also be provided. The institutions targeted will include government and quasi-government organizations that influence the energy sector, as well as private sector suppliers, distributors, and end-users of energy, such as industries. Increasing the institutional capacity of decision makers on selected energy development topics will set the stage for future discussions on issues such as operations protocols and network development or trade policy and regulation as countries progress in their willingness and thinking on energy trade.

Possible IR Indicator 1.1: number of institutions in each country with strengthened capacity to promote sustainable energy development.

IR 2. Increased private sector participation in, and civil society support for, sustainable energy development.

Political opposition is often a major obstacle to rationalized pricing policies, unbundling of public utilities, independent regulation, and foreign investment in energy and trade. Different groups might feel threatened by reforms or privatization, such as labor organizations fearing a loss of jobs, farmers fearing loss of electricity subsidies, and citizens fearing a loss of national resources to foreign interests. In Bangladesh, the population is affected by the predominantly negative press coverage of any discussion of trade in natural gas. In several states of India undertaking reform, the strong agricultural sector resists efforts to eliminate or decrease power subsidies.

The transition to the use of greater commercial energy sources will require a wide range of advocacy groups for change. Women currently using traditional fuels, whose lives and health stand to substantially benefit from the use of modern commercial sources of energy, could potentially become important advocacy groups in civil society promoting such change. Chambers of Industry and Commerce will be bolstered to serve as potentially highly influential change agents with governments to encourage more energy reform and trade.

SARI/Energy will directly address this aspect by bringing together groups such as Chambers of Commerce, the press, or other civil society and women's organizations to educate them on energy issues. To the extent that SARI/Energy can interact constructively with these groups, then governments may be more prepared to undertake reform and privatization.

The civil society component will also work with groups that are not against such changes in themselves but want to ensure that energy development occurs in a sustainable and socially just manner. For example, many groups in Nepal are concerned with the potential environmental and social damage from hydropower development. SARI/Energy will work with environmental groups that advocate clean solutions to energy development with minimal environmental and social impacts and social groups that want to assure that the poor will benefit.

Furthermore, the SARI/Energy program will engage the private sector to champion reform and privatization, and help all parties concerned understand private sector needs and concerns. Likely private sector partners include chambers of commerce, professional associations, NGOs, and private energy companies. SARI/Energy can help showcase examples of private sector contributions to advancing sustainable energy development, demonstrating the potential gains of private sector participation and increasing trust and understanding within the public sector of the way the private sector works and what it has to offer.

Possible IR Indicator 2.1: programs and policies in place by organizations such as environmental NGOs, professional associations, and chambers of commerce, which promote sustainable energy development.

Possible IR Indicator 2.2: number of major decisions/policy positions taken by key/targeted institutions towards promoting sustainable energy development

IR 3. Regional forums, networks, and associations established and strengthened for cooperation and advocacy on sustainable regional energy development.

Energy sector reform at the national level is a vital but insufficient requirement for cross-border cooperation and trade in energy in South Asia. Governments in the region must also have the trust and confidence to conduct business with their neighbors and with the private sector before substantial cooperation and trade can occur. Those involved in the region's energy development repeatedly stressed the need to bring together government technocrats, private sector groups and civil society organizations that can influence politicians and decision-makers. SARI/Energy will foster or strengthen regional forums, networks, partnerships, and institutions that give the players in South Asia's energy development a chance to create and deepen relationships that engender mutual trust and confidence, as well as a way to work towards solutions to problems common to the region. The types of associations that SARI/Energy can help form and strengthen are NGOs and professional associations that will champion sustainable energy development and regional cooperation in South Asia. These NGOs and associations can share ideas on advocacy, and gain exposure to common information and knowledge of how other groups in countries outside South Asia have championed energy reform. The SARI/Energy program can also work with governments, bringing them together to explore ways to deal with opposition to energy sector

ANNEX D. DONOR SUMMARY

D.1. Bangladesh

After nearly a decade moratorium, the World Bank is offering an Adaptable Program Loan of $600 million to the GBD, conditioned upon reforms in the energy sector. The GBD has not yet accepted the terms of the loan. The ADB has offered twelve loans in the power sector totaling nearly $700 million and six loans in the gas sector totaling $374 million since 1973. Currently it is working on a $150 million loan to upgrade distribution and transmission of power in Dhaka, conditioned on reforms, and has several smaller technical assistance projects of approximately $150,000 each to develop regulatory reforms and a strategy for private sector participation in the gas sector. Japan's Overseas Economic Cooperation Fund (OECF) is proposing a $600 million loan to the Power Development Board (PDB), a move the World Bank and ADB view unfavorably because it does not require that the PDB undergo major reforms.

D.2. Sri Lanka

In Sri Lanka, the World Bank currently has two major projects, an energy services delivery program and a reform legislation project. The energy services delivery project is aimed at promoting rural electrification, with credit channeled through credit institutions and cooperatives for grid-connected mini-hydropower sites, solar home systems and village hydropower pre-grid electrification. The World Bank and ADB recently signed a Memorandum of Understanding with the CEB for a $1 million grant to provide technical assistance on power sector restructuring, focusing on unbundling the CEB into two generation companies, one transmission company and one distribution company. The OECF has a particularly strong presence in Sri Lanka, funding several transmission and substation projects, as well as a coal-fired thermal development project.

D.3. India

Donor involvement in India entails both state and central-level assistance. The World Bank is active in several states of India, with loans for power sector restructuring in Andra Pradesh, Haryana, and Orissa, and two more loans planned for Uttar Pradesh and Rajasthan. The World Bank is also working at the central level, supporting the transmission company and the agency created to support renewable energy. The technical assistance associated with the loans to the states has been provided primarily by the U.K. Department for International Development (DFID) and USAID. In Andra Pradesh, the $210 million World Bank loan finances rehabilitation and expansion of the transmission and distribution system, with DFID providing over $20 million in technical assistance on regulatory reform. Both DFID and USAID are funding regulatory reform in Haryana. The ADB has shifted its support from project financing to financing reform, with a strong focus on the State Electricity Boards and state-level reform. Both the Canadian International Development Agency (CIDA) and the Swiss Development Corporation are also active in the energy sector in India.

reform or trade. Furthermore, through SARI/Energy, USAID may also be able to work with SAARC to support and influence its efforts on regional energy cooperation.

Possible IR Indicator 3.1: number of regional forums, networks, partnerships, and institutions established or strengthened for cooperation and advocacy of policy reforms.

C. Expected Results

Listed below are examples of results that USAID expects to achieve in the medium-term through the regional approach of SARI/Energy. These medium-term results will play a role in accelerating energy sector reform, private sector investment in sustainable energy development, and increased efficiencies in the generation, transmission, distribution and use of energy.

SARI/Energy's first-tier priority results include:

- Reduced greenhouse gas emissions;
- Private sector groups, particularly indigenous organizations, will be strengthened and have information needed to effectively champion energy sector reform and promote South Asia sustainable energy development with their financial, technical and management resources.
- Private sector business, government technocrats and other interested parties from around the region form working groups that meet to exchange ideas, publicize successes, and analyze problems, resulting in:
  - Enhanced mutual trust
  - Confidence to proceed effectively on a path to sustainable energy development (including negotiating financial deals with the local private sector and multinational companies, and creating commercial, market-based operations in the energy sector)
  - Solutions developed to remove barriers to regional energy cooperation and trade, (such as ways to advance energy sector reform, deal with technical differences across borders, and sharing the differences in countries' transmission regulations.)
- Capacity developed in all five principal countries in the use of regional analytical tools for energy, economic and financial analyses that include information on potential energy trade with other South Asian countries and can be applied to their energy policy making and planning.

