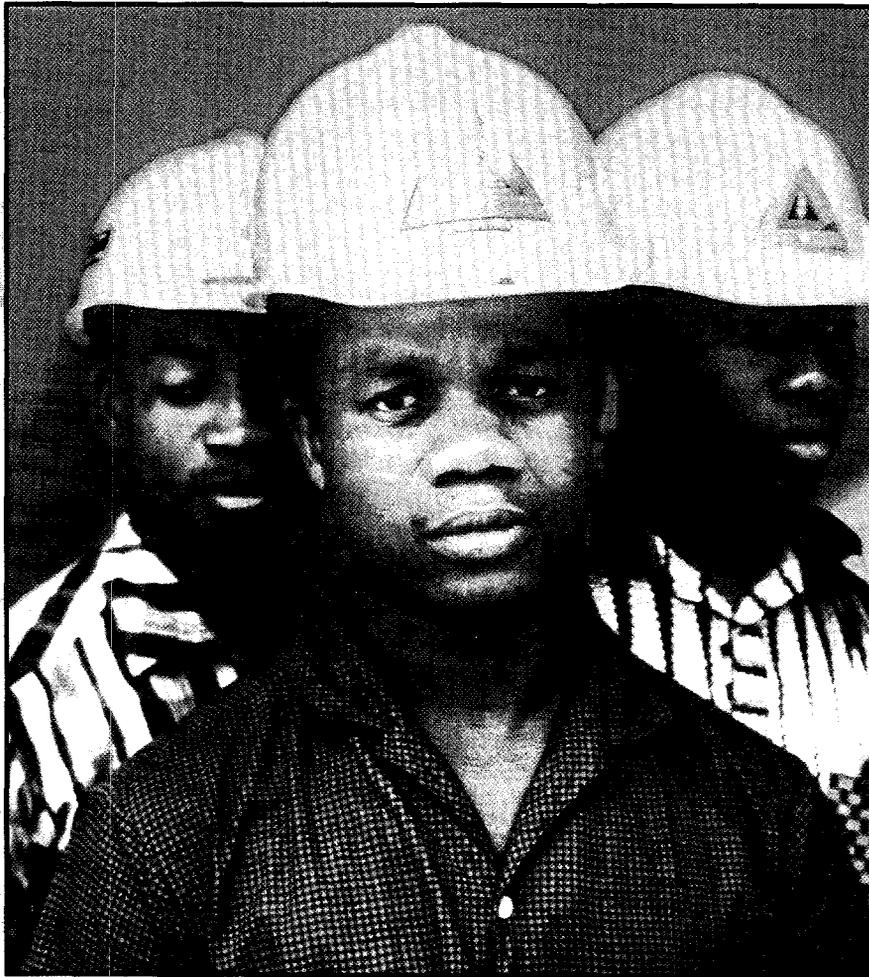


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Lending for Electric Power in Sub-Saharan Africa



Alvaro J. Covarrubias

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A World Bank Operations Evaluation Study

Lending for Electric Power in Sub-Saharan Africa



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Alvaro J. Covarrubias

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Foreword

This study investigates whether Sub-Saharan Africa (SSA) posed—and will continue to pose—a special challenge in the World Bank's lending for power sector development. It evaluates the performance of 41 power projects completed from 1978 to 1993. The Bank lent \$1.2 billion of the projects' total \$3.3 billion in costs, and mobilized \$1.4 billion in cofinancing. The Sub-Saharan countries contributed \$0.7 billion. While SSA's record in the execution of physical components was on average as good as in other regions, this was not the case for institutional development and policy reforms. Low operational efficiency and failure to recover costs plagued the sector despite the repeated injection of Bank funds.

External factors and public sector weakness are part of the explanation. Borrower ownership of policy and institutional improvements was often missing. Lapses in the coordination among international donors also hurt. Project design and implementation variables under the Bank's control played an important role as well.

The Bank's new power sector policy, focusing on effective institutional, regulatory, and finan-

cial reform, is well adapted to Africa's circumstances, and there is a growing realization in SSA that reform is needed. In a few cases, progress has been made through management and lease contracts based on a blend of domestic and foreign know-how.

The study recommends that the Bank nurture borrower ownership for such changes—particularly for a regulatory framework that ensures autonomy and adequate power prices for operators, public and private. It also recommends that country assistance strategies examine the justification of power lending and ensure its coherence with other assistance priorities. In particular, the Bank should avoid making large power loans unless the sector is substantially on its way to reform. Finally, strategic partnerships with other development agencies concerned with SSA power development should be considered.

Robert Picciotto
Director General
Operations Evaluation

Prefacio

En este estudio se intenta determinar si los países de Africa al sur del Sahara han representado —y seguirán representando— un desafío especial en lo que respecta al financiamiento del Banco Mundial para el desarrollo del sector de energía eléctrica. En él se evalúan los resultados de 41 proyectos de ese sector terminados entre 1978 y 1993. De los \$3.300 millones correspondientes al costo total de los proyectos, el Banco dio un préstamo \$1.200 millones y movilizó \$1.400 millones en cofinanciamiento. Los países de Africa al sur del Sahara aportaron \$700 millones. En promedio, los resultados de estos países en la ejecución de los componentes físicos de los proyectos fueron tan satisfactorios como los logrados en otras regiones. Sin embargo, no ocurrió así en lo que respecta al desarrollo institucional y a la reforma de políticas. En estas esferas la eficiencia operativa fue escasa y no se recuperaron los costos, a pesar de los continuos aportes de recursos financieros por parte del Banco.

Estos resultados se deben, en parte, a factores externos y a las deficiencias existentes en el sector público. En muchos casos, los prestatarios no se identificaron con los programas de reforma institucional y de políticas. Los problemas de coordinación

entre los donantes internacionales también tuvieron un efecto perjudicial. Asimismo, las variables controladas por el Banco relativas a la formulación y ejecución de los proyectos revistieron mucha importancia.

La nueva política del Banco para el sector de energía eléctrica, orientada a lograr reformas institucionales, reglamentarias y financieras eficaces, se adapta bien a las condiciones imperantes en Africa, y en los países de Africa al sur del Sahara hay una conciencia cada vez mayor sobre la necesidad de aplicar reformas. En unos pocos casos se han hecho avances mediante la celebración de contratos de administración y de arrendamiento basados en una combinación de conocimientos prácticos tanto internos como externos.

En el estudio se recomienda que el Banco fomente la identificación de los prestatarios con estas reformas, sobre todo con un marco normativo que garantice a las empresas públicas y privadas su autonomía, además de tarifas adecuadas para la electricidad. También se recomienda que en las estrategias de asistencia a los países se tengan en cuenta las razones que justifiquen el financiamiento de proyectos de energía eléctrica y se garantice que éstas sean coherentes con otras prioridades en materia de asistencia. En particular, el Banco debe

evitar el otorgamiento de préstamos de gran cuantía para ese tipo de proyectos, a menos que el sector se encuentre en una etapa avanzada de reforma. Finalmente, debe estudiarse la creación de asociaciones estratégicas con otros organismos de desarrollo vinculados al

desarrollo del sector de energía eléctrica en los países de África al sur del Sahara.

Robert Picciotto
Director General
Evaluación de Operaciones

Préface

La présente étude cherche à établir si l'Afrique subsaharienne a posé — et continuera de poser — un problème particulier à la Banque mondiale en matière de prêt au développement du secteur de l'électricité. Elle dresse le bilan de 41 projets d'électricité achevés entre 1978 et 1993. Pour ces projets, qui ont coûté au total 3,3 milliards de dollars, la Banque a prêté 1,2 milliard de dollars et elle a mobilisé 1,4 milliard de dollars de cofinancement. La contribution des pays d'Afrique subsaharienne s'est élevée à 0,7 milliard de dollars. S'agissant de l'exécution des composantes physiques, la performance de la région a été en moyenne aussi satisfaisante que celle d'autres régions, mais il n'en a pas été de même pour le renforcement institutionnel et les réformes. Le peu d'efficacité de l'exploitation et le non-recouvrement des coûts ont gravement nui au secteur, malgré l'injection répétée de fonds de la Banque.

Cette situation tient en partie à des facteurs externes et à la faiblesse du secteur public. Souvent, l'emprunteur n'avait pas fait sienne l'amélioration des politiques et des institutions. Les projets ont également souffert de défauts de coordination entre les bailleurs de fonds étrangers. Des variables relevant de la Banque, aux stades de la conception et de l'exécution des projets, ont également joué un rôle important.

La nouvelle politique de la Banque pour le secteur de l'électricité, qui privilégie la mise en oeuvre de réformes institutionnelles, réglementaires et financières, est bien adaptée à la situation de l'Afrique, et les pays de l'Afrique subsaharienne sont de plus en plus conscients de la nécessité de la réforme. Dans quelques cas, la conclusion de contrats de régie et de contrats d'affermage alliant compétences étrangères et nationales a permis des progrès.

L'étude recommande que la Banque favorise l'appropriation par l'emprunteur de ces réformes — notamment l'adoption d'un cadre réglementaire qui garantisse l'autonomie des exploitants, publics et privés, et leur permette d'appliquer des tarifs électriques adéquats. Elle recommande également que les stratégies d'aide-pays examinent la justification d'opérations de prêt au secteur de l'électricité et veillent à leur cohérence avec les autres priorités de l'aide. En particulier, la Banque doit se garder d'accorder des prêts importants pour l'électricité, à moins que le secteur ne soit fortement engagé sur la voie de la réforme. Enfin, il lui faut envisager l'établissement de partenariats stratégiques avec d'autres organismes de développement actifs dans le secteur de l'électricité.

Robert Picciotto
Directeur général
Évaluation des opérations

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Abbreviations and acronyms

AFDB	African Development Bank
ARPP	Annual Report on Portfolio Performance
CDC	Commonwealth Development Corporation
CFD	Caisse Française de Développement
CIDA	Canadian International Development Agency
CIE	Compagnie Ivoirienne d'Électricité
CIPREL	Compagnie Ivoirienne de Production d'Électricité
DCGTX	Direction et Contrôle des Grands Travaux
ECG	Electricity Corporation of Ghana
EECI	Energie Electrique de Côte d'Ivoire
EIB	European Investment Bank
ENELGUI	Entreprise Nationale d'Electricité de Guinée
ERR	Economic rate of return
ESAL	Energy Sector Adjustment Program
ESMAP	Energy Sector Management Assistance Program
ESW	Economic and sector work
GDP	Gross domestic product
GWh	Gigawatthour
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IMF	International Monetary Fund
IPP	Independent power producer
KFAED	Kuwait Fund for Arab Economic Development
KfW	Kreditanstalt für Wiederaufbau
kWh	Kilowatthour
LDC	Less developed country
LRMC	Long-run marginal cost
MW	Megawatt
NEPA	National Electric Power Authority
NORAD	Norwegian Agency for International Development
ODA	Overseas Development Administration
OECD	Organization for Economic Cooperation and Development
OED	Operations Evaluation Department
OMS	Operational manual statement

PAR	Performance audit report
PCR	Project completion report
PMTF	Portfolio Management Task Force
REGIDESO	Régie de Distribution d'Eau et d'Electricité
ROR	Rate of return
SAL	Structural adjustment loan
SAR	Staff appraisal report
SAUR	Société Africaine Urbaine
SECAL	Sectoral adjustment loan
SIDA	Swedish International Development Agency
SODECI	Société de Distribution d'Eau de Côte d'Ivoire
SSA	Sub-Saharan Africa
TA	Technical assistance
TANESCO	Tanzania Electric Services Company
TWh	Terawatthour
UNDP	United Nations Development Program
VALCO	Volta Aluminum Company
VRA	Volta River Authority
WDR	World Development Report

Executive summary

Why are Bank power projects less successful in Sub-Saharan Africa than in other regions? To find answers, this study establishes the outcomes of the completed projects and assesses the Bank's and borrowers' performance. It identifies country, project, and process factors that have enhanced or inhibited progress. It also assesses the prospects for implementing the principles of the Bank's new power sector policy and suggests approaches to improve the impact of Bank intervention.

For the 26 Sub-Saharan African (SSA) countries receiving Bank credits or loans for electric power, the average GDP per capita was \$304 in 1994. Their economies grew at 5.5 percent a year during 1970–80, and stagnated until 1985 before plummeting to their recent lows. Their combined energy resource endowment is substantial with numerous hydro sites, coal and uranium deposits, and large crude oil and gas reserves. But they use little of this potential, as witnessed by the low rates of electricity consumption in 1971 (31 TWh) and in 1991 (81 TWh). On a per capita basis, electricity consumption has risen and fallen with GDP: from 134 kWh in 1971 to 200 kWh in 1991 after peaking at 247 kWh in 1980. Compare those figures with 580 kWh for China and 350 kWh for India.

Core challenge. Power supply should not, as a rule, lag behind or race ahead of economic

growth. Many less-developed countries have tried to race ahead by setting unduly low power prices—hoping to spur their economic growth. But this has proven unaffordable and ineffective because electrification programs do not significantly affect economic growth in the absence of other development prerequisites. In SSA as elsewhere, the challenge is for the power sector to meet effective demand at least cost without (a) adding to public deficits, and/or (b) competing for scarce public funds for such social priorities as education and health.