Second-tier priority results include:

- Web-based networks established and used by groups of professionals from around the region, such as government technocrats, or members of business or industrial associations, to exchange data or ideas towards the goal of sustainable energy development.
- Environmental groups strengthened to advocate clean energy development, both with their respective governments and regionally.

- Partnership formed with the new Energy Technical Committee of SAARC, helping build the capacity of the committee in its formative stages, and working with it so that SAARC makes contributions to regional cooperation on sustainable energy development.
- Concerns of interest groups relieved through increased understanding and agreements with governments.

SARI/Energy will play a catalytic role in achieving a set of long-term results in regional energy cooperation, which are instrumental to achieving the longer-term objective of cross-border trade in clean energy in South Asia. The long-term results are:

- Improved policies and international agreements enabling cross-border trade in energy.
- Increased availability of energy for regional consumption.
- Improved cross-border infrastructure for electricity transmission and natural gas transport.
- Improved regional market mechanisms related to energy.

Together, these conditions will encourage trade in energy that will benefit both buyers and sellers, and ultimately contribute to economic growth throughout the region.

The achievement of these results will occur from the concerted efforts of the partner country governments, USG bilateral programs, SARI/Energy, the private sector and other stakeholders in the region, as well as other bilateral and multilateral donor organizations and banks.

D. Illustrative Regional Activities

All SARI/Energy activities will be coordinated with the bilateral USAID missions and the appropriate embassies in order to benefit from valuable in-country insight, maximize synergy, and avoid replication.

1. Increased institutional capacity to make decisions promoting sustainable energy development.

a) Technical Assistance and Training

These activities will focus on strengthening institutional capacity within governments, regulatory bodies, utilities, NGOs, and the private sector through discrete events such as training workshops, seminars, formal courses, and study tours. These events will have participants from multiple countries and organizations and be held at multiple sites, so they will also begin the process of creating networks among the region's professionals. Illustrative topics are:

Project Preparation, Evaluation and Negotiation	*Energy Sector Reform*
• Contract negotiation and implementation skills • Project evaluation • Project financing and risk mitigation • Tender preparation	• Energy pricing and tariff determination • Jurisdiction and roles of independent regulatory bodies • Labor issues in energy sector reform
International Principles and Practices	*Energy Planning*
• Harmonizing policies, duties, tariffs, regulations and laws to facilitate cross-border energy trade • International energy commodities trading • International practices regarding contracts and guarantees; investor needs	• Demand side management and integrated resource planning • Incorporating environmental costs and natural resource value into energy development scenarios • Transmission infrastructure needs and system stability

b) Regional Analyses

SARI/Energy can support various kinds of analyses that contribute to the body of knowledge needed to make decisions on energy trade. This can include:

- Energy markets, supply and demand scenarios
- Costs-benefit analysis of cross-border trade in South Asia
- Regional energy information systems
- Comparative analyses of energy-efficient technologies and practices
- Clean energy resources assessments (natural gas, hydro, wind, solar, biomass)

c) Energy, Economic, and Environmental Modeling and Analysis for Energy Policy and Planning

As a regionally integrated effort, SARI/Energy can build the capacity in all target countries to use common modeling systems or other analytical tools to undertake energy, economic, and environmental analyses necessary for energy policy making and planning. The capacity building will be done in a regional and participatory manner. This will provide individual countries with information about other countries in the region, and increase opportunities for potential trade scenarios.

2. **Increased private sector participation in, and civil society support for, sustainable energy development.**

The private sector — the energy private sector in particular — will be an eager partner for SARI/Energy, and private sector players in the region, particularly local groups, should be provided technical and coordinating assistance to become strong champions of cooperative energy development. Several professional organizations, as well as individual companies, stressed the need for coordinated efforts by the USG and the private sector in order to influence governments. For example, USAID can partner with local and American chambers of commerce in the region, work with them to form a network, and provide them with statistical and anecdotal information they need to help governments on the path to reform, privatization where appropriate, and regional trade in energy.

USAID should also partner with and nurture other potential champions of SARI/Energy's goals, such as NGOs around the region that address environmental or sustainable energy/global climate change issues. (Examples might include industry alliances, environmental groups, or women's organizations.) USAID can identify groups that may resist energy sector reform and develop strategies to assuage their concerns, perhaps in partnership with relevant government agencies or private sector groups.

3. **Regional forums, networks, partnerships, and associations established and strengthened for cooperation and advocacy on sustainable energy development.**

SARI/Energy will encourage the formation of regional forums, networks, partnerships, and associations. Illustrative target groups include government technocrats, energy professionals, environmentalists, utilities, regulators, trade and industry associations, and NGOs. For example:

- Private sector businesses, government technocrats and other experts from around the region from agencies responsible for developing and implementing energy sector reforms form networks through which they exchange ideas, and discuss successes and problems.
- Similar utilities from different countries from around the region (modeled upon USEA Utility Partnerships) can form their own utility partnerships (with U.S. utilities as third parties where possible) to help overcome constraints to sustainable energy development.
- NGOs advocating environmentally sound energy development and greenhouse gas mitigation can combine forces to lobby governments on adopting clean paths to energy development, including cross-border trade in clean energy.

These entities should have strong communication links through newsletters, magazines, brochures, and Web sites to facilitate coordination among participants as well as to facilitate advocacy and outreach to the region's media, public, governments, energy utilities and companies, regulators, NGOs, the private sector, and multilateral banks (MDBs).

E. Critical Assumptions

The success of this regional initiative hinges on several assumptions. If these conditions do not exist, achieving the initiative's goals will be severely hampered. However, the current environment suggests that these conditions will most likely be met. Assumptions include:

- Governments in the region will participate in a regional program to facilitate more rational energy development strategies;
- The political environment remains relatively stable;
- Economic growth rates continue to be positive;
- Demand for gas and electricity continues to increase; and
- USAID's bilateral assistance in energy continues to key South Asian countries.

F. USAID Comparative Advantage and Complementarity with other Donors

Regional cooperation in energy cannot come into existence through the efforts of any one donor institution working in isolation. Given the magnitude of the challenges, donors must cooperate and develop a concerted response that effectively utilizes the comparative advantage of each institution. USAID has followed this approach in designing SARI/Energy.

The World Bank and Asian Development Bank (ADB), as well as several bilateral donors are all active in the energy sector in South Asia. However, their assistance is almost entirely focused on a bilateral level. The bulk of multilateral bank assistance is given in the form of loans to governments, and therefore must be executed on a country-by-country basis.[6] Both banks are currently implementing or preparing major loans targeted at sector reforms in Bangladesh, India, Nepal, Sri Lanka, and Pakistan. USAID training and technical assistance can effectively accelerate the policy reform and institutional reform objectives of these loans, and enhance the countries' capacities to achieve reform.