Public utilities paradigm of the 1970s and 1980s. Most power utilities benefiting from Bank loans have been state-owned enterprises, and all projects completed by 1993 were designed under the Bank Operational Manual Statement 3.72 for public utilities projects, issued in 1978. OMS 3.72 set out broad policy objectives in accord with the public utilities paradigm prevailing at that time. The Bank sought to help (a) provide power service on the basis of least-cost development programs, (b) strengthen the sector's institutions and improve their efficiency, (c) increase local resource mobilization and catalyze cofinancing, and (d) improve access to electricity by disadvantaged groups.

Policy revision. By the late 1980s, it became clear that Bank projects had delivered too little on key OMS 3.72 objectives, especially with respect

to financial and environmental sustainability. So, in January 1993, the Bank introduced a new policy that stressed the desirability of operating the sector on a commercial basis, the importance of energy conservation, and the requisites of environmental sustainability. This new policy, no longer emphasizing access to basic electricity service by the poor, represented a notable shift. It identified *five guiding principles* for Bank support: transparent regulation, commercialization and corporatization, imports of services, a commitment to reform, and greater private investment.

Review of completed projects

Since the issue of OMS 3.72 in 1978, the Bank has participated in 69 power lending operations in 26 SSA countries. The cohort reviewed here consists of 44 credits or loans for 41 *completed* power projects in 22 countries—a dozen of them with two operations, and only Kenya and Zaire having more than two. Of total Bank financing for infrastructure in SSA since 1978 (\$5.6 billion), the share for electric power was 21 percent.

Objectives and components. The projects emphasized physical capacity and institutional strengthening, and cofinancing was an important feature of most. Improving access to electric service by disadvantaged groups was attempted in only five countries. New generation—particularly hydroelectric plants—and transmission had priority over expansion of distribution. In more recent years, rehabilitation had the highest priority, particularly the rehabilitation of distribution. On average, about 12 percent of project cost was allocated to non-physical components—mostly for studies.

Performance. The outcome was rated as satisfactory for 64 percent of the cohort projects, compared with 79 percent for all Bank power

projects since 1978. For 22 projects completed in 1989–93, the achievement of institutional development objectives was rated as substantial in only 27 percent of the cases (38 percent Bankwide), and the sustainability of benefits as likely in only 36 percent of the cases (68 percent Bankwide).

Economic rate of return (ERR). At completion, ERRs were recalculated for only 22 of the 41 completed projects. Ten of the 22 projects had ERRs below 10 percent, compared with the average of 12–15 percent for all Bank power projects completed since 1978. Only three had higher ERRs at completion than at appraisal. With few exceptions, ERRs were calculated using input market prices, net of taxes and import duties, and tariffs as a proxy for the economic value of power.

Institutional development and technical assistance (TA). Assistance from engineering consultants for project design and construction supervision was the most frequent and most successful type of TA. Management assistance was most effective where expatriates were given executive authority. Training occurred in various forms, but the outcomes were poorly documented.

Compliance with covenants. Overall compliance with covenants was more often partial than substantial. The degree of compliance with important financial covenants was especially weak—for the collection of accounts receivable, the approval of tariff increases, and the financial return on fixed assets.

Environment and resettlement. Power projects in SSA seldom raised critical environmental and resettlement issues. The encroachment of power lines and substations on natural resources was relatively minor. Thermal generation in several countries is based on small diesel-fueled sets, a relatively clean technology, and coal-fired power plants, developed only in Botswana and Zimbabwe, use appro-

appropriate technology to abate pollution. In nine of the 15 hydroelectric projects, the environmental impact was considered insignificant at the onset, and Bank documents do not report on the impact after completion in the others. This said, three out of five cases where resettlement raised issues—hydro power projects account for about 18 percent of the 190,000 people displaced by Bank-financed projects in SSA—these were not handled according to present Bank guidelines even though these projects were approved after publication of the guidelines in the early 1980s. This confirms that the lessons learned early on in Ghana (Akosombo approved in the 1960s)—to restore resettlers' productive systems and social environment—were not subsequently applied systematically elsewhere in the region.

Program impact

Least-cost development. In line with Bank policy, Bank involvement in the SSA power sector aimed to encourage least-cost development—and it was largely successful. In the aftermath of the two oil shocks of 1973 and 1979, relatively large hydroelectric plants were perceived as the best alternatives, but the drop in oil prices since 1986 has reduced the economic benefits of hydroelectric plants. Those financed by the Bank in the 1980s would still be good investments today, but gas-based alternatives now look more attractive in Côte d'Ivoire, Nigeria, and Tanzania. Economic and sector work (ESW) and energy assessments did not always influence project identification: the Bank refused to finance several projects that were uneconomical, but with the exception of Nigeria, few options other than hydro were considered.

Efficiency. Project cost and time overruns, while substantial, were no worse in SSA than in other regions. But the improvement in the efficiency of technical and commercial opera-

tions of SSA power utilities was worse and, with a few exceptions, marginal. The outcome of most projects was mixed, and the sustainability of the physical improvements uncertain—due to a lack of effective maintenance arrangements. By the early 1990s, the rate of power losses was higher than the Bankwide median for two-thirds of SSA countries. Productivity, measured by the number of customers or the production per employee, was also low.

Cost recovery. With few exceptions, cost recovery in SSA countries has been inadequate and generally below that of other regions. In the early 1990s, collection of electricity bills was worse than the Bankwide median for two-thirds of SSA countries. More than 75 percent of outstanding accounts receivable was more than 90 days old, with arrears tending to increase with the billed price of electricity. In the harsh economic environment of the 1980s, enterprises and households were hard put to pay their bills—but the bulk of the arrears were from the public sector.

The financial performance of the electric power utilities of SSA countries has generally been inadequate. In about 60 percent of SSA countries, rates of return (RORs) on revalued net fixed assets in operation—and debt service coverage—were worse than the Bankwide median. On self-financing, three out of four SSA countries were worse than the Bankwide average, the disappointing results attributable to slow asset growth in the 1980s. High to acceptable RORs (as in Malawi and Zimbabwe) reflect operating efficiency as much as the adequacy of tariffs.

Access by the poor. With few exceptions—Burundi, Côte d'Ivoire, Ghana, Guinea, and Nigeria among them—the provision of electricity service to low-income households in SSA was pursued weakly or not at all. Where it was pursued, through distribution or rural

electrification components, it did not prove sustainable. Generously subsidized tariffs, often directed to low-voltage customers, favored existing customers more than new ones. But the overriding factor, depressing incomes and demand for new connections, was the poor macroeconomic environment.

Resource mobilization. For power projects completed since 1978, the Bank lent \$1.2 billion (36 percent of total project financing requirements), and cofinanciers contributed \$1.4 billion (44 percent). The utilities and the governments contributed the remaining \$0.7 billion (20 percent).

Performance factors

External and country factors. In SSA as in other regions, international interest rates, currency movements, and terms of trade shifts hurt the power sector's performance. High international fuel prices also hurt the finances of utilities with predominantly thermoelectric systems until 1986, when prices began to drop. In Sahelian countries, a long period of drought between 1978 and 1985 depleted reservoirs and eroded the utilities' financial reserves. Beyond these outside factors, a weak human resource base and an ineffective institutional framework contributed to technical inefficiencies. Despite all this, process factors under Bank control were highly influential in final project outcomes, as explained below.

Choosing project objectives. During the 1980s, broad energy considerations affected project designs, increasing project complexity and making priorities more diffuse. And although traditional energies such as fuelwood are very important for SSA countries—and several forestry projects addressed them—their processing and rational use deserved more systematic attention than the piloting of a few components in power projects.

In some cases, sector objectives were subordinated to the resource transfer and other broad goals of adjustment operations. Conversely, adjustment loans sometimes included energy sector conditions: in the 1980s, a total of 23 structural adjustment loans (SALs) were implemented in SSA countries, of which eight, in eight countries, had such conditions. But, more often than not, adjustment operations missed opportunities to address the fiscal burden of power utilities. OED evaluations¹ show that SALs in the 1980s were most effective in reforming the energy sector when: (a) reforms were urgent because energy consumption per unit of GNP was high and prices were very distorted, (b) reforms were easier because energy intensity and the share of industrial consumption were high, and (c) technically sound action plans had been prepared (often under previous investment loans). The last two conditions were seldom present in the power sectors of SSA countries.

Eliciting borrower ownership. Borrowers' ownership of objectives was high for capacity expansion, but not for TA and institutional and policy reforms. Least owned were: utilities *autonomy*, *large tariff adjustments*, and *staff reductions* or adjustments in *remuneration*. By and large, the Bank had little success in eliciting stakeholder initiation and ownership of reform. In some cases, the Bank helped perpetuate traditional approaches—although signs existed that bolder ones would have been acceptable. In many instances, the Bank avoided sanctioning countries, even in the face of repeated breaches of covenants, rushed to lend in a handful of cases, and approved large loans that failed to elicit even modest policy adjustments. Policy seminars organized by ESMAP (Energy Sector Management Assistance Program) tended to dwell on principles rather than concrete actions.

As a result, the intellectual conviction of policymakers was not tested. Political commit-

ment, when it emerged, was less the result of Bank persuasion than of fiscal crises that afflicted, for example, Burundi, Côte d'Ivoire, Ghana, and Guinea. There is no evidence of Bank efforts to enlist the support of potential "winners" of reform and change the incentives of potential losers.

Effectiveness of technical assistance. Again, ownership—or rather its absence—was the key factor. Ghana's twinning program for management assistance was successful because of the good interaction between a few expatriates and a new management team of young, ambitious people who were strongly motivated and eager to learn. This experience is exceptional, however. Bank staff are often too remote or lack the skills to supervise TA. Other donors have greater field presence and effectiveness, but their expertise is mostly in technology. The challenge is to build through innovative approaches government's role as regulator and policymaker.

Cofinancing and donor coordination. The Bank has been very successful in catalyzing cofinancing—less so in coordinating the role and actions of other lenders and donors. Its influence has been undermined when other donors financed projects it rejected as uneconomical. And sometimes the design of TA was not closely coordinated among donors—so that it became diffuse, included conflicting elements, and left gaps and inconsistencies.

Implementing the new policy guidelines

Success was generally modest in establishing a transparent regulatory process, introducing a business orientation, and attracting the private sector. But positive trends have recently emerged. Substantial progress has been made due to the effectiveness of imported manage-

ment services where they were used. In addition, more countries are showing concrete signs of upfront commitment to reform in recent Bank projects.

Transparent regulatory process. On the basis of available evidence, separating responsibilities between the regulating authorities and the operating companies is deficient in the power sectors of all SSA countries. To enhance transparency, the Bank has promoted performance contracts ("contrats de plans") between governments as owners of the power utilities and the management teams that operate them. These contracts have clarified objectives, stimulated dialogue between government and enterprise management, and introduced better management, accounts, and audit systems. But because contract targets are not legally enforceable, they have not enhanced the autonomy of state enterprises or resolved their major difficulties.

Commercialization and corporatization. Many utilities in the region have corporate (or similar) status—and in many respects behave like commercial enterprises. But they are not exclusively or even strongly profit-oriented, and they continue to drain public resources. Nonetheless, the prospect for meaningful progress appears to be substantial, in view of the growing consensus on the benefits of commercializing public utilities, and the fact that the region may be coming out of the depression of the 1980s.

Private sector involvement. Political and economic constraints notwithstanding, privatizing some segments of power operations appears possible—as a few SSA countries show. Private operators can be expected to invest if they succeed in covering their perceived risk—and forthright implementation of the Bank's policy would go a long way toward reducing the perceived risk to potential investors.

Importing services. The procurement of services from sources outside countries or even the region is not new—including expertise for long-term planning, project design, construction, construction supervision, tariff studies, and a variety of technical advice and training. But among imported services, *management and lease contracts* have the greatest potential to make a lasting impact on a utility. Are imported services not bound to be resented by the local staff? Not necessarily, if experience in Côte d'Ivoire and Ghana is a guide.

Recent projects. Of 25 ongoing power projects in SSA, 11 were approved after the new sector policy orientation was introduced, the majority including elements of the new policy, particularly for regulatory reform and for management contracts by private operators. In many cases, those elements have been incorporated upfront and in disbursement conditionalities. The FY94 Annual Review of Portfolio Performance indicated that 87 percent of these projects were likely to meet their stated development objectives. But even though borrower commitment to these objectives is strong, this prognosis appears optimistic in comparison with the Bankwide 72 percent estimate for all power projects exiting the portfolio.

Sector restructuring. Changes in the sector's structure are also part of the agenda promoted by the Bank. With few exceptions, power utilities in SSA countries are government-owned integrated monopolies responsible for the transmission and distribution of all the electricity that they produce. At this stage, the small size of the power systems and the weakness of the regulatory framework make it difficult to recommend their break up as was done in some countries like the United Kingdom and Chile. But, independent power producers might be able to compete with utilities for generation in special circumstances, so there is a need to review the barriers to their entry in the market and the rules for pricing their output.