Both of the MDBs have attempted to undertake regional initiatives involving energy in the region. In 1997, the ADB undertook a program of sub-regional technical assistance in power sector development for Bhutan, Nepal, Bangladesh and India, in association with their South Asia Growth Quadrangle (SAGG) initiative. However, the effort has been stalled and there is currently no training on a regional basis. The ADB had also provided funds to facilitate dialogue between Bangladesh and India, as well as India and Pakistan, but neither has gotten off the ground because India resists third party involvement in their bilateral relations.

The World Bank began the South Asia Regional Development Initiative (SARDI) at the same time, focusing on Bhutan, Nepal, Bangladesh and east India. In addition to energy, SARDI addresses transport, water, and environmental issues. A few workshops have been held in this sub-region, but so far there have been no workshops or training on energy topics with representatives from all four countries present.

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[6] See Annex D for summaries of donor assistance to South Asian countries

The two major MDBs have attempted regional initiatives in recent years, but neither has met much success. Although the donors recognize the need for regional cooperation in energy, they have encountered many frustrations and are reluctant to actively pursue additional regional energy activities. Therefore, despite the presence of several donors, and the World Bank and ADB's active operations, very little activity currently addresses energy cooperation on a *regional* basis. Like the other donors, USAID focuses its activities bilaterally, reforming the energy sector within each country. USAID has a strong and mature energy program in India, is re-engaging its energy program in Bangladesh (after a hiatus following its successful rural electrification program), has been successfully engaged in Nepal's and Sri Lanka's energy sectors for years, and previously made large investments in Pakistan's energy sector.

USAID is uniquely positioned to build upon these bilateral efforts. Unlike the MDBs, USAID does not work on the basis of bilateral loans, and has the flexibility to use its grant assistance in both bilateral and regional mechanisms. The U.S. Government's strong presence in the region gives it a convening power that can bring together participants from Bangladesh, India, Nepal, and Sri Lanka, and perhaps in the future from Pakistan if this proves appropriate.

The SARI/Energy strategy will take small steps on topics that are deemed to be 'less sensitive', rather than tackling trade directly as a topic that countries must address to develop their energy sectors or meet their domestic demands for energy. Thus, USAID's approach will not directly address trade at the outset. Instead, USAID will first work on providing assistance that prepares governments to participate in regional discussions on energy cooperation, addresses the need to build support from private sector and civil society groups, and takes measures to build confidence and trust, all with an eye towards facilitating trade discussions and providing the building blocks leading to trade. The World Bank has been having significant success in addressing regional transport and infrastructure regulation issues. USAID can build upon the successful MDB regional activities on other topics and link SARI/Energy with those initiatives where appropriate. The World Bank has recently established the South Asian Forum for Infrastructure Regulators (SAFIR), which SARI/Energy can support or complement to the extent that SAFIR addresses energy infrastructure topics.

III. IMPLEMENTATION, MANAGEMENT AND BUDGET

A. Institutional Counterpart

As a regional program, SARI/Energy should have a regional institutional counterpart with the necessary staff to coordinate and provide analysis, technical assistance and training. However, no single regional organization currently exists that can play such a role.

SAARC. One possibility to explore could involve a partnership with the South Asian Association for Regional Cooperation (SAARC).[7] SAARC is a regional body created in 1985 to help promote social and economic development and cooperation in the region. Even if it is not the institutional counterpart, regional work in South Asia should take it into account. SAARC has recently reorganized and created a new technical committee for energy that might serve as an institutional counterpart. However, the committee is still in a formative stage, and must prepare a concept paper on its purpose and activities. Therefore, any work with SAARC in the initial stages of SARI/Energy will necessarily be limited, until the energy technical committee is better established. Furthermore, SAARC's structure requires the approval by consensus of all members for implementation activities. This bureaucratic process could hinder the efficiency with which SARI/Energy undertakes activities. For these reasons, while SAARC is in the process of trying to become a more effective organization, it seems prudent to await the results of the reorganization before entering into a possible partnership.

A consortium. Another possibility is to form a consortium of organizations from among participating countries that could form the core nucleus of an eventual regional institution. This would involve identifying and working with several organizations that are recognized as regional leaders in a particular area of expertise. For example, Bangladesh and Sri Lanka have the institutional leadership in rural electrification while Nepal has it in hydropower. India has the intellectual leadership in energy efficiency and regulatory reform, Sri Lanka has extensive experience in energy sector reform, and Pakistan has experience with private sector participation. Such a consortium of organizations, if they can be properly identified, might constitute a basis for a truly regional institutional counterpart in the future.

Other options. Another option might involve work with SAFIR. SARI/Energy should also look at nurturing appropriate twinning arrangements. For example, regulatory agencies, utilities, and chambers of commerce could be linked together between and among countries. (An example from Central America is a pool of free national regulatory agencies partnering with a pool of free state regulatory agencies in the U.S.) Thus, USAID must retain flexibility in finding a counterpart institution and should further explore the possibility of working with and through various organizations.

[7] See Annex E for further discussion of the possible role of SAARC in SARI/Energy.

B. Program Implementation

Phases. Using a rolling design methodology, SARI/Energy will be implemented in two Phases. Phase I is expected to last for four years, beginning in 2000, and is estimated to cost $34 million. The first phase will lay the foundation for regional institutional linkages, and build capacity. Several activities -- including regional workshops, technical assistance and training, as well as work with host country stakeholders -- will occur during Phase I. In consultation with other USG agencies and donors, USAID will also explore the potential for partnering with one or more established regional organizations. Activities will be implemented utilizing inputs from the four missions in the region, USAID/Washington, the Department of State and its five embassies in South Asia, with potential participation from the Department of Energy and the Trade and Development Agency, (and possibly other USG entities such as OPIC, or EXIM.) If there is sufficient interest, SARI/Energy might also provide a forum for donor coordination at a regional level.

Phase II would be contingent upon the experience of Phase I, and could last from three to five years depending upon the interest of the public and private sectors of the states of the Sub-Continent to support a Regional Energy Strategy. If relevant parties demonstrate sufficient interest during Phase I, then Phase II would go forward with substantial support, and the initiative would seek ways to leverage additional donor support to operationalize a regional approach to energy development and trade. During Phase II, one or more suitable regional institutions would be identified and strengthened to serve as a platform for continued SARI/Energy activities. In this way a SARI/Energy Management Office (see below) designed and put into place under Phase I could become the catalyst for a regional energy institution in Phase II, with participation and ownership from the public and private sectors of the region. (Annex A provides a more complete discussion of the proposed organizational structure and management systems for Phase I.)

C. Program Management

Regional and Country Coordinators. A USPSC will be hired to serve as the SARI regional coordinator to oversee program management. (See Annex A for further details.) The program also will finance the hiring of Foreign Service Nationals in each mission to serve as country program managers. In the future, additional PSCs could be hired at the country level if needed, depending on the level of activity in a particular country.

SARI/Energy Program Office. During Phase I, SARI/Energy will establish a Program Office that will house a core team of resident long-term advisors.[8] The technical advisor team will operationalize the program and deliver technical assistance and training. While some Program Office staff will be international expatriates, whenever possible the program will use local or regional technical assistance and training experts – particularly in the areas of technology, engineering, economics, training and outreach. The Program Office will also serve as the operational base for short-term technical assistance personnel, as well as other contractors and grantees brought in to provide specialized assistance.

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[8] The location of the PSC and the Program Office will be determined at the Kathmandu Conference in December, 1999.

Headquarters. A headquarters regional program manager will be hired by ANE/SEA to coordinate between USAID/W and field offices, with State and other USG agencies, and with other donors

A Strategic Objective team composed of representatives from each of the missions and led by a representative from ANE/Washington will provide guidance and direction regarding the types of activities that SARI/Energy will fund. Representatives from the Global Bureau's Office of Energy, Environment, and Technology and the US-Asian Environmental Partnership will sit on the SO Team as well. The team would carry out consultations with stakeholders in the host countries and in Washington. All members of the SO Team will participate in the development and approval of specific scopes of work and serve on review panels to select the contractors or grantees receiving funds under SARI/Energy. Contracting will be carried out in the field, usually via the regional contracting office located at USAID/New Delhi

SARI-supported activities will be linked together through two principal mechanisms:

- The PSC Program Coordinator and the core TA team will be housed in one place to serve as a nucleus for program activities; and

- The SO Team will establish formal criteria to insure that programmed resources support SARI's expected results, and that resource allocation decisions are reached jointly involving representatives from all participating countries.

In addition, the program will host two annual events in the region, prepare and review annual workplans and budgets, and review program implementation and performance. Key private sector and host country counterparts will be invited to these reviews to solicit their input and to help forge effective intra-regional working relationships between countries.

D. Illustrative Budget

	2000	2001	2002
Core Long Term Technical Assistance Team			
Chief of Party (US)	$500	$600	$600
Engineer (Regional Professional)	$200	$200	$200
Economist/Policy Advisor (Regional Professional)	$200	$200	$200
Regulatory/Legal Advisor (US)	$500	$600	$600
Training Advisor/Coordinator (Regional Professional)	$200	$200	$200
Communications Advisor/Coordinator (Regional Professional)	$200	$200	$200
Other Direct Costs and Support	$1,000	$1,000	$1,000
Subtotal	**$2,800**	**$3,000**	**$3,000**
Percent of Total	**28.0%**	**25.0%**	**25.0%**
Program Management			
US PSC Program Coordinator	$300	$300	$300
Local FSN Staffs (at least one FSN per country)	$200	$200	$200
AID/W RSSA	$250	$250	$250
Subtotal	**$750**	**$750**	**$750**
Percent of Total	**7.5%**	**6.3%**	**6.3%**
Program Activities Fund			
Partnerships	$600	$1,000	$1,000
Short-term TA	$1,400	$1,500	$1,200
In-country and participant training	$1,200	$1,200	$1,200
Regional Analyses, Networking, Capability Building	$1,000	$1,500	$1,800
Study Tours/Executive Exchanges	$500	$800	$800
Regional Training Workshops	$750	$750	$750
Outreach, Information	$1,000	$1,500	$1,500
Subtotal	**$6,450**	**$8,250**	**$8,250**
Percent of Total	**64.5%**	**68.8%**	**68.8%**
Total	**$10,000**	**$12,000**	**$12,000**

E. Performance Monitoring and Evaluation

SARI/Energy's first R4 will be prepared and reviewed in calendar year 2001 so that its resource request applies to the FY 2003 budget. The missions and ANE/Washington will work together to prepare an assessment of SARI/Energy progress in a performance report, which will focus on SARI/Energy contributions to regional understanding of energy development issues, the promotion of trust and confidence, and to policy reforms in the countries of the region. In addition, the R4 will report on progress and trends using data from non-USAID sources (e.g. the World Bank) and on the concept of "plausible association," that links SARI/Energy-funded progress conceptually to general energy development trends in the region. The actual schedule and mechanisms of data collection will be worked out by the missions and by ANE/Washington.

ANNEX A. PROPOSED ORGANIZATIONAL STRUCTURE AND MANAGEMENT SYSTEMS

Introduction:

This annex includes a narrative and three graphics describing SARI/E's proposed management systems during Phase I. The three attached figures include:

- **Figures X,** showing the close integration of both the Field Offices and Headquarters, and of USAID and State. They are joined through a regional body serving as the core of the SARI/Energy initiative, that includes both the Regional Coordination Office and the Regional Program Office.

- **Figure Y,** showing the composition of the Executive Committee (USAID and STATE Strategic Objective Team) and the Advisory Panel, that will involve representatives from several USG departments and Agencies.

- **Figure Z,** outlining the various public-private partnerships that will be developed in each country, and the creation of forums where private sector organizations and government-related groups can meet and jointly discuss energy issues.

Field Functional Units

The four Functional Units (see Figure X) in the Field, where USAID has a presence (Bangladesh, India, Nepal and Sri Lanka) are represented, and there is an existing working relationship with the Embassies through the Country Team, include the following basic functions:

- Bilateral Energy Team Leader and Cognizant Technical Officer (CTO);
- SARI/Energy Foreign Service National (FSN) (new position);
- Controller at the equivalent of the Office of Financial Management (OFM); and
- Economic Officer at the Embassy.

These four units are represented on the SO Team by the Bilateral Energy Team Leader, who coordinates regularly with the Economic Officer through Country Team meetings.

In the Bangladesh and India Missions, the following additional functions are present:

- Regional Contracts Officers (RCOs) in USAID/Bangladesh and USAID/India;
- Regional Legal Advisor (RLA) in USAID/Bangladesh

In the regional program office,

- Regional Program Manager, a new USPSC position, who is the CTO for the Regional Program (TA) Office.

In Nepal, the Department of State provides the additional function of Regional Environmental Hub Officer, who is represented on the SO Team. This person is supervised from State/OES at Headquarters.

In Pakistan, where there is no USAID presence at present, the Embassy Economics Officer is represented on the SO Team.

In the Field, the "glue" which holds all of the Functional Units together is the SARI/E Regional Coordination Office, which in turn supervises the SARI/E Regional Program Office, where long-term (and short-term) regional technical staff are housed. The former Office is led by the Regional Program Manager, a USPSC who is responsible to a USDH with access to senior officials in both USAID and State. As a CTO, the USPSC is responsible for overall program management in the Field, and works with the SARI/E FSNs in the four USAID presence Missions to coordinate specific regional and pre-regional activities in the region and in-country, with the Chief of Party who supervises the Core long-term (and short-term) technical assistance, training and support staff, and with the HQ Program Manager. The Regional Coordination Office should be located on USG premises. The Regional Program (TA) Office will be on separate premises.

Headquarters Functional Units

At headquarters, there are three Functional Units of USAID: the Bureau for Asia and the Near East (ANE); the Global Bureau (G); and the U.S. Asia Environmental Partnership (USAEP).

In the ANE Unit, the following functions are present:

- Assistant Administrator (AA), who provides overall leadership, vision, strategic, and fund-raising functions to the SARI/Energy Program;

- Director, Regional and Special Projects (RSP) of the Office of Strategic and Economic Analysis (SEA), who is the SO Team Leader;

- SARI/Energy Headquarters Program Manager (existing position but redirected to SARI/Energy), supervised by the Director of RSP, and represented on the SO Team. This person is responsible for day-to-day management of Headquarters functions, such as coordination with the Field Offices, intra- and inter-agency coordination in Washington, and donor coordination.