Distribution should be the prime focus of attention: it is where service delivery and cost recovery happens, and unbundling distribution from transmission and generation can open the field for operators who do not have the technical and financial wherewithal to invest large sums. Distribution should be decentralized into service areas designed to make the bidding for the franchise attractive. And if the good record of decentralized community services for water supply and other services is an example, this type of organization is worth experimenting with for low-voltage power supply in areas where informal governance systems work better than formal ones.

Sector information. The execution of this study revealed that the Bank has valuable knowledge (though insufficient in some areas) of the SSA power sector. This knowledge has been the basis for policy choices and donors' involvement. But the principles of the new policy orientations require better information to monitor and evaluate power sector performance and to provide a basis for decisions on private sector involvement.

Recommendations

The new policy orientations for power lending by the Bank make sense for SSA—its poverty and dependence on foreign assistance do not justify relaxing quality standards. Indeed, SSA utilities are peculiarly vulnerable to bad management, and their poor performance is one reason underlying the weak fiscal situations in many SSA economies.

The Bank and other cofinanciers could exercise much more leadership in promoting the sector reforms that form the thrust of the new agenda. Until such reforms take hold, the guarantees they can give to induce large private sector investments in the power sector are likely to be very costly.

Based on the foregoing findings, this review has six main recommendations.

Recommendation 1. The country assistance strategies for SSA countries should examine the justification for power lending and establish the strategies' coherence with Bank assistance for broad economic adjustment and for the development and rational use of other (especially renewable) energy resources.

Recommendation 2. Except for small operations aimed at institution building or rehabilitating facilities, power lending in SSA should be avoided in countries where sector performance is below acceptable benchmarks in key technical and financial areas² and where little of the following reform platform is under implementation at the time of appraisal:

- The establishment of a transparent and arms-length regulatory framework with legal guarantees that utilities can operate with autonomy—for example, through management or concession contracts.
- The enforcement of regulatory principles to ensure financial discipline, adequate tariffs, and incentive-based, competitive contracting of services.

Recommendation 3. When promoting power sector restructuring and privatization in SSA, the Bank should explore setting up purchase tariffs, decentralizing distribution and unbundling it from generation and transmission, using concession contracts for private

operators, and providing guarantees for independent power producers.

Recommendation 4. The Bank should nurture SSA borrower ownership of its new sector policy principles, of institutional development programs to support the reforms, and of the delivery of technical assistance by locals and expatriates. Effective dissemination of good practice and build-up of stakeholders' support of reform should be an integral part of project preparation.

Recommendation 5. The Bank should forge strategic alliances with other lenders and donors to obtain a consensus on the policy objectives and criteria for their involvement in SSA countries. It should also establish partnerships in the deployment of human resources and share responsibilities in performing those tasks that would benefit from the diversity of field assets and competencies of donors.

Recommendation 6. In collaboration with other interested lenders and donors, the Bank should help coordinate and institutionalize a systematic effort to gather and analyze the data that will be needed to implement the principles of the new policy.

Notes

1. C. Jayarajah and W. Branson, *Structural and Sectoral Adjustment: World Bank Experience, 1980–92*, A World Bank Operations Evaluation Study, Washington, DC: World Bank, June 1995.

2. Areas to monitor are technical losses, accounts receivable, and rates of return on investments.

Resumen

¿Por qué en Africa al sur del Sahara los proyectos de energía eléctrica del Banco no dan tan buenos resultados como en otras regiones? A fin de encontrar una explicación, en este estudio se establecen cuáles fueron los resultados de los proyectos terminados y se evalúa el desempeño del Banco y de los prestatarios. Se identifican los factores relativos al país, al proyecto y a los procedimientos vinculados a éste que han promovido o restringido el avance de los proyectos. También se evalúan las perspectivas de que se apliquen los principios de la nueva política del Banco con respecto al sector de energía eléctrica y se recomiendan métodos para mejorar los efectos de las actividades de esta institución.

El PIB medio per cápita de los 26 países de Africa al sur del Sahara que recibieron créditos o préstamos del Banco para proyectos de energía eléctrica era de \$304 en 1994. Su crecimiento económico, que había sido de 5,5 por ciento anual en el período 1970–80, experimentó un estancamiento hasta 1985 y a partir de entonces disminuyó a los niveles mínimos observados en los últimos tiempos. Su dotación total de recursos energéticos es considerable; hay numerosos emplazamientos para el aprovechamiento de la energía hidroeléctrica, depósitos de carbón y uranio y cuantiosas reservas de petróleo crudo y gas. Sin embargo, aprovechan poco de este potencial, como lo revelan sus tasas bajas de consumo

de electricidad de 1971 (31 TWh) y de 1991 (81 TWh). El consumo de electricidad per cápita subió y bajó de acuerdo con el PIB de 134 kWh en 1971 a 200 kWh en 1991, después de haber alcanzado el máximo de 247 kWh en 1980. Compárense estas cifras con las de 580 kWh y 350 kWh correspondientes a China e India, respectivamente.

Principal desafío. Como regla general, el suministro de electricidad debe guardar proporción con el crecimiento económico. Muchos países menos desarrollados han dado un paso más allá del que les permitía dicho crecimiento fijando tarifas demasiado bajas para la energía eléctrica con la esperanza de estimular el desarrollo económico. Sin embargo, ello resultó ser inasequible e ineficaz porque los programas de electrificación no influyen significativamente en el desarrollo económico cuando faltan otros requisitos previos. Al igual que en otras regiones, en Africa al sur del Sahara el desafío que encara el sector eléctrico es satisfacer la demanda efectiva al costo mínimo sin (a) agravar los déficit públicos ni (b) competir para absorber fondos públicos escasos que deben destinarse a prioridades de orden social, como la educación y la salud.

Paradigma de los servicios públicos de las décadas de 1970 y de 1980. La mayoría de las empresas de servicios públicos de electricidad que recibieron préstamos del Banco eran empresas del

estado y todos los proyectos terminados para 1993 se habían formulado con arreglo a lo establecido en el documento del Manual Administrativo OMS 3.72 relativo a los proyectos de servicios públicos, emitido en 1978. En dicha norma se establecen objetivos amplios de política ajustados al paradigma de empresas de servicios públicos que prevalecía en ese entonces. El Banco procuraba ayudar a lograr lo siguiente: (a) prestar servicios de suministro de electricidad basados en programas de desarrollo de costo mínimo; (b) fortalecer las instituciones del sector y aumentar su eficiencia; (c) aumentar la movilización de recursos locales y cumplir una función catalizadora del cofinanciamiento; y (d) mejorar el acceso de los grupos desfavorecidos a la electricidad.

Revisión de las políticas. A fines de la década de 1980 se hizo evidente que los proyectos del Banco estaban muy lejos de alcanzar los principales objetivos establecidos en OMS 3.72, sobre todo en materia de sostenibilidad financiera y ambiental. En consecuencia, en enero de 1993 el Banco introdujo una nueva política que hacía hincapié en la conveniencia de que el sector funcionara en condiciones comerciales, la importancia de la conservación de la energía y los requisitos de sostenibilidad ambiental. Esta nueva política, en la que ya no se puso énfasis en el acceso de los pobres a los servicios básicos de electricidad, constituye un apartamiento notable de la seguida hasta ese momento. En ella se establecieron *cinco principios en los que debía basarse* el apoyo del Banco, a saber: reglamentaciones transparentes, comercialización y conversión de las empresas estatales en sociedades comerciales, importación de servicios, empeño en la reforma y un mayor volumen de inversión privada.

Examen de los proyectos terminados

Desde que se emitió el documento OMS 3.72 en 1978, el Banco ha participado en 69 opera-

ciones de financiamiento para el sector eléctrico de 26 países de África al sur del Sahara. El conjunto examinado aquí está integrado por 44 créditos o préstamos para 41 proyectos *terminados* de energía eléctrica correspondientes a 22 países; 12 de estos proyectos comprendían dos operaciones y sólo los correspondientes a Kenya y Zaire abarcaban más de dos. Del financiamiento total (por valor de \$5.600 millones) proporcionado por el Banco desde 1978 para fines de infraestructura en África al sur del Sahara, el 21 por ciento se destinó al sector eléctrico.

Objetivos y componentes. En los proyectos se hacía hincapié en el desarrollo de la capacidad física y el fortalecimiento institucional; el cofinanciamiento era una característica importante de la mayoría de ellos. Sólo en cinco países se trató de mejorar el acceso de los grupos desfavorecidos a los servicios de suministro de electricidad. La expansión de la generación, sobre todo en centrales hidroeléctricas, y la transmisión de electricidad revestían prioridad respecto de la ampliación de la distribución. En los últimos años, la rehabilitación de las instalaciones revistió máxima prioridad, especialmente la rehabilitación de la distribución. En general, un 12 por ciento del costo de los proyectos se asignó a componentes no físicos, fundamentalmente a la realización de estudios.

Resultados. Se clasificó como satisfactorios a los resultados del 64 por ciento de los proyectos comprendidos en el conjunto examinado, frente al 79 por ciento del total de proyectos de energía eléctrica del Banco desde 1978. En el caso de 22 proyectos terminados en 1989-93, el logro de objetivos de desarrollo institucional se clasificó como sustancial en sólo el 27 por ciento de los casos (frente al 38 por ciento a nivel de todo el Banco), y la sostenibilidad de los beneficios se clasificó como probable en sólo el 36 por ciento de los casos (frente al 68 por ciento a nivel de todo el Banco).

Tasa de rentabilidad económica. Al momento de la terminación, se volvió a calcular la tasa de rentabilidad económica de sólo 22 de los 41 proyectos terminados. En diez de los 22 proyectos, dichas tasas fueron inferiores al diez por ciento, frente al promedio de entre 12 por ciento y 15 por ciento del total de proyectos de energía eléctrica del Banco terminados desde 1978. Sólo tres tuvieron a su terminación tasas de rentabilidad más altas que las previstas en la evaluación inicial. Salvo algunas excepciones, las tasas de rentabilidad económica se calcularon según los precios de mercado de los insumos — deducidos los impuestos y los derechos de importación— y las tarifas como sustituto del valor económico de la energía eléctrica.

Fortalecimiento institucional y asistencia técnica. La asistencia técnica observada con más frecuencia y que tuvo más eficacia fue la de ingenieros consultores para el diseño del proyecto y la supervisión de las obras de construcción. La asistencia para la gestión fue más eficaz cuando las facultades ejecutivas se delegaron a extranjeros. Si bien se utilizó varias formas de capacitación, los resultados no se documentaron bien.

Cumplimiento de los compromisos. En general, el cumplimiento de los compromisos contractuales fue parcial más que sustancial. Se observó un bajo grado de cumplimiento de los compromisos financieros importantes, relativas al cobro de cuentas por cobrar, la aprobación de aumentos de tarifas y el rendimiento financiero de los activos fijos.

Medio ambiente y reasentamientos. En los proyectos de energía eléctrica para África al sur del Sahara pocas veces se plantearon problemas críticos relativos al medio ambiente y los reasentamientos. La invasión de los recursos naturales por las líneas de transporte de energía eléctrica y las subestaciones fue relativamente escasa. En varios países, para la gene-

ración de energía termoeléctrica se utilizan pequeños equipos diesel, tecnologías relativamente poco contaminantes y centrales eléctricas que funcionan con carbón, existentes sólo en Botswana y Zimbabwe, y se usan técnicas de reducción de la contaminación. En nueve de los 15 proyectos hidroeléctricos, el impacto ambiental se consideró insignificante al comienzo, y en los documentos del Banco no se da cuenta del impacto al momento de la terminación de los demás. Aclarado esto, en tres de los cinco casos en los que se plantearon problemas relativos a los reasentamientos —de las 190.000 personas desplazadas en razón de todos los proyectos financiados por el Banco en África al sur del Sahara, un 18 por ciento lo fue por proyectos de energía hidroeléctrica— dichos problemas no se abordaron en consonancia con las directrices del Banco, pese a que los proyectos se habían aprobado después de la publicación de éstas a principios de la década de 1980. Este hecho confirma que las enseñanzas derivadas del caso de Ghana —de restablecer los sistemas productivos y las condiciones sociales de la población reasentada (Akosombo, aprobado en los años sesenta)— no se aplicaron en forma sistemática en los demás países de la región.

Efectos del programa

Desarrollo de costo mínimo. De acuerdo con la política del Banco, la participación de éste en el sector eléctrico de África al sur del Sahara tenía por objeto promover el crecimiento a costo mínimo —y tuvo mucho éxito después de las dos crisis del petróleo de 1973 y 1979. Las centrales hidroeléctricas relativamente grandes se consideraron la mejor alternativa, pero la baja del precio del petróleo desde 1986 ha reducido los beneficios económicos que se esperaban de las centrales hidroeléctricas. Los proyectos financiados por el Banco en los años ochenta aún serían buenas inversiones en la actualidad, pero las alternativas de aprovechamiento del

gas parecen ahora más interesantes en Côte d'Ivoire, Nigeria y Tanzania. Los estudios económicos y sectoriales y las evaluaciones de recursos energéticos no siempre contribuyeron a la identificación de buenos proyectos: el Banco se negó a financiar varios proyectos que eran antieconómicos pero, con la excepción del caso de Nigeria, se consideraron pocas opciones distintas de las hidroeléctricas.