- Office of Resource Allocation (ORA), which directs the funding spigot at ANE to the various locations where an OFM and CTO are present, or alternatively to the Global Bureau, where the agency's pre-competed Indefinite Quantity Contracts (IQCs), Cooperative Agreements (CAs), and grant mechanisms are generally located, under instructions from the SO Team Leader;

- Office of East and South Asia (ESA), where the Director, Deputy Director for South Asia, and desk officers for the South Asia countries are located.

In the Global Bureau the Director of the Office of Environment, Energy and Technology in the Environment Unit (G/ENV/EET) is represented on the SO Team. This person oversees technical staff of EET, as well as the above-mentioned mechanisms, which allow access to a wide range of long-term and short-term technical assistance (TA) and training expertise.

In USAEP, which is funded through the ANE Bureau, and has allocated a portion of its funding for SARI/Energy, the Director for South Asia is represented on the SO Team. The Energy/GCC Advisor provides additional technical input to the SARI/Energy Program.

At the Department of State, the Director of the South Asia Bureau, Office of Regional Affairs (SA/RA) is represented on the SO Team. The Director of SA/RA coordinates with other Bureaus in State, and with the relevant desk officers within the SA Bureau.

New Positions Created by SARI/Energy

As indicated above, a minimum of seven to eight new positions are created by SARI/E [supervisor is indicated in brackets], as follows:

- Regional Program Manager (USPSC) [supervisor to be determined];
- Support staff (one to two) for the Regional Program Manager (FSN PSCs) [Regional Program Manager];
- Chief of Party (U.S. Institutional Contractor) [Regional Program Manager];
- FSNs in four USAID presence Missions [Bilateral Energy Team Leader].

In addition, the program will have a long-term core team of Technical Advisors (U.S. and Regional Specialists, the number to be determined on an annual basis, per availability of funding) [Chief of Party]

FIGURE X. SARI/ENERGY FUNCTIONAL UNITS

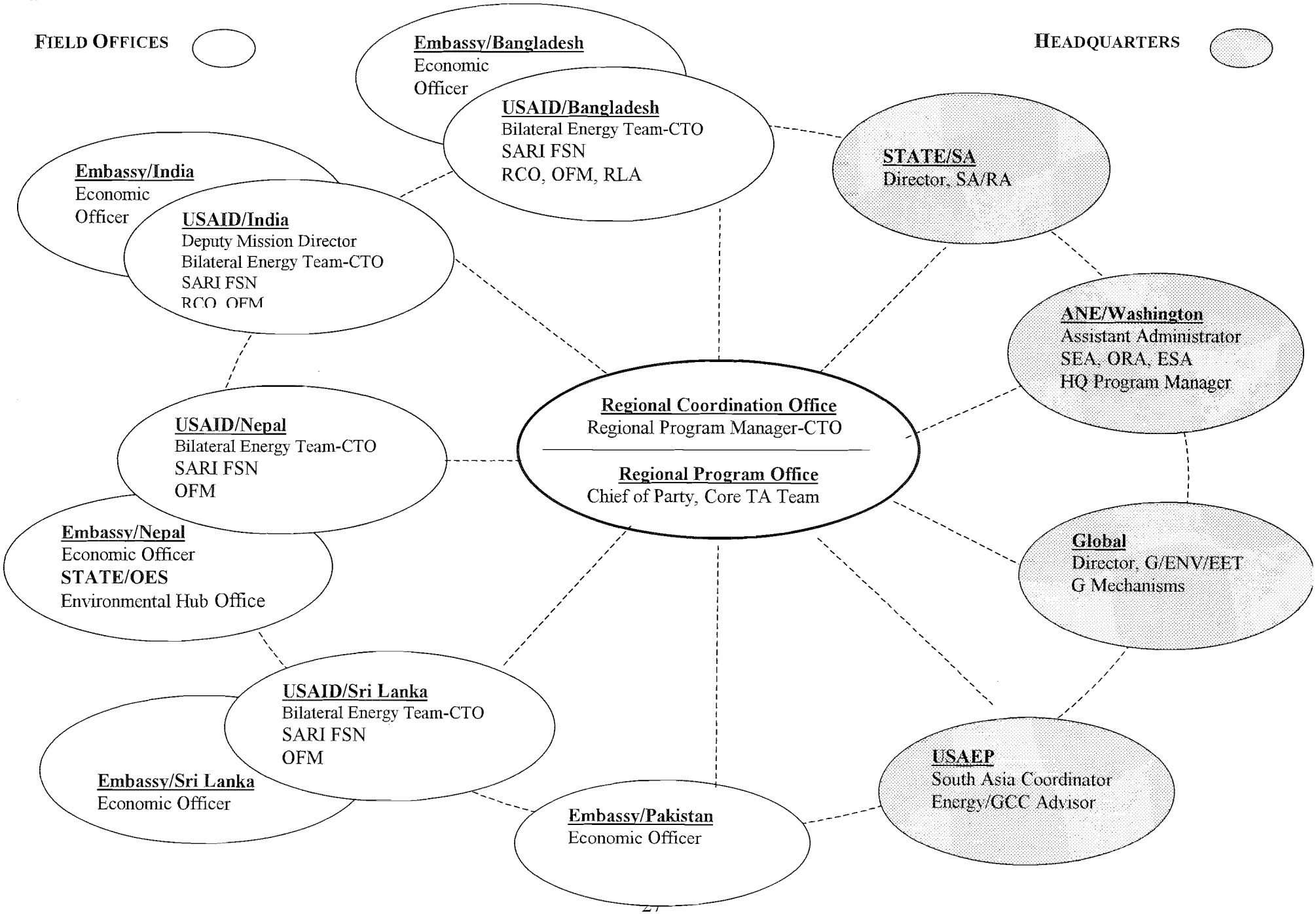


FIGURE Y. SARI/ENERGY EXECUTIVE COMMITTEE AND ADVISORY PANEL

SO Team/Executive Committee

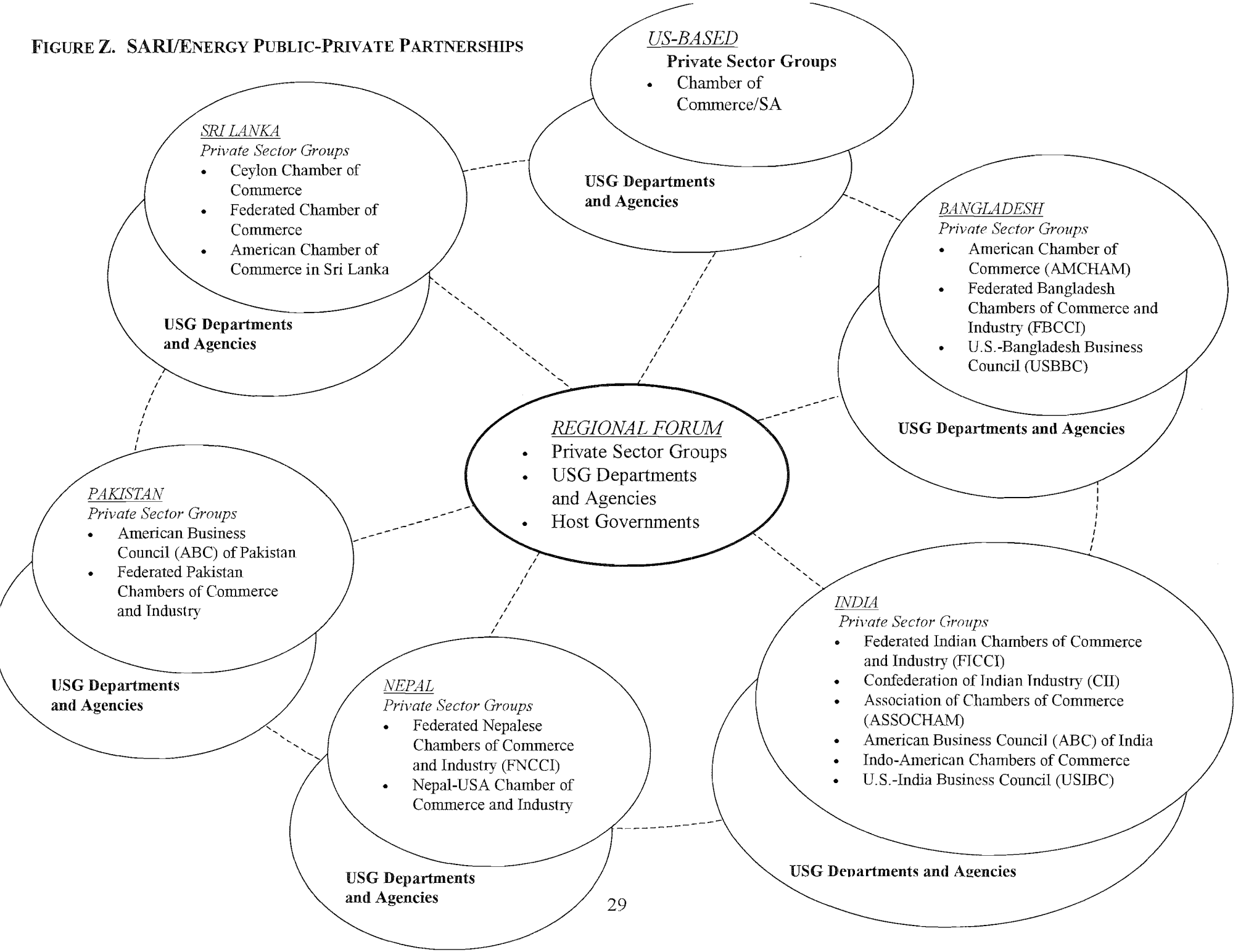
SO Team Leader: Chief, Regional and Special Programs (ANE/SEA/RSP)

Field		Headquarters	
USAID		**USAID**	
TBD	Regional Program Manager	ANE	HQ Program Manager
	USDH Supervisor of above	Global	Director, G/ENV/EET
Bangladesh	Energy Team Leader	USAEP	Director, South Asia
India	Energy Team Leader		
Nepal	Energy Team Leader		
Sri Lanka	Energy Team Leader		
STATE		**STATE**	
Pakistan	Economic Officer	South Asia	Director, SA/RA
Regional Hub	Environmental Hub Officer for South Asia		

Advisory Panel

Executive Committee	USAID, STATE
Department of Commerce	Director, Office of Energy, Infrastructure and Machinery
Department of Energy	Assistant Secretary, International Affairs
Department of Interior	Director, Minerals Management Service
National Security Council	Director, South Asian Affairs
Trade and Development Agency	Regional Director, Asia and the Pacific

FIGURE Z. SARI/ENERGY PUBLIC-PRIVATE PARTNERSHIPS



ANNEX B. THE STATE OF ENERGY DEVELOPMENT IN SOUTH ASIA

B.1. Overview

Much of the economic growth in South Asia is occurring in forms that are both economically and environmentally unsustainable for both local and global populations over the medium to long term. The energy sector reflects all of these problems. Lack of sustainable energy development constrains economic growth and robs governments, the private sector, and individuals of monetary and natural resources that can be otherwise productively invested. All countries in the region suffer from inefficient uses of energy and shortages of commercial energy, resulting in a high level of dependence on traditional energy sources such as wood and manure. Moreover, South Asian countries have large rural populations with no access to the electricity they need to increase their economic opportunities and improve their living standards. Finally, problems in the energy sector damage human health and the environment, and are a major constraint to sustainable development in the region.[9]

The energy sectors of South Asian countries have many features in common. In general they are publicly managed and highly inefficient, but slowly undergoing reform. Most power entities are owned and operated by the state, but several are in early stages of privatization. Power enterprises in South Asia are almost all "bundled," meaning they control generation, transmission and distribution of electricity, but with advice from the MDBs, all governments are in various stages of unbundling these enterprises. All power sectors in the region suffer from high losses, both technical and non-technical, in the transmission and distribution of electricity, ranging from 18 percent for Sri Lanka, 23 percent for India to staggering losses of around 28 percent for Nepal and 40 percent for Bangladesh. In comparison, the world average is 10 percent and in developed countries, transmission and distribution losses are about 6 percent. The inefficiencies continue with the end users, who fail to use electricity wisely because of subsidies, poor billing and collection practices, and lack of knowledge of energy efficiency measures. Finally, all South Asian countries suffer from debilitating air pollution caused by the inefficient burning of both fossil and traditional fuels, emitting a cloud of toxic pollutants approximately the size of the United States with particulates that can reach California in four days. South Asian cities are among the unhealthy places in the world to live.

From a local perspective, less dependence on unclean energy sources will improve health of the rural and urban poor, particularly women and children who suffer from exposure to indoor air pollution due to wood or manure-based cooking fires. From a global perspective, helping these countries redirect their energy sectors to less carbon-intensive paths now, when much of their power-related infrastructure remains to be installed, will contribute significantly to the global effort to mitigate global climate change. As the sixth largest and second fastest growing emitter of greenhouse gasses in the world, India can make a particularly important contribution.

[9] See attached EIA South Asia Energy Summary and World Bank South Asia Environmental Strategy.

COUNTRY SUMMARIES

B2. India

India's power sector is largely state owned and operated, generates and delivers poor quality power inefficiently, provides power below its actual cost, and fails to keep pace with demand. Twenty percent of the population remains without any electricity, and in those areas that have power, peak demand exceeds installed capacity by about 30 percent, the quality and reliability of electricity is poor. India will need to increase its imports of power or energy sources, or increase its domestic generation capacity, in order to meet domestic demand for electricity. Currently India relies on poor quality domestic coal for 53 percent of its energy needs and 73 percent of its electricity production.

Coal will continue to dominate India's energy mix for the foreseeable future, because reserves are estimated to last for another 300 years at current consumption rates. Unfortunately, about 40 percent of the coal is inorganic matter that does not burn. This means that 40 percent of the money and energy consumed to transport the coal is wasted, conversion efficiency at the plant is reduced, and significant quantities of ash are produced as a by-product, posing a serious waste disposal problem. Those problems are compounded by inefficiencies in the way the coal is handled, starting from the coal mine itself, where the coal is not washed to remove some of the inorganic material, to the rampant theft of coal as it is being transported, to the inefficient coal-fired power plants. A notable exception is the National Thermal Power Corporation (NTPC), which is responsible for about 25 percent of India's electricity generation[10]. Thanks to the work of USAID/India and a responsive GOI, NTPC has made tremendous progress in power plant efficiency, coal washing, ash disposal and utilization, and rationalized pricing. In addition to problems from use of coal, the use of traditional fuels, especially cow dung for cooking and heating, contributes to serious indoor air pollution problems which affect primarily women and children.