Eficiencia. Si bien fueron sustanciales, los sobre costos y atrasos de los proyectos en la región de África al sur del Sahara no fueron mayores que en otras regiones. Sin embargo, en la primera el aumento de la eficiencia de las operaciones técnicas y comerciales de las empresas de servicios públicos de electricidad fue menor y, salvo algunas excepciones, marginal. Los resultados de la mayoría de los proyectos fueron desparejos y la sostenibilidad de las mejoras físicas fue incierta, debido a la falta de sistemas eficaces de mantenimiento. Para principios de los años noventa, el porcentaje de pérdida de energía eléctrica era mayor que la mediana a nivel de todo el Banco en las dos terceras partes de los países de África al sur del Sahara. También fue baja la productividad, medida por la producción y por el número de usuarios por empleado.

Recuperación de costos. Salvo algunas excepciones, la recuperación de costos en los países de África al sur del Sahara fue insuficiente y en general más baja que la correspondiente a otras regiones. A principios del decenio de 1990, la tasa de cobro de las facturas por el servicio de suministro de electricidad fue más baja que la mediana a nivel de todo el Banco en el caso de las dos terceras partes de los países de África al sur del Sahara. Más del 75 por ciento de las cuentas por cobrar registraban una mora de más de 90 días, y los atrasos por lo general aumentaban a medida que lo hacía el precio de la electricidad. En la difícil situación económica de los años ochenta, las empresas y unidades familiares mal podían pagar sus facturas, pero

la mayor parte de los atrasos correspondía al sector público.

Por lo general, los resultados financieros de las empresas de servicios públicos de electricidad de los países de África al sur del Sahara no fueron buenos. En un 60 por ciento de estas naciones, la tasa de rendimiento de los activos fijos netos revalorizados en operación y la cobertura del servicio de la deuda fueron inferiores a la mediana a nivel de todo el Banco. En materia de autofinanciamiento, la situación de tres de cada cuatro países de dicha región era peor que el promedio a nivel de todo el Banco; cabe atribuir los resultados desalentadores al lento crecimiento de los activos en los años ochenta. Las tasas de rendimiento entre elevadas y aceptables (como en el caso de Malawi y Zimbabwe) se deben tanto a la eficiencia operativa como al nivel adecuado de las tarifas.

Acceso de los pobres. Salvo algunas excepciones —como en los casos de Burundi, Côte d'Ivoire, Ghana, Guinea y Nigeria— poco o nada se trató de prestar servicios de suministro de electricidad a las unidades familiares de ingresos bajos de África al sur del Sahara. En los casos en que se procuró hacerlo, mediante componentes de distribución o electrificación rural, ello no resultó sostenible. Las tarifas sumamente subvencionadas, normalmente para los usuarios de bajo voltaje, beneficiaban a los usuarios existentes más que a los nuevos. Con todo, el factor predominante era la mala situación macroeconómica, a la que se debía la baja de los ingresos y de la demanda de nuevas conexiones.

Mobilización de los recursos. Con respecto a los proyectos de energía eléctrica terminados desde 1978, el Banco prestó \$1.200 millones (el 36 por ciento de la necesidad total de financiamiento para los proyectos) y los cofinanciadores aportaron \$1.400 millones (o sea, el 44 por ciento). Las empresas de servicios públicos

y los gobiernos suministraron los \$700 millones restantes (es decir, el 20 por ciento).

Factores determinantes del desempeño

Factores externos y nacionales. Al igual que en otras regiones, en Africa al sur del Sahara los movimientos de las tasas internacionales de interés, los movimientos de dinero y la relación de intercambio menoscabaron el desempeño del sector eléctrico. El precio internacional de los combustibles también afectó negativamente la situación financiera de las empresas de servicios públicos de sistemas predominantemente termoeléctricos hasta 1986, año en que comenzó a beneficiarla. En los países del Sahel, la sequía que se prolongó desde 1978 hasta 1985 agotó los embalses y socavó las reservas financieras de las empresas de servicios públicos. Además de estos factores externos, las deficiencias de la base de recursos humanos y la ineficacia del marco institucional contribuyeron a producir ineficiencias técnicas. Pese a ello, los factores que estaban bajo el control del Banco influyeron mucho en los resultados finales de los proyectos, como se explica más adelante.

Selección de los objetivos de los proyectos. Durante la década de 1980, consideraciones generales relativas a la energía influyeron en el diseño de los proyectos, acrecentaron su complejidad e hicieron que las prioridades fueran más difusas. Si bien las formas tradicionales de energía, como la leña, son muy importantes para los países de Africa al sur del Sahara —y se abordaron en varios proyectos forestales— su procesamiento y uso racional merecían una atención más sistemática que su introducción experimental como componentes de algunos proyectos de energía eléctrica.

En algunos casos, los objetivos del sector eléctrico se subordinaron a la transferencia de recursos financieros y otros objetivos amplios

de las operaciones de ajuste. En otros, los préstamos para fines de ajuste a veces incluyeron condiciones relativas al sector de energía eléctrica: en el decenio de 1980, en los países de Africa al sur del Sahara se registró un total de 23 préstamos de ajuste estructural, de los cuales ocho —correspondientes a ocho países— contenían condiciones de esa naturaleza. Sin embargo, con mucha frecuencia las operaciones de ajuste no se aprovecharon para abordar la carga fiscal de las empresas de servicios públicos de electricidad. Las evaluaciones ex post del Departamento de Evaluación de Operaciones¹ revelan que los préstamos para fines de ajuste estructural de los años ochenta a nivel de todas las regiones eran más eficaces para reformar el sector de la energía cuando: (a) la necesidad de las reformas era urgente debido a que el consumo de energía por unidad de PNB era elevado y los precios estaban muy distorsionados; (b) la aplicación de las reformas era fácil porque la intensidad de uso de la energía y la proporción de consumo industrial de ella era elevado, y (c) se habían preparado planes acertados de acción (con frecuencia en el marco de préstamos anteriores para proyectos de inversión). Las dos últimas condiciones pocas veces estaban presentes en el sector eléctrico de los países de Africa al sur del Sahara.

Promover la identificación de los prestatarios con los objetivos. Los prestatarios se identificaban mucho con los objetivos relativos a la ampliación de la capacidad de las instalaciones, aunque no con los relativos a la asistencia técnica y las reformas de instituciones y políticas. Con lo que menos se identificaban los prestatarios era con el logro de la autonomía de las empresas de servicios públicos, los grandes ajustes de las tarifas, las reducciones de personal o los ajustes de las remuneraciones. En general, el Banco no logró eficazmente que los interesados asumieran la responsabilidad de la introducción de la

reforma y su identificación con ésta. En algunos casos, el Banco contribuyó a perpetuar los enfoques tradicionales, aunque había señales de que los más audaces habrían sido aceptables. En muchos casos, el Banco evitó imponer sanciones a los países aún en caso de violaciones reiteradas de las estipulaciones contractuales, se apresuró a conceder préstamos en algunos casos y aprobó préstamos grandes que no lograron promover ni siquiera pequeños ajustes de las políticas. Los seminarios sobre políticas organizados en el marco del Programa de asistencia para la gestión del sector de energía (ESMAP), por lo general, se referían a principios en lugar de medidas concretas para aplicarlos.

En consecuencia, no se puso a prueba la convicción intelectual de los responsables de las políticas. Cuando hubo compromiso político, éste se debió menos a la persuasión ejercida por el Banco que a las crisis políticas que se registraron, por ejemplo, en Burundi, Côte d'Ivoire, Ghana y Guinea. No hay evidencias de que el Banco se haya esforzado por ganar el apoyo de los que podrían beneficiarse con la reforma ni de cambiar los incentivos para conseguir el de quienes podrían perjudicarse con ella.

Eficacia de la asistencia técnica. Cabe reiterar que la identificación de los prestatarios con los objetivos, o más bien la falta de ella, fue el principal factor coadyuvante de los resultados obtenidos. El personal del Banco suele estar demasiado alejado o carecer de las aptitudes necesarias para supervisar la prestación de asistencia técnica. Otros donantes tienen mayor presencia en el terreno y son más eficaces, pero su especialización se refiere fundamentalmente a la tecnología. El desafío que se plantea es que el gobierno cumpla la función de regulador y responsable de la formulación de las políticas, y aplique enfoques novedosos al efecto. Por ejemplo, el éxito del programa de asistencia para la gestión de la empresa eléc-

trica aplicado en Ghana se debió a la buena interacción entre unos pocos expertos extranjeros y un nuevo equipo de administración integrado por personas jóvenes y con ideas de gran alcance que tenían una gran motivación y un gran interés en aprender. Sin embargo, esta experiencia es excepcional.

Coordinación del cofinanciamiento y los donantes. El Banco ha logrado cumplir cabalmente una función catalizadora del cofinanciamiento, aunque en menor medida la de coordinar la función y actividades de otros organismos de financiamiento y donantes. Su influencia sufrió menoscabo cuando otros donantes financiaron proyectos rechazados por el Banco como anti-económicos. Además, algunas veces el diseño de la asistencia técnica no se coordinó estrechamente entre los donantes, por lo que ella se diluyó, abarcó elementos incompatibles y registró lagunas e incoherencias.

Aplicación de las nuevas directrices de políticas

Por lo general, se logró en medida moderada establecer procedimientos reglamentarios transparentes, introducir una orientación empresarial y despertar el interés del sector privado. Sin embargo, hace poco surgieron tendencias positivas. Se lograron progresos considerables en materia de eficacia de servicios de administración extranjeros. Asimismo, son más los países que muestran signos concretos de compromiso inicial en los recientes proyectos del Banco.

Procedimiento reglamentario transparente. Sobre la base de las evidencias disponibles, la división de funciones entre las autoridades reglamentarias y las empresas es deficiente en el sector de energía eléctrica de todos los países de África al sur del Sahara. A fin de lograr mayor transparencia, el Banco ha promovido los contratos de desempeño entre los

gobiernos como propietarios de las empresas de servicios públicos de electricidad y los equipos de administración que las dirigen. Estos contratos han servido para aclarar objetivos, fomentar el diálogo entre el gobierno y la administración de las empresas e introducir mejores sistemas de administración, contabilidad y auditoría. Sin embargo, como las metas contractuales no son exigibles legalmente, con ellos no se ha aumentado la autonomía de las empresas del estado ni se han eliminado sus principales dificultades.

Comercialización y conversión de las empresas estatales en sociedades comerciales. Muchas de las empresas de servicios públicos de la región se clasifican como sociedades comerciales o de tipo similar, y en muchos sentidos se comportan como empresas comerciales. Sin embargo, no tienen exclusividad ni notablemente finalidades de lucro y siguen dependiendo de recursos públicos. A pesar de ello, al parecer hay buenas perspectivas de que se produzcan considerables avances habida cuenta del creciente consenso que existe acerca de los beneficios de convertir a las empresas de servicios públicos en sociedades comerciales y al hecho de que la región tal vez esté saliendo de la crisis de los años ochenta.

Participación del sector privado. A pesar de las restricciones políticas y económicas, al parecer es posible privatizar algunos segmentos de las operaciones de energía eléctrica, como lo demuestran algunos países de África al sur del Sahara. Cabe prever que los agentes del sector privado invertirán si logran cubrir los riesgos que enfrentan. La aplicación inmediata de la política del Banco contribuiría mucho a reducir el riesgo percibido por los posibles inversores.

Importación de servicios. La contratación de servicios de fuentes externas a los países o incluso la región no es una novedad. Ella comprende conocimientos especializados para la

planificación a largo plazo, el diseño de los proyectos, la construcción, la supervisión de la construcción, el estudio de tarifas y servicios diversos de asesoramiento y capacitación técnicos. Con todo, entre los servicios importados, los *contratos de administración o de arrendamiento* son los que tienen más posibilidades de producir efectos duraderos en las empresas de servicios públicos. Cabe preguntarse si la importación de servicios ha de ser forzosamente resentida por el personal local. A juzgar por la experiencia de Côte d'Ivoire y Ghana, no siempre ha de ser así.

Proyectos recientes. De los 25 proyectos de energía eléctrica en marcha en África al sur del Sahara, 11 se aprobaron después de introducirse la nueva orientación de política sectorial; la mayoría de ellos comprendió elementos de la nueva política, sobre todo en materia de reforma de las reglamentaciones y los contratos de administración y de arrendamiento por parte de agentes del sector privado. En muchos casos, el cumplimiento de dichos elementos condicionaron la aprobación de los préstamos o sus desembolsos. En el Examen anual del desempeño de la cartera del ejercicio de 1994 del Banco se señaló que el 87 por ciento de dichos proyectos en África al sur del Sahara tenía posibilidades de alcanzar sus objetivos de desarrollo establecidos. Sin embargo, pese a existir una gran identificación de los prestatarios con estos objetivos, este pronóstico parece optimista frente a la estimación del 72 por ciento a nivel de todo el Banco relativa a los proyectos de energía eléctrica existentes en la cartera.

Reestructuración del sector. La modificación de la estructura del sector eléctrico también forma parte del programa promovido por el Banco. Salvo algunas excepciones, las empresas de servicios públicos de electricidad de los países de África al sur del Sahara son monopolios integrados de propiedad del estado responsables de la transmisión y distribución

de toda la electricidad que producen. Pero el tamaño reducido de las redes de energía eléctrica y las deficiencias del marco reglamentario tornan difícil recomendar su desmantelamiento como se hizo, por ejemplo, en el Reino Unido y Chile. Sin embargo, los productores independientes de energía eléctrica podrían competir con las empresas de servicios públicos en la generación de electricidad en situaciones especiales, de modo que es preciso examinar los obstáculos a su entrada en el mercado y las normas para fijar el precio de su producto.

La distribución de electricidad debe ser el principal centro de atención. Como es allí donde se da la prestación de los servicios y la recuperación de costos, separar la distribución de la transmisión y la generación puede abrir el camino a los agentes que no cuentan con los medios técnicos y financieros para invertir grandes sumas. La distribución debe descentralizarse en zonas de servicio para que haya interés en la licitación de las concesiones. A juzgar por el buen historial de servicios comunitarios descentralizados como en el caso del suministro de agua, vale la pena experimentar con este tipo de organización para el suministro de energía eléctrica de bajo voltaje en las zonas en que los sistemas de gobierno informales funcionan mejor que los formales.

Información sobre el sector. La realización de este estudio revela que el Banco tiene conocimientos valiosos (aunque insuficientes en algunos aspectos) del sector de energía eléctrica de África al sur del Sahara. Estos conocimientos han servido de base para las opciones de política y la participación de los donantes. Sin embargo, los principios de las nuevas orientaciones de política exigen más información para supervisar y evaluar el desempeño del sector de energía eléctrica y sentar las bases para la adopción de decisiones acerca de la participación del sector privado.

Recomendaciones

Las nuevas orientaciones de política relativas al financiamiento del sector eléctrico por el Banco son valederas para África al sur del Sahara. La pobreza de esta región y su dependencia de la asistencia externa no justifica que se disminuyan las normas de calidad. Es más, las empresas de servicios públicos de África al sur del Sahara son especialmente vulnerables a la mala administración, y su mal desempeño es una de las razones básicas de la mala situación fiscal de muchos países de África al sur del Sahara.

El Banco y otros cofinanciadores podrían ejercer un grado mucho mayor de liderazgo en lo que se refiere a la promoción de aquellas reformas del sector que constituyen el aspecto fundamental del nuevo programa. Hasta que dichas reformas se afiancen, es probable que las garantías encaminadas a atraer grandes inversiones privadas en el sector eléctrico resulten muy costosas.

Teniendo en cuenta las conclusiones expuestas, en este estudio se formulan las siguientes seis recomendaciones principales.

Primera recomendación. En las estrategias de asistencia a los países de África al sur del Sahara se deben analizar los fundamentos del financiamiento para el sector de energía eléctrica y la armonía de las estrategias con la asistencia del Banco para el ajuste económico amplio y el desarrollo y uso racional de otros recursos energéticos (especialmente renovables).

Segunda recomendación. Salvo en el caso de las pequeñas operaciones destinadas al fortalecimiento institucional o la rehabilitación de instalaciones, se debe evitar otorgar financiamiento para el sector eléctrico de países de África al sur del Sahara cuando el desempeño de dicho sector esté por debajo de puntos de

referencia aceptables en esferas técnicas y financieras², y donde al momento de la evaluación inicial se hayan introducido pocas de las siguientes reformas previstas.

- El establecimiento de marcos reglamentarios transparentes y de plena competencia, con garantías legales de que las empresas de servicios públicos podrán funcionar con autonomía, por ejemplo, mediante contratos de administración o concesión.
- La aplicación de principios reglamentarios a fin de asegurar la disciplina fiscal, tarifas adecuadas, y la contratación de servicios según procedimientos basados en incentivos y condiciones competitivas.

Tercera recomendación. Al promover la reestructuración y la privatización del sector de energía eléctrica en Africa al sur del Sahara, el Banco debe considerar la fijación de tarifas de compra, la descentralización de la distribución y su separación de la generación y la transmisión, mediante el uso de contratos de concesión para agentes del sector privado y la emisión de garantías para productores independientes de energía eléctrica.

Cuarta recomendación. El Banco debe estimular la identificación de los prestatarios de Africa al sur del Sahara con los nuevos principios de política sectorial, con los programas de fortalecimiento institucional en apoyo de las reformas y la prestación de asistencia técnica por

personas del lugar y extranjeros. La difusión eficaz de las prácticas exitosas y el logro del apoyo de los interesados deben formar parte integral de la preparación de los proyectos.

Quinta recomendación. El Banco debe promover la formación de alianzas estratégicas con otros organismos de financiamiento y donantes a fin de lograr consenso acerca de los objetivos de política y los criterios aplicables a su participación en los países de Africa al sur del Sahara. También debe asociarse con otros para el aprovechamiento de los recursos humanos y compartir las responsabilidades inherentes a las tareas que se beneficiarían de los diversos activos existentes en el terreno y las especialidades de los donantes.

Sexta recomendación. Con la colaboración de otros organismos de financiamiento y donantes, el Banco debe ayudar a coordinar e institucionalizar un esfuerzo sistemático encaminado a recopilar y analizar datos acerca del sector de energía eléctrica que se necesitarán para implantar los principios de la nueva política.

Notas

1. C. Jayarajah y W. Branson, *Structural and Sectoral Adjustment: World Bank Experience, 1980-92*, Estudio del Departamento de la Evaluación de Operaciones del Banco Mundial, Washington, DC: Banco Mundial, junio de 1995.

2. Los indicadores que deben vigilarse son las pérdidas técnicas, las cuentas por cobrar y las tasas de rendimiento de las inversiones.

Résumé analytique

Les projets de la Banque dans le secteur de l'électricité donnent de moins bons résultats en Afrique subsaharienne que dans les autres régions. Pourquoi? Pour répondre à cette question, la présente étude détaille les résultats des projets achevés et évalue la performance de la Banque et celle des emprunteurs. Elle identifie les facteurs liés aux pays, aux projets et aux procédures qui ont favorisé ou entravé la bonne marche des projets. Elle évalue également les perspectives d'application de la nouvelle politique de la Banque dans le secteur et propose un certain nombre de démarches propres à rendre l'intervention de la Banque plus efficace.

Le produit intérieur brut (PIB) moyen des 26 pays d'Afrique subsaharienne qui bénéficient de crédits ou de prêts de la Banque pour des projets dans le secteur de l'électricité était de 304 dollars par habitant en 1994. Leurs économies ont connu une croissance de 5,5 pour cent par an entre 1970 et 1980, puis une stagnation jusqu'en 1985, avant de tomber aux niveaux récemment enregistrés. Ces pays disposent au total d'un potentiel énergétique considérable comprenant de nombreux sites hydrauliques, des gisements de charbon et d'uranium, et d'importantes réserves de pétrole et de gaz. Ils n'utilisent cependant qu'une faible partie de ce potentiel puisqu'ils ont consommé trois TWh d'électricité en 1971 et 81 TWh en 1991. L'évolution de la consom-

mation d'électricité par habitant a suivi celle du PIB, passant de 134 kWh en 1971 à 200 kWh en 1991 avec une pointe de 247 kWh en 1980. On peut comparer ces chiffres avec 580 kWh pour la Chine et 350 kWh pour l'Inde.

Le défi principal. En règle générale, la fourniture d'électricité ne devrait ni progresser à un rythme supérieur à la croissance économique, ni rester à la traîne. Nombreux sont les pays en développement qui ont essayé de prendre les devants en fixant des tarifs d'électricité anormalement bas, espérant ainsi stimuler leur croissance économique. Cette politique s'est avérée à la fois coûteuse et inefficace du fait que les programmes d'électrification n'ont guère d'impact sur la croissance économique si les autres conditions préalables au développement ne sont pas remplies. En Afrique subsaharienne comme ailleurs, il s'agit pour le secteur de l'électricité de satisfaire la demande réelle au moindre coût (a) sans alourdir le déficit public et/ou (b) sans solliciter les rares fonds publics au détriment de certaines priorités sociales comme l'éducation et la santé.

Le modèle des services publics des années 70 et 80. La plupart des compagnies d'électricité bénéficiant de prêts de la Banque sont des entreprises publiques et tous les projets achevés avant 1993 ont été conçus dans le cadre de la Directive 3.72 du Manuel opérationnel de la Banque mondiale. Cette directive,

publiée en 1978, fixe les grandes orientations à suivre conformément au modèle de services publics en vigueur à l'époque. La Banque se donnait pour mission d'aider à (a) fournir l'électricité sur la base de programmes de développement au moindre coût, (b) renforcer les organismes du secteur et améliorer leur efficacité, (c) renforcer la mobilisation des ressources locales et catalyser des cofinancements, et (d) améliorer l'accès des populations défavorisées à l'électricité.

Révision de la politique. A la fin des années 80, il était devenu évident que les projets de la Banque avaient insuffisamment répondu aux objectifs essentiels de la Directive 3.72, en particulier du point de vue de la viabilité financière et environnementale. La Banque a donc adopté, en janvier 1993, une nouvelle politique qui soulignait qu'il est souhaitable de soumettre l'exploitation du secteur à des règles commerciales, important de faire des économies d'énergie et impératif de préserver l'environnement. Cette nouvelle politique traduisait une évolution notable en ne mettant plus l'accent sur l'accès des pauvres à l'électricité et en définissant cinq principes directeurs désirables pour obtenir l'aide de la Banque : transparence de la réglementation, orientation commerciale, organisation du secteur en sociétés autonomes, et importation de services, volonté de réforme, et développement de l'investissement privé.

Examen des projets achevés

Depuis la publication de la Directive 3.72 en 1978, la Banque a participé, dans 26 pays d'Afrique subsaharienne, à 69 opérations de prêt pour le secteur de l'électricité. Ces opérations ont compris 44 crédits ou prêts pour 41 projets achevés dans 22 pays, dont une douzaine ont bénéficié de deux opérations. Seuls le Kenya et le Zaïre ont bénéficié de plus de deux opérations. Sur le total des

crédits accordés par la Banque aux pays d'Afrique subsaharienne pour des projets d'infrastructure, soit 5,6 milliards de dollars, la part du secteur de l'électricité a été de 21 pour cent.

Objectifs et éléments des projets. Les projets ont mis l'accent sur les capacités physiques et le renforcement des institutions, et la plupart d'entre eux étaient cofinancés. L'amélioration de l'accès des groupes défavorisés à l'électricité a été tentée dans cinq pays seulement. La priorité a été accordée à la création de nouvelles centrales, en particulier hydro-électriques, et au transport font l'extension du réseau de distribution. Plus récemment, c'est la remise en état des installations, en particulier du réseau de distribution, qui a eu la priorité absolue. En moyenne, environ 12 pour cent du coût des projets a correspondu à des composantes non physiques, essentiellement des études.

Résultats. Les résultats obtenus ont été jugés satisfaisants pour 64 pour cent des projets, contre 79 pour cent pour l'ensemble des projets financés par la Banque dans le secteur depuis 1978. Sur 22 projets achevés entre 1989 et 1993, les objectifs en matière de développement institutionnel ont été substantiellement atteints dans seulement 27 pour cent des cas (38 pour cent pour l'ensemble de la Banque), et la durabilité des acquis a été considérée comme probable dans seulement 36 pour cent des cas (contre 68 pour cent pour l'ensemble de la Banque).

Taux de rentabilité économique. En fin d'exécution des projets, le taux de rentabilité économique a été recalculé pour 22 projets seulement sur les 41 achevés. Dix des 22 projets avaient des taux de rentabilité de moins de 10 pour cent, contre un taux moyen de 12 à 15 pour cent pour l'ensemble des projets de la Banque achevés depuis 1978 dans le secteur de l'électricité. Seuls trois avaient des taux de

rentabilité plus élevés à leur achèvement qu'au moment de l'évaluation ex ante. A quelques exceptions près, on a calculé les taux de rentabilité en utilisant les prix du marché des intrants, hors taxes et droits d'importation, et les tarifs comme mesure indirecte de la valeur économique de l'énergie électrique.

Développement institutionnel et assistance technique. L'assistance de consultants techniques pour la conception des projets et la supervision des travaux a été la forme d'assistance technique la plus fréquente et celle qui a donné les meilleurs résultats. L'assistance dans le domaine de la gestion a été plus efficace lorsque le pouvoir de décision était confié à des expatriés. Les actions de formation ont revêtu diverses formes, mais on ne dispose guère de données sur les résultats.

Respect des clauses. De manière générale, les clauses n'ont été le plus souvent que partiellement respectées. D'importantes clauses financières ont été particulièrement mal respectées, notamment en ce qui concerne le recouvrement des arriérés clients, l'approbation des augmentations de tarifs et la rentabilité financière des actifs immobilisés.

Environnement et réinstallation. Les projets entrepris en Afrique subsaharienne dans le secteur de l'électricité ont rarement suscité de problèmes critiques en ce qui concerne l'environnement et la réinstallation de populations. L'impact des lignes électriques et des sous-stations sur les ressources naturelles a été relativement faible. La production d'énergie thermique dans plusieurs pays s'effectue au moyen d'unités alimentées au gasoil, technique relativement peu polluante, et les centrales à charbon, construites seulement au Botswana et au Zimbabwe, utilisent des techniques appropriées pour réduire la pollution. L'impact sur l'environnement de neuf des 15 projets hydroélectriques était, dès le départ, considéré comme négligeable, et les docu-

ments de la Banque ne font pas état de l'impact sur l'environnement des autres projets achevés. Cela dit, dans trois cas sur cinq où des problèmes de réinstallation se sont posés — les projets de centrales hydroélectriques sont à l'origine du déplacement de 18 pour cent des 190.000 personnes qui ont dû être réinstallées du fait de projets financés par la Banque en Afrique subsaharienne — les projets n'ont pas été gérés conformément aux directives actuelles de la Banque, bien qu'ils aient été approuvés après la publication de celles-ci au début des années 80. Cet état de fait confirme que les leçons de l'expérience du Ghana (projet d'Akosombo approuvé dans les années 60) — pour rétablir les systèmes de production et l'environnement social des personnes déplacées — n'ont pas été mises à profit de manière systématique dans les autres pays de la région.

Impact du programme

Développement au moindre coût. En participant au développement du secteur de l'énergie électrique en Afrique subsaharienne, la Banque visait, conformément à sa politique, à encourager le développement au moindre coût, et elle y est parvenue dans une large mesure. Au lendemain des deux chocs pétroliers de 1973 et 1979, les centrales hydroélectriques relativement grandes étaient considérées comme la meilleure solution, mais elles ont perdu de leur intérêt économique après la chute des prix du pétrole en 1986. Celles qui ont été financées par la Banque dans les années 80 demeurent toujours un bon investissement, mais les centrales à gaz semblent actuellement plus intéressantes, en Côte d'Ivoire, au Nigéria et en Tanzanie. Les études économiques et sectorielles et les évaluations du secteur de l'énergie n'ont pas toujours influé sur l'identification des projets : la Banque a refusé de financer plusieurs projets non rentables,

mais, sauf au Nigéria, peu d'options autres qu'hydroélectriques ont été envisagées.

*Efficienc*e. Les surcoûts et les retards, bien que considérables, n'ont pas été plus graves en Afrique subsaharienne que dans d'autres régions. Par contre, l'amélioration de l'efficacit

e de la gestion technique et commerciale des compagnies d'électricité en Afrique subsaharienne a été moins marquée, voire négligeable, à quelques exceptions près. Les résultats de la plupart des projets ont été mitigés, et la pérennité des améliorations d'ordre matériel incertaine faute de dispositions efficaces en matière de maintenance. Dès le début des années 90, le taux de pertes d'énergie était supérieur au niveau médian de la Banque dans les deux tiers des pays d'Afrique subsaharienne. La productivité mesurée au nombre de clients ou à la production par employé était également faible.

Recouvrement des coûts. En Afrique subsaharienne, le recouvrement des coûts a été, à quelques exceptions près, insuffisant et généralement inférieur à celui des autres régions. Au début des années 90, le recouvrement des factures d'électricité était inférieur au niveau médian de la Banque dans les deux tiers des pays d'Afrique subsaharienne. Plus de 75 pour cent des comptes impayés accusaient plus de 90 jours de retard, et les arriérés avaient tendance à augmenter avec le prix facturé de l'électricité. Dans la conjoncture économique difficile des années 90, les entreprises et les ménages avaient des difficultés à payer leurs factures, mais l'essentiel des arriérés était le fait du secteur public.

Les résultats financiers des compagnies d'électricité en Afrique subsaharienne ont été d'une manière générale insuffisants. Dans environ 60 pour cent des pays de cette région, les taux de rentabilité des immobilisations nettes réévaluées en exploitation — et la couverture du service de la dette — ont été inférieurs au niveau

médian de la Banque. Cela a également été le cas pour l'autofinancement dans trois pays d'Afrique subsaharienne sur quatre, ce qui constitue un résultat décevant compte tenu de la faible croissance des actifs dans les années 80. Les taux de rentabilité élevés ou acceptables (comme c'est le cas au Malawi et au Zimbabwe) tiennent à l'efficacit

e de l'exploitation autant qu'au caractère approprié des tarifs.

Accès des pauvres à l'électricité. A quelques exceptions près (Burundi, Côte d'Ivoire, Guinée, Ghana et, dans une certaine mesure, Nigéria), l'approvisionnement en électricité aux ménages à faible revenu en Afrique subsaharienne n'a que peu ou pas été assuré. Dans les pays où il l'a été, dans le cadre de plans de distribution ou d'électrification rurale, il ne s'est pas avéré viable. Les tarifs généreusement subventionnés destinés essentiellement aux consommateurs de basse tension ont profité davantage aux anciens abonnés qu'aux nouveaux. Toutefois, l'environnement macroéconomique défavorable qui est responsable de la baisse des revenus et des demandes de nouveaux branchements a été le facteur déterminant.

Mobilisation des ressources. Pour les projets dans le secteur de l'électricité achevés depuis 1978, la Banque a prêté 1,2 milliard de dollars (36 pour cent des besoins de financement totaux des projets) et ses partenaires ont participé à hauteur de 1,4 milliard de dollars (44 pour cent). Quant aux compagnies d'électricité et aux gouvernements, ils ont financé le reste, soit 700 millions de dollars (20 pour cent).

Facteurs ayant influé sur les résultats

Facteurs externes et internes. En Afrique subsaharienne comme dans d'autres régions, les taux d'intérêt internationaux et les fluctuations des taux de change et des termes de l'échange ont influé négativement sur les résultats du

secteur. Les cours internationaux des combustibles ont également affecté les finances des compagnies d'électricité utilisant essentiellement des centrales thermiques jusqu'en 1986, année où la tendance a commencé à s'inverser. Dans les pays du Sahel, la longue sécheresse qui a duré de 1978 à 1985 a épuisé les réservoirs et mis à mal les réserves financières des compagnies. Au-delà de ces facteurs exogènes, la faiblesse des ressources humaines et l'inefficacité du cadre institutionnel ont contribué aux défaillances techniques. Malgré tout cela, les facteurs qui dépendent de la Banque ont largement influé sur les résultats des projets, comme on le verra plus loin.

Définition des objectifs. Au cours des années 80, des considérations énergétiques d'ordre général ont influé sur la conception des projets, augmenté leur complexité et rendu les priorités plus floues. Bien que les sources d'énergie traditionnelles telles que le bois de feu revêtent une grande importance pour les pays d'Afrique subsaharienne (plusieurs projets de foresterie concernaient ces sources d'énergie), leur transformation et leur utilisation rationnelle méritaient davantage d'attention que l'inclusion à titre expérimental de certains éléments dans des projets relevant du secteur de l'électricité.

Dans certains cas, les objectifs sectoriels ont été subordonnés au transfert de ressources et à d'autres buts généraux des opérations d'ajustement. A l'inverse, les prêts à l'ajustement étaient parfois assortis de conditions relatives au secteur de l'énergie : dans les années 80, sur les 23 prêts à l'ajustement structurel accordés au total à des pays d'Afrique subsaharienne, huit, dans huit pays, comportaient ce type de conditions. Toutefois, les opérations d'ajustement ont le plus souvent manqué des occasions de s'attaquer à la charge que les compagnies d'électricité font peser sur le budget. Les éva-

luations de l'OED¹ indiquent que, dans les années 80, les prêts à l'ajustement structurel ont permis de réformer efficacement le secteur de l'énergie lorsque : (a) les réformes revêtaient un caractère urgent du fait que la consommation d'énergie par unité de PIB était élevée et les prix très biaisés, (b) les réformes étaient plus faciles du fait que cette consommation unitaire et la part de la consommation industrielle étaient considérables, et (c) des plans d'action techniquement au point avaient été établis (souvent dans le cadre de prêts d'investissement antérieurs). Les deux dernières conditions étaient rarement réunies dans le secteur de l'énergie électrique des pays d'Afrique subsaharienne.

Adhésion des emprunteurs. L'adhésion des emprunteurs aux objectifs des projets a été considérable en ce qui concerne l'expansion des capacités, mais pas pour l'assistance technique ni pour les réformes des institutions et des politiques. Leur adhésion était minimale en ce qui concerne l'autonomie des services publics, les hausses tarifaires importantes et les compressions de personnel ou les ajustements des rémunérations. De façon générale, la Banque n'a guère réussi à susciter un engagement réel des intéressés eux-mêmes sur les réformes. Dans certains cas, elle a contribué à perpétuer les approches traditionnelles, bien qu'à certains signes on puisse penser que des approches plus audacieuses auraient été acceptées. Elle s'est bien souvent abstenue de sanctionner les pays même après plusieurs violations des clauses, s'empressant parfois d'accorder des prêts et approuvant des prêts importants qui n'ont pas donné lieu au moindre changement politique. Les séminaires ESMAP sur les politiques énergétiques portaient généralement sur des principes plutôt que sur des solutions concrètes.

Ainsi, la conviction intellectuelle des décideurs n'a pas été mise à l'épreuve. La volonté

politique, lorsqu'elle s'est manifestée, était moins due aux efforts de persuasion de la Banque qu'aux crises budgétaires qu'ont connues, entre autres, le Burundi, la Côte d'Ivoire, le Ghana, et la Guinée. Rien n'indique que la Banque se soit efforcée d'obtenir le soutien des bénéficiaires potentiels des réformes et de modifier les incitations offertes aux perdants potentiels.

Efficacité de l'assistance technique. Là aussi, l'adhésion des intéressés aux programmes d'assistance, ou plutôt son absence, a joué un rôle déterminant. Le programme de jumelage du Ghana pour l'assistance dans le domaine de la gestion a été couronné de succès grâce à de bonnes relations entre quelques expatriés et une nouvelle équipe de gestion composée d'éléments jeunes et ambitieux qui étaient fortement motivés et avides d'apprendre. Cette expérience est toutefois exceptionnelle. Le personnel de la Banque est souvent trop éloigné ou n'a pas les compétences nécessaires pour superviser l'assistance technique. D'autres bailleurs de fonds sont davantage présents sur le terrain et plus efficaces, mais leur compétence est essentiellement technique. Le défi est de trouver des approches innovatrices pour former le gouvernement à son rôle de régulateur et de décideur en matière de politiques sectorielles.

Cofinancement et coordination entre les bailleurs de fonds. La Banque a très bien réussi à catalyser le cofinancement des projets, mais elle a eu moins de succès pour ce qui est de coordonner les rôles et les activités des autres prêteurs et bailleurs de fonds. Elle a perdu de son influence lorsque d'autres bailleurs ont financé des projets qu'elle avait rejetés pour cause de non-rentabilité. Par ailleurs, la conception de l'assistance technique a parfois été mal coordonnée entre les bailleurs de fonds, d'où l'existence de zones floues, d'éléments contradictoires, de lacunes et d'incohérences.

Mise en oeuvre des nouvelles directives

D'une manière générale, le succès fut modeste lorsqu'il s'est agi de mettre en place un processus réglementaire transparent, d'introduire ou réaffirmer les principes d'une exploitation commerciale et de susciter l'intérêt du secteur privé. Toutefois, des tendances positives sont récemment apparues. La situation s'est considérablement améliorée grâce à l'efficacité des services de gestion importés là où ils ont été utilisés. Par ailleurs, de plus en plus de pays montrent des signes concrets d'une ferme volonté réformatrice dans plusieurs des projets récemment approuvés par la Banque.

Transparence de la réglementation. Les données disponibles indiquent que, dans le secteur de l'énergie électrique de tous les pays d'Afrique subsaharienne, la séparation des responsabilités entre les autorités chargées de la réglementation et les compagnies d'électricité laisse à désirer. Afin de renforcer la transparence, la Banque a lancé des « contrats de plan » entre les gouvernements, propriétaires des compagnies d'électricité, et les équipes qui en assurent l'exploitation. Ces contrats ont permis de clarifier les objectifs, de favoriser le dialogue entre le gouvernement et la direction des entreprises, et d'adopter de meilleures méthodes de gestion, de comptabilité et d'audit. Toutefois, du fait que les objectifs fixés dans ces contrats n'ont pas force juridique contraignants, ils n'ont pas renforcé l'autonomie des entreprises publiques, ni résolu leurs principaux problèmes.

Orientation commerciale et organisation en sociétés autonomes. De nombreux services publics de la région sont dotés du statut de société autonome (ou assimilé) et se comportent à maints égards comme des entreprises commerciales. Cependant, ces organismes n'ont pas exclusivement, ni même essentiellement, un but lucratif, et continuent à grever les finances

publiques. Les perspectives d'évolution sont néanmoins réelles, étant donné qu'un consensus commence à se faire jour sur les avantages que comporte une exploitation commerciale des services publics et que la région semble sortir de la dépression des années 80.

Participation du secteur privé. Nonobstant les contraintes politiques et économiques, il semble possible de privatiser certaines opérations dans le secteur de l'électricité, comme le montrent les données concernant certains pays d'Afrique subsaharienne. Les opérateurs privés devraient en principe investir s'ils réussissent à couvrir les risques auxquels ils ont le sentiment d'être exposés, et une application résolue de la politique de la Banque permettrait de réduire largement ces risques.

Importation de services. Le recours à des prestataires de services extérieurs au pays ou même à la région n'est pas nouveau, notamment dans les domaines de la planification à long terme, de la conception des projets, de la construction et de la supervision des chantiers, des études tarifaires, de divers conseils techniques et de la formation. Toutefois, parmi les services importés, ce sont les *contrats de régie* et les *contrats d'affermage* qui ont le plus de chances d'avoir des effets durables sur les projets. Les services importés ne risquent-ils pas de susciter un ressentiment de la part du personnel local? Pas nécessairement, si l'on considère l'expérience de la Côte d'Ivoire et celle du Ghana.

Projets récents. Sur les 25 projets en cours dans le secteur de l'électricité en Afrique subsaharienne, 11 ont été approuvés après les nouvelles orientations adoptées pour ce secteur, et la plupart de ceux-là ont intégré certains éléments de la nouvelle politique, notamment en ce qui concerne la réforme de la réglementation et les contrats de régie par des opérateurs privés. Dans bien des cas, ces éléments ont constitué des conditions

initiales et un préalable au décaissement. Pour l'exercice de 1994 selon L'examen annuel de la performance du portefeuille, 87 pour cent de ces projets avaient des chances d'atteindre leurs objectifs de développement. Toutefois, même si les emprunteurs sont fermement attachés à ces objectifs, ce pronostic semble optimiste par rapport aux évaluations ex post de la Banque qui situent le taux de réalisation à 72 pour cent pour l'ensemble des projets du secteur de l'électricité à la fin de leur décaissement.

Restructuration du secteur. La Banque préconise également que des modifications soient apportées à la structure du secteur électrique. A quelques exceptions près, dans les pays d'Afrique subsaharienne, ce secteur est contrôlé par l'état dans le cadre de monopoles publics intégrés chargés du transport et de la distribution de toute l'électricité qu'ils produisent. Au stade actuel, du fait que les réseaux sont de taille limitée et que le cadre réglementaire laisse à désirer, il est difficile de recommander leur éclatement comme cela a été le cas au Chili et au Royaume-Uni. Toutefois, des producteurs indépendants pourraient peut-être, dans certaines conditions, concurrencer les services publics pour la production d'électricité. Il importe donc de reconsidérer les barrières qui empêchent leur accès au marché ainsi que les règles de fixation des tarifs d'achat de leur production.

La distribution doit faire l'objet d'une attention toute particulière, car c'est elle qui permet de fournir les services et de recouvrer les coûts. De plus, en séparant la distribution du transport et de la production, on pourrait ouvrir la voie aux opérateurs qui n'ont pas les moyens techniques et financiers d'investir de grosses sommes. Cette action doit s'accompagner d'une décentralisation consistant à créer des zones de service susceptibles de rendre attrayantes les appels d'offres pour l'obtention d'une franchise. La dévolution au

niveau des collectivités locales de leurs services d'approvisionnement en eau et d'autres services a donné de bons résultats; l'expérience mérite donc d'être tentée pour l'alimentation en basse tension dans les zones où les arrangements informels fonctionnent mieux que les contrats officiels.

Données concernant le secteur de l'électricité. La réalisation de la présente étude montre que la Banque a une bonne (bien qu'insuffisante dans certains domaines) connaissance de ce secteur dans les pays d'Afrique subsaharienne. C'est cette base de connaissances qui a guidé les choix et la participation des bailleurs de fonds. Toutefois, les nouvelles orientations rendent nécessaires de meilleures informations dans le but spécifique d'évaluer périodiquement les résultats du secteur et d'éclairer les décisions sur la participation du secteur privé.

Recommandations

Les nouvelles orientations en ce qui concerne l'octroi de prêts au secteur de l'énergie électrique se révèlent très pertinentes pour l'Afrique subsaharienne — la pauvreté de cette région et sa dépendance à l'égard d'une assistance extérieure ne justifient aucun relâchement au niveau des normes de qualité. En fait, les services publics d'Afrique subsaharienne sont particulièrement vulnérables à une mauvaise gestion, et leurs médiocres performances sont l'une des causes de la situation budgétaire délicate que connaissent de nombreux pays d'Afrique subsaharienne.

La Banque et les autres cofinanciers pourraient jouer un rôle beaucoup plus actif de leader dans la promotion des réformes du secteur qui sont au cœur du nouveau programme d'action. En attendant la concrétisation de ces réformes, les garanties qu'ils peuvent donner pour favoriser d'importants investissements privés dans ce secteur risquent d'être très coûteuses.

Sur la base de ces constats, l'étude présente six grandes recommandations.

Recommandation 1. Les Stratégies d'assistance aux pays d'Afrique subsaharienne doivent déterminer dans quelle mesure l'octroi de prêts pour le secteur de l'énergie électrique est justifié et compatible avec l'assistance de la Banque pour l'ajustement économique, ainsi que pour la mise en valeur et l'utilisation rationnelle d'autres ressources énergétiques (notamment les ressources renouvelables).

Recommandation 2. Sauf pour les petites opérations visant à renforcer les institutions ou à remettre en état les installations, il faut s'abstenir d'accorder des prêts au secteur de l'énergie électrique en Afrique subsaharienne dans les pays où les résultats de ce secteur sont en deçà de seuils acceptables dans les domaines technique et financier essentiels², et où l'on a constaté, au moment de l'évaluation ex ante, des progrès insuffisants dans l'exécution de réformes dans les domaines suivants :

- Mise en place d'un cadre réglementaire transparent et objectif comportant des clauses juridiques qui garantissent que les services publics peuvent fonctionner de façon autonome, par exemple, dans le cadre de contrats de régie ou de contrats de concession.
- Application de principes réglementaires destinés à garantir la discipline financière, des tarifs appropriés et l'attribution des contrats de services par appel à la concurrence et avec des intéressements aux résultats.

Recommandation 3. Quand elle encourage la restructuration et la privatisation du secteur de l'énergie en Afrique subsaharienne, la Banque doit se concentrer sur les actions prioritaires suivantes : fixer les tarifs d'achat,

décentraliser la distribution et la séparer de la production et du transport, recours à des contrats de concession pour des opérateurs privés et fourniture de garanties aux producteurs d'électricité indépendants.

Recommandation 4. La Banque doit aider de ses meilleurs soins les pays emprunteurs d'Afrique subsaharienne à assumer par eux-mêmes ses nouvelles orientations dans le secteur de l'énergie électrique, les programmes de développement institutionnel à l'appui des réformes et la fourniture d'une assistance technique par le personnel local ou expatrié. La diffusion effective des pratiques menant au succès et le renforcement de l'adhésion des intéressés aux réformes doivent faire partie intégrante de la préparation des projets.

Recommandation 5. La Banque doit conclure des alliances stratégiques avec d'autres prêteurs et bailleurs de fonds afin d'aboutir à un consensus sur les objectifs et critères de leur intervention dans les pays d'Afrique sub-

saharienne. Elle doit également mettre en place des partenariats pour le déploiement des ressources humaines et partager la responsabilité de l'accomplissement de celles des tâches qui bénéficieraient le plus de la diversité des moyens d'action sur le terrain et compétences des bailleurs de fonds.

Recommandation 6. En collaboration avec d'autres prêteurs et bailleurs de fonds intéressés, la Banque doit aider à coordonner et institutionnaliser une action systématique visant à rassembler et à analyser les données nécessaires à la mise en oeuvre des principes de la nouvelle politique dans le secteur de l'électricité.

Notes

1. C. Jayarajah et W. Branson, *Structural and Sectoral Adjustment: World Bank Experience, 1980-92*, rapport du Département de l'Evaluation des Opérations de la Banque mondiale, Washington, DC, 1995.

2. Les domaines qui doivent faire l'objet d'un suivi sont les pertes techniques, les comptes fournisseurs et le taux de rentabilité des investissements.

1. Introduction

Do Bank-financed power projects in Sub-Saharan Africa present a special case? What is the past record? Do recent trends bode well for the application of the new sector policy introduced in 1992? As a backdrop to the study, this introduction recalls the evolution of Bank policy since the 1970s. It describes the challenge of power sector development in Sub-Saharan Africa, a challenge that consists not so much of overcoming energy crises as of ensuring financial viability and reliable and efficient supply.

Study objective

Power projects are less successful in Sub-Saharan Africa (SSA) than in other regions. Is the challenge specific to Africa? Was the introduction of a new Bank policy for the sector in 1992 relevant to SSA circumstances?

The study concentrates on low-income African countries south of the Sahara and on completed projects initiated since the energy crises of the 1970s. The study aims at:

- establishing the outcome of Bank-financed projects, particularly the extent to which they met policy objectives, and assessing Bank and borrower performance;
- assessing the progress in and prospects of implementing the principles of the Bank's new power sector policy;

- identifying project design and process factors that have enhanced or inhibited project performance; and
- suggesting approaches to improve the impact of Bank interventions in Sub-Saharan Africa.

Study scope and methodology

The study assesses the outcomes of a cohort of 44 credits and loans for 41 completed projects based on Operational Manual Statement 3.72, which was the prevailing Bank policy for the power sector until the end of 1992. It also considers the implications of the Bank's revised power sector policy by examining 25 ongoing credits and loans, of which 11 have been processed since 1992.

Thus, the study involved a review of 69 lending operations projects in 26 Sub-Saharan countries, with a special focus on six representative countries: Burundi, Ghana, Guinea, Mali, Nigeria, and Tanzania. It included visits to several countries as part of the Operations Evaluation Department's (OED) audit programs. It made use of loan and credit documents (staff appraisal and project completion reports, memoranda of the president, and legal documents), audits, sector strategy papers, energy sector assessments, and studies of the Energy Sector

Management Assistance Program (ESMAP). The study also used OED, task manager work station, and Industry and Energy Department databases, as well as Bank policy papers and general publications and United Nations and International Monetary Fund statistics.

Report outline

To set the stage, this chapter reviews the evolution of Bank policies in the power sector since the early 1970s and the underlying challenges for SSA countries. Chapter 2 presents an overview of the design and performance of completed projects. Chapter 3 assesses the portfolio's impact with respect to the policy objectives of OMS 3.72. Chapter 4 analyzes the most important factors in the performance of the portfolio and of the Bank and its borrowers. Chapter 5 assesses the prospects for the Bank's 1992 power sector policy. Finally, conclusions and recommendations are presented in Chapter 6.

Public utilities paradigm of the 1970s and 1980s

The Bank's tradition of lending for electric power dates back to 1946 when the first loan was made to Chile. It began its power lending to Africa in 1961 with an \$8.4 million loan to Uganda. By that time, many privately owned utilities in less-developed countries (LDCs) had been nationalized and most of the power utilities benefiting from Bank loans were state-owned enterprises. SSA countries shared that trait without exception. Also, most became independent nations in the early 1960s, and had low-income and mostly rural economies with low per capita electricity consumption and relatively small and fragile power sectors.

All Bank-supported projects completed in SSA by end 1993 were designed under the policy

stated in the Bank's Operational Manual Statement for public utilities projects, OMS 3.72, issued in 1978. OMS 3.72 set out broad policy objectives in consonance with the public utilities paradigm that prevailed at the time. Namely, the Bank was to help:

- provide power service on the basis of least-cost development programs;
- strengthen the sector's institutions and improve their efficiency;
- increase local resource mobilization and catalyze cofinancing; and
- improve access to electricity by disadvantaged population groups.

Response to the energy crises

OMS 3.72 largely formalized a time-honored practice, one so strong that it was largely unaffected by the oil crises of 1973 and 1979. It was changed in 1987 to incorporate environmental concerns.

The Bank's reaction to the energy crisis was multifaceted. It spawned reviews of lending for oil and gas projects, which culminated in 1984 in the policy formulation of OMS 3.82 for petroleum lending with an emphasis on mobilizing private sector resources. Concern with energy conservation spilled over in the power sector. In 1980, a major internal study, "Energy in Developing Countries," was completed and for the first time a comprehensive review was undertaken, not only of supply but also of demand issues. In 1983, the Bank issued a further study, also internal, entitled "Energy in Transition in Developing Countries." This study confirmed and refined the Bank's energy strategy. In the 1980s, the Bank increased its emphasis on management of energy demand and provision of technical

assistance. In collaboration with the United Nations Development Program (UNDP), it carried out a 60-country program of energy sector assessments. These assessments were designed to serve as a framework for investment and policy decisions by governments and external aid agencies. That program in turn gave birth to the Energy Sector Management Assistance Program.

Sub-Saharan Africa received an important share of this attention. Between 1981 and 1994, 41 energy sector assessments, all of them dealing with the power sector, were carried out in 37 countries. Out of 57 ESMAP studies, 21 were about the power sector, mostly loss reduction.

As for many LDCs, the energy crises had raised a double challenge for SSA countries—on the one hand, to develop domestic energy resources and substitute fuel oil; on the other, to increase supply and demand efficiency. It was recognized that the latter provided a more broadly available avenue than the former. Not all countries had cheap fuel alternatives, but they all exhibited high technical losses and fuel procurement costs, especially landlocked countries, which depend on regional transport corridors.

1992 policy revision

In the early 1980s, the Bank felt no need for a change in power sector policy. Up to this point and more so than in other sectors, most investments had been successfully implemented, least-cost expansion had been an established practice, and human resources were increasingly skilled. It was thought that all this could continue in a context of higher oil and coal prices. Energy had become so strategic a sector that government, utilities, and consumers alike would rise to the occasion.

By the late 1980s, it was evident that some fuel oil substitution had occurred but, with few exceptions, sector performance in LDCs had deteriorated. At the same time, it appeared that Bank projects had delivered too little on key OMS 3.72 objectives and on financial and environmental sustainability.

At the end of 1992, the Bank introduced a new policy stressing the desirability of operating the sector on a commercial basis, energy conservation, and the requisites of environmental sustainability. It thus implicitly de-emphasizes access to electricity by disadvantaged groups.

The new policy was based on evaluation results Bankwide, including OED's. The 1992 policy paper attributes the deteriorated sector performance to three sets of factors:

- external factors such as commodity prices, access, and cost of foreign loans;
- inappropriate governance and national policies on trade, fiscal, monetary, and energy sector matters; and
- enterprise-related factors such as conflicting objectives, weak management, and staff resources.

Core challenge for Sub-Saharan African countries

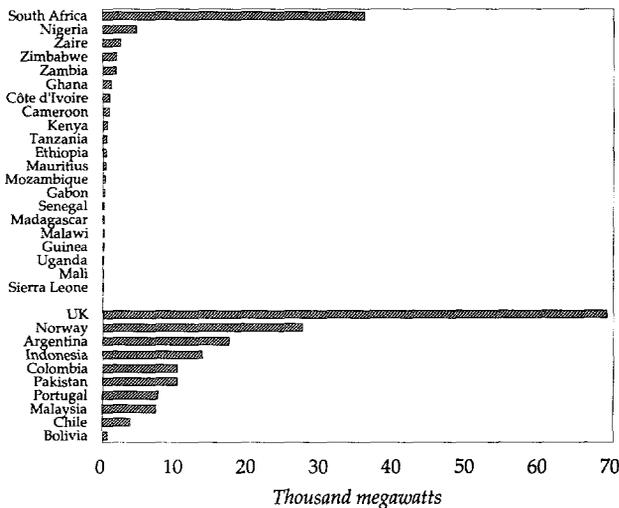
SSA countries are poor, and their economic growth in the 1980s was slow. For the 26 SSA countries taken as a whole, GDP expressed in 1994 dollars was \$141 billion in 1970 and \$130 billion in 1993, that is \$304 per capita. GDP grew at 5.5 percent per year in the period 1970–80, hovering around \$240 billion until 1985, when it began to plummet to its recent low. Nigeria dominated the picture early on but not in later years, so part, but not all, of this evolution can be traced back to the rise in

oil prices until 1980 and the sudden drop in 1986–87.

Many of the factors cited above to explain the deterioration of sector performance apply to the economies of SSA. This is particularly the

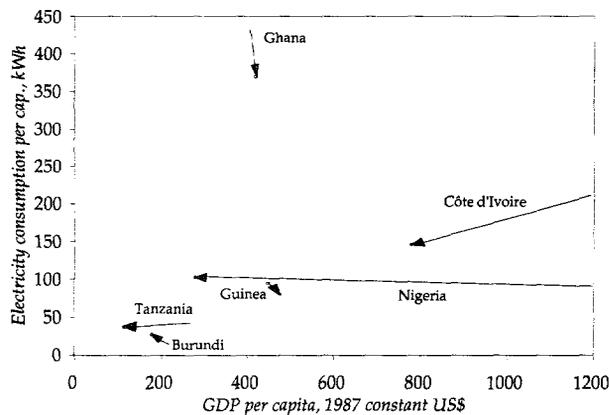
case for the deterioration in the terms of trade for major export commodities, and for the misguided exchange rate and fiscal policies, the weak technological and human resources base, and the dysfunctions present in many public sectors.

FIGURE 1.1: INSTALLED CAPACITY OF POWER SYSTEMS IN AFRICA VS. OTHER COUNTRIES



Source: World Bank, Industry and Energy Department.

FIGURE 1.2: GDP PER CAPITA VS. ELECTRICITY CONSUMPTION PER CAPITA



Note: The arrows point from 1980 (1986 for Guinea) data to 1992 data.

SSA countries have no local manufacturing capacity for power equipment, but their energy resources endowment is substantial though unevenly distributed. Technically, hydroelectric power could provide some 2,500 TWh per year; there are some 60,000 million tons proven coal reserves, enough for 2,700 TWh/year for 100 years; crude oil and natural gas reserves are in excess of 7,000 million tons and 5 million m³ respectively; and uranium deposits greater than 500,000 tons have been deemed recoverable. However, only 0.1 percent of the hydro potential is exploited. The cost of harnessing the untapped potential is high, though with notable exceptions (such as natural gas in Côte d'Ivoire and Tanzania, and hydro power in Guinea and Zaire). These exceptions call for large-scale projects, which often exceed the country's absorptive capacity, as exemplified by the hydro power schemes of Konkoure in Guinea, Manantali in Mali, and Inga in Zaire.

Power generation systems in SSA countries are relatively small (Figure 1.1), a result of low levels of electricity consumption: 31 TWh in 1971 and 81 TWh in 1991, that is, a fraction of the hydroelectric potential of the site of Inga in Zaire. On a per capita basis, consumption has risen and fallen with GDP: from 134 kWh in 1971 to 247 kWh in 1980 and 200 kWh in 1991. These figures are less than 580 kWh for China and 350 kWh for India but congruent with SSA's low level of development and the predominance of its rural sector. First, in all such countries, consumption of commercial energy is very low and remains so up to a per capita income of \$1,000. Second, the share of electricity in

commercial energy consumption does not exceed 25 percent except in very industrialized countries that are poor in fossil fuel.

Power consumption has been more resilient to economic recession in Nigeria where prices are highly subsidized and in poorer countries like Burundi and Tanzania where industrial demand, which is most GDP elastic, is low. Power supply seems to have been a constraint to growth only in Ghana and Guinea where consumption fell because of frequent and massive power outages (Figure 1.2).

Power supply should not, as a rule, lag behind or race ahead of economic growth. Many LDCs have tried to use the sector as a leading edge of development by setting unduly low power prices with the objective of spurring economic growth. But facilitating access to and subsidizing consumption of electricity on any substantial scale is an extraordinarily costly proposition. This policy has proven unaffordable, even in medium- and high-income countries. Electricity generation is very capital intensive. In most SSA countries, unit generation costs are on the high side. Power distribution is also expensive in

cities because of the low levels of consumption and in rural areas where the cost typically doubles. Evaluations of electrification programs by OED and others show that the programs' impact on economic growth is not significant in the absence of other development prerequisites.

The priority for the power sector of SSA countries is not to catch up with accelerated economic growth, as is the case in East Asia, or repair the environmental damage caused by high energy intensity and demand for restructuring, as in Eastern Europe. The challenge lies primarily in meeting effective demand without adding to public deficits or diverting scarce public funds for social sectors, such as education and health. Efficiency is also an essential indicator of sector performance and also helps to maximize social welfare (that is, the sector should provide a reliable service at least cost). The imperative for financial viability is not unique to Africa: many low-income countries of Latin America and South Asia face the same challenge. That the challenge is still prominent after years of low petroleum prices shows that it is daunting and calls for new and radical measures.

2. Review of completed projects

From 1978–93, completed infrastructure and energy projects in SSA countries received about \$5.6 billion in financing, of which 21 percent was for electric power. The projects promoted vertical integration and an expansion of centralized least-cost planning to capture economies of scale. They emphasized physical components and institutional strengthening; projects today give priority to rehabilitation. Technical assistance was strongly oriented toward power utility management. Overall performance of projects in the study cohort was worse than that for other regions: 64 percent of the projects had a satisfactory outcome, and institutional development was substantial for only 25 percent (27 percent since 1989). Cost recovery results were particularly poor. Sustainability of project benefits was likely in only 48 percent of the cases (and has declined to 36 percent since 1989).

Since the issuance of OMS 3.72, the Bank has supported 69 power operations in 26 Sub-Saharan countries. The cohort reviewed here consists of 44 completed credits and loans for 41 distinct projects in 22 countries. Of these countries, a dozen had two operations; only Guinea, Kenya, and Zaire had more than two. There are currently 25 power projects under supervision in 19 countries; 14 of these were approved by the board while OMS 3.72 still prevailed (Figure 2.1 and Annex Tables 1.1 and 1.2).

From 1978–93, completed power projects worldwide received a total of \$16.5 billion in Bank funding, of which power projects in SSA accounted for about 7 percent. Of the total Bank financing of \$5.6 billion for infrastructure in SSA, the share for electric power was 21 percent.

Objectives and components

The cohort review indicates that the projects' broad development objectives and the principles used to achieve them were in line with those established in OMS 3.72 (Figure 2.2). Projects emphasized provision of physical components and organizational strengthening. Mobilization of cofinancing was often implicit in the financing arrangements. However, access to electric service by disadvantaged groups was attempted in only five countries.

FIGURE 2.1: POWER PROJECTS

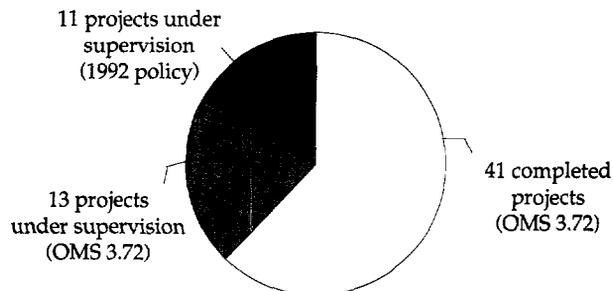


TABLE 2.1: LENDING FOR COMPLETED INFRASTRUCTURE PROJECTS IN SUB-SAHARAN AFRICA, 1978–93

Sector	Projects		Loan amount	
	Number	Percent	\$ million	Percent
Telecommunications	15	6	308	5
Transport	121	47	2,868	51
Oil and gas	38	15	428	8
Water and sanitation	42	16	817	15
Power	41	16	1,189	21
Total	257	100	5,611	100

Project design included a combination of eight categories of physical components: generation, transmission, distribution, rural electrification, rehabilitation, general plant, interconnection of countries, and multinational generation (Figure 2.3). Vertical integration of power generation-transmission-distribution and expansion of centralized least-cost planning were promoted to capture economies of scale. To the same end, attempts were made to integrate national and multinational markets by constructing high voltage transmission lines and generating plants designed to supply multinational markets. New generation—particularly hydroelectric plants—and transmission had priority over expanded distribution. In more recent years, rehabilitation in general has had the highest priority, particularly distribution rehabilitation.

On average, about 12 percent of project cost was allocated to nonphysical components. Project design was typically comprised of a mix of studies, training, and technical assistance components (Figure 2.4). Studies, 106 of them or about three per project, were the dominant component followed by 31 instances of technical assistance and 35 training components. Most of the studies were directed toward investment planning. The majority of financial and institutional strengthening studies focused on tariffs and organization of sectors and power utilities. Studies on rehabilitation and the environment were few. Technical assistance was strongly oriented toward power utility

management, including some management performance contracts. Training components, however, were somewhat less focused: ten (about 30 percent) targeted unidentified sector needs, confirming that training was not part of a well-planned training program.

Performance

Major ratings. Sixty-four percent of the cohort projects were rated satisfactory, compared with 79 percent for Bankwide power projects (Table 2.2). The cohort's rating reflects more the projects' relative efficacy in meeting physical objectives than their success in meeting institutional development and economic efficiency goals. Not all power projects completed in the period 1978–93 have institutional

FIGURE 2.2: PROJECT OBJECTIVES

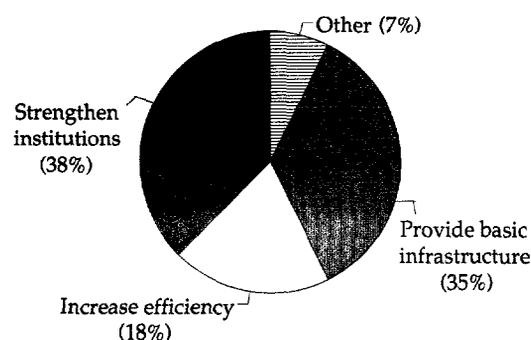