B.3. Bangladesh

Bangladesh, one of the poorest countries in the world, has significant reserves of natural gas. It relies on gas for 68 percent of its energy needs and 87 percent of its electric generating capacity, using oil to make up most of the difference. Only recently did an American firm agree to build the first modern and efficient combined cycle gas power plant in Bangladesh. Proven gas reserves are around 11 trillion cubic feet (Tcf). With a current production level of about 0.27 Tcf and an annual growth rate between 6 percent and 10 percent, 11 Tcf would last about 35 years, a reserve-to-production ratio greater than most countries in the world. However, based on current

[10] Several states in India have made, or are beginning to make, progress with privatization and unbundling. In particular, Orissa has transferred its role as a transmission company to a state-owned utility that will be privatized in 2001. A private company has won the right for distribution in three of Orissa's four zones. As a private enterprise, the company must ensure proper bill collection for its financial viability. Collections were up 15 percent in the first three months of the new company's management.

petrogeological studies, most of private industry estimates a level of around 40 Tcf of gas in Bangladesh, and expects that far greater amounts will be found with further exploration.

The GBD relies on the conservative 11 Tcf estimate and insists that more natural gas must be developed before Bangladesh will export gas. This rationale collides with the reality that Bangladesh must sell gas for hard currency in order to attract the international investors and companies that can extract and transport the existing reserves and discover additional reserves. Bangladeshi companies lack the capital and capacity required to develop the gas field blocks that have been made available for development. Moreover, the GBD must use hard currency to repay loans it borrowed to develop its energy sector, and to fund its existing and expanding power sector. The existing power sector requires critical improvement; it has the highest transmission and distribution losses in the region and load shedding[11] of at least 400 MW *daily* because demand exceeds supply. However, the components of power sector reform are slowly being assembled, demonstrating the GBD's growing understanding of the need to change and a willingness to do so.

B.4. Nepal

Nepal, another of the chronically poorest countries in the world, has only 319MW of installed electricity capacity, of which 250 MW is hydro. Even with new capacity coming on line next year, the increase to 350MW will barely be enough to cover peak demand. Only 13% of Nepal's population have access to electricity, most of them in the urban areas, and those customers suffer load-shedding and frequent power outages due to supply and distribution problems. Nepal's per capita electricity consumption is only about 42 kWh, among the lowest in the world. Furthermore, more than 85% of the country's energy needs are derived from fuelwood, which has negative implications associated with that dependency.

Despite the tremendous potential for hydropower in Nepal, shortfalls in meeting domestic demand require Nepal to purchase thermally produced electricity from India. It is estimated that there are 80,000 MW of hydropower potential in Nepal, about half of which is currently commercially feasible. If this potential is tapped, with environmentally and socially sound principles intact, the economic impacts will be far reaching.

Hydropower is the most promising path for Nepal's sustainable development and prosperity. The increasing domestic demand for electricity can be met without the need for imports and with direct social benefits. Hydropower for export is Nepal's best investment opportunity and is the only viable source of foreign currency outside the limited tourism and carpet industries. The promise of the Indian market next door attracts international financing and technology. Nepal already has trade treaties with India and legislation in place to develop and export private power to India. However, the government must address the issue of downstream water benefits that has obstructed energy trade negotiations with India in the past. The government has begun privatizing hydropower generation, but needs further assistance to follow through and to develop the

[11] Load shedding means reducing total demand for power, either by reducing voltage and frequency to the grid or by rotating black-outs to different sections of the grid. Both practices are very disruptive and harmful to electrical equipment.

sophistication to deal with private sector developers, as well as Indian customers, while preserving Nepal's natural resources.

B.5. Sri Lanka

Of the energy sectors in the South Asian region, Sri Lanka's is in the best shape. Sri Lanka generally delivers power more efficiently and of higher quality than elsewhere in the region. The country has an installed electricity generation capacity of 1,610 MW of which 1,300 are available at any given time. The present generation mix is about 70 percent hydro and 30 percent thermal, and 50 percent of the population has access to electricity. With the exception of 300 MW potential in mini-hydropower, Sri Lanka has maximized its hydropower potential. Given this, and following a severe drought in 1996, the decision was made to shift the mix to thermal sources. That and a yearly increase in energy demand of 8 percent has led to the projection that 2,500 MW of additional installed capacity will be needed by the year 2012. The Ceylon Electricity Board (CEB) has published an expansion program to meet this demand, but it will require an investment of more than $2 billion in the energy sector over this period of time. Sri Lanka's limited natural resources require it to rely on imported fuel to bring about the shift to thermal power generation. Thus Sri Lanka is a potential market in the region and is willing to enter into negotiations with whoever presents viable options to meet the projected energy demand.

Sri Lanka could participate in regional energy trade in two ways: through an underwater cable from India or by importing liquefied petroleum gas (LPG) or liquefied natural gas (LNG) from available markets in the region. Present plans are to unbundle the CEB into two generation companies, one transmission company, and one distribution company. There are no plans to sell the existing assets of these companies, i.e., privatize, but the newly adopted policy states that all new thermal generating capacity will be bid to the private sector. Presently there are two established independent power producers and several more private sector projects under consideration.

B.6. Pakistan

Five years ago Pakistan was a leader in the region in energy sector reform and the introduction of independent power producers (IPP). But certain factors came into play: the country's growth and development was stalled for political and economic reasons and the projected growth in energy demand did not occur. Moreover, the additional generation capacity projects contracted were not staggered. Thus, Pakistan now faces excess capacity as many projects expected to come on line by the end of 1999 face insufficient demand for the energy generated. Pakistan must now look outside its borders for a market for this electricity or risk failure to meet its responsibilities and financial obligations. The logical potential market for Pakistan's excess capacity would be India, but in the present political atmosphere, any discussion about energy trade is a considerable challenge.

ANNEX C. BARRIERS TO TRADE

C.1. Barriers to Bangladesh-India Trade of Energy

In Bangladesh, the core problem is that both the government and opposition party have politicized an economic and commercial matter. Neither side can support exporting natural gas into India, for fear that the other side will use that decision for political advantage. The GBD wants private sector companies to spend more money to develop more gas reserves before the GBD will agree to export. However, private companies have already invested significant resources in the exploration and extraction of Bangladeshi gas, with the financial exposure of US companies in Bangladesh growing from $25 million in 1996 to $700 million or even $2.3 billion in 1999, depending on accounting methods. Private energy companies need assurances that they will be able to monetize the gas they have already spent money to develop and recoup any further investments in an open and transparent manner. The fruits of these investments can be seen in the reserve-to-production ratio for gas in Bangladesh, which is already high at 35. In comparison, the ratio in Canada, a natural gas exporter, is 12:1, and in the U.S. the ratio has remained constant as new reserves continue to be discovered and developed.

The reluctance of Bangladesh to export gas stems from three sources: 1) a lack of knowledge and skill to feel secure in negotiating with large foreign energy companies; 2) the political pressure against providing India with energy; and 3) the GBD position that Bangladesh must be assured of sufficient gas reserves for its future domestic needs before gas can be exported. The reasons behind the last point may be one or both of the following: the GBD does not trust the enormous reserve estimates or the GBD hopes private sector companies will continue to develop Bangladesh gas even in the absence of a GBD agreement to export. Although other governments avoid discussing the export issue with Bangladesh, the private sector has stated that it is unlikely to continue to invest in Bangladesh gas unless there is opportunity to export gas or power. Although it is possible to export the gas somewhere other than India, such as Southeast Asia, this would entail significantly higher costs and also increase currency exchange risks, which are quite low between Indian and Bangladeshi currencies.

Without the export of gas or electricity generated from gas, Bangladesh faces economic stagnation if not contraction, which could lead to serious social dislocations and political instability. With export, Bangladesh will be able to attract the capital, management skills, and technology it needs for sustainable development. Moreover, as the GBD takes the steps necessary to attract foreign capital and technology, its domestic energy production and distribution will improve, raising living and business standards that will attract even more foreign investments. Properly developing the Bangladesh natural gas sector, in a way that protects the environment and benefits the poor, may be one critical sustainable development path that helps lift Bangladesh out of chronic poverty. In addition, developing Bangladesh's gas would protect the global environment by helping reduce the region's dependence on oil or coal.

There is an urgency to work with Bangladesh to give it the confidence it needs to export gas, before private investors move on to more attractive investment environments or the GBD defaults

on MDB or private loans. If foreign capital dries up, either from private sources or MDBs, Bangladesh's opportunity to work towards independence from concessional foreign aid may vanish. Bangladesh is at a crossroads, just beginning to institute reforms and eager to develop its abundant gas reserves. USAID has an opportunity to influence the process, building regional trust and confidence to help move Bangladesh beyond the politics that prevent gas export. The development of the Bangladesh energy sector in an environmentally and economically sustainable manner is a tremendous opportunity to lift the Bangladeshi people out of poverty. The opportunity can be lost if the GBD does not start now to sustainably develop its most important natural resource.

C.2. Barriers to Nepal-India Trade of Hydropower

The fragility of the recent string of coalition governments leading Nepal's young democracy over the past few years has provided few opportunities for solidifying relationships between Nepal and India. Nepal traditionally exhibits a significant amount of distrust of India, a neighbor that almost completely dominates its economy. Negotiations on all topics, including energy cooperation, are colored by this unbalanced relationship. The newly elected majority government in Nepal is still approaching energy negotiations with caution, but optimism has been rising. The Nepalese are willing to develop their hydropower potential through public investment, joint ventures with the private sector and limited wholly foreign-owned private investment, if they can sell their hydropower at a reasonable price. Negotiations with India usually stall due to disagreement on issues of pricing and downstream water benefits. In essence, the problem stems from the fact that the relocation of people upstream from the dam location, the flooding of farmlands, and any other detrimental effects to the environment would be experienced on the Nepalese side. Those downstream from the dam location, which would primarily be on the Indian side, would benefit from controlled water flows for irrigation and flood prevention and control. Nepal is determined to factor in the value of improved flood control and irrigation management opportunities as downstream benefits in the pricing of its hydropower. India to date has been unwilling to accept these costs.

To the GON, the problem lies in the terms of the trade, not the political willingness nor technical requirements for trade. Nepal understands that the development of its hydropower potential is essential to overall development, but because of its geographical location and characteristics, it is dependent on the availability of an
export market to India. Regional discussions can assist both sides in reaching a mutual understanding of these costs and benefits and how to address them consistent with international practices.

D.4. Nepal

The World Bank and ADB continue to support the development of hydropower in Nepal, with much greater emphasis on improving the policy environment to make such hydropower projects feasible, rather than direct financing of large hydropower projects. In 1995, the World Bank decided against a planned loan for a 402 MW project, after much publicity about possible environmental and social risks, as well as financial concerns. Its current proposed project in Nepal would create a $100 million fund to act as a lender of last resort to private developers. The project also includes $75 million to enhance Nepal's electricity transmission and distribution capacity and to improve the operational efficiency of the Nepal Electricity Authority (NEA). The ADB recently designed a $50 million loan to extend the transmission and distribution system to rural areas and provide technical assistance to the NEA. These amounts are small compared to the level of funding the banks formerly undertook for hydro projects. Several other donors are involved in the hydropower sector, including the German, Canadian, and Danish aid organizations (GTZ, CIDA, DANIDA), and the United Nations Development Program (UNDP). The Japanese and Chinese governments have expressed interest in providing loans for specific projects with tied conditions.

D.5. Pakistan

In Pakistan, the World Bank has various projects underway, including a transmission project and a hydropower project. It is currently preparing a power sector adjustment loan, which will support the restructuring of the power sector from a large, vertically integrated utility, the Water and Power Development Authority, to a more deregulated sector with thirteen companies that could later be privatized. The proposed loan would also provide balance of payments assistance to sustain macro-economic adjustment and help restore the financial viability of the power sector. The ADB is also working on a power sector restructuring loan of $250 million that is set for approval in 2000. This loan is intended to restore and sustain the financial viability of power utilities, rationalize electricity pricing, ease financial pressure from contractual obligations with independent power producers, establish a more efficient and competitive industry structure, and provide for effective sector regulation.

ANNEX E. THE ROLE OF SAARC

Regional work in South Asia must take into account the South Asian Association for Regional Cooperation (SAARC), a regional body created in 1985 to help promote social and economic development and cooperation in the region. SAARC consists of seven member countries: Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka. Its charter allows for the formation of action committees on particular topics of interest to at least three or more member countries. Sub-regional cooperation is possible for participation in or preparation of activities, although any implementation of SAARC projects needs the approval of all member countries, including ones not included in the proposed activity. Therefore, even if SARI/Energy does not include all seven SAARC countries, opportunities still exist to involve the association.

Although a valuable concept, SAARC has yet to live up to its expectations. The effectiveness of the Association has been hindered by a lack of political clout. However, SAARC has recently reorganized, eliminating a few technical committees and merging others. It appears eager to reorganize in a manner that takes into lessons learned from past operations in order to become a more effective organization. The seven current technical committees encourage cooperation in specific areas such as social development, agriculture, rural development and general economic cooperation. SAARC has focused much of its recent work on promoting trade liberalization, first through the South Asian Preferential Trade Agreement, and eventually through a regional free trade agreement.

Most significantly for SARI/Energy, a new technical committee for energy was created as a result of the reorganization. The committee is still in a formative stage, and must prepare a concept paper on its purpose and activities to be approved by the Standing Committee and Council of Ministers. A small working group will prepare the paper and is seeking ideas from various sources. This is a rare opportunity for USAID, through SARI/Energy, to influence and help shape SAARC's approach to regional cooperation in energy. By working with SAARC, USAID will gain insight into the complexities of the regional energy sector. The Department of State is currently working on a Memorandum of Understanding with SAARC, which will facilitate USG collaboration with the Association. SARI/Energy can interact with SAARC in informal ways, possibly by providing input to its concept paper, or by giving working-level staff opportunities to engage in dialogue with the private sector at USAID-supported regional forums. Conversely, USAID may benefit from SAARC's joint sponsorship of specific conferences and workshops.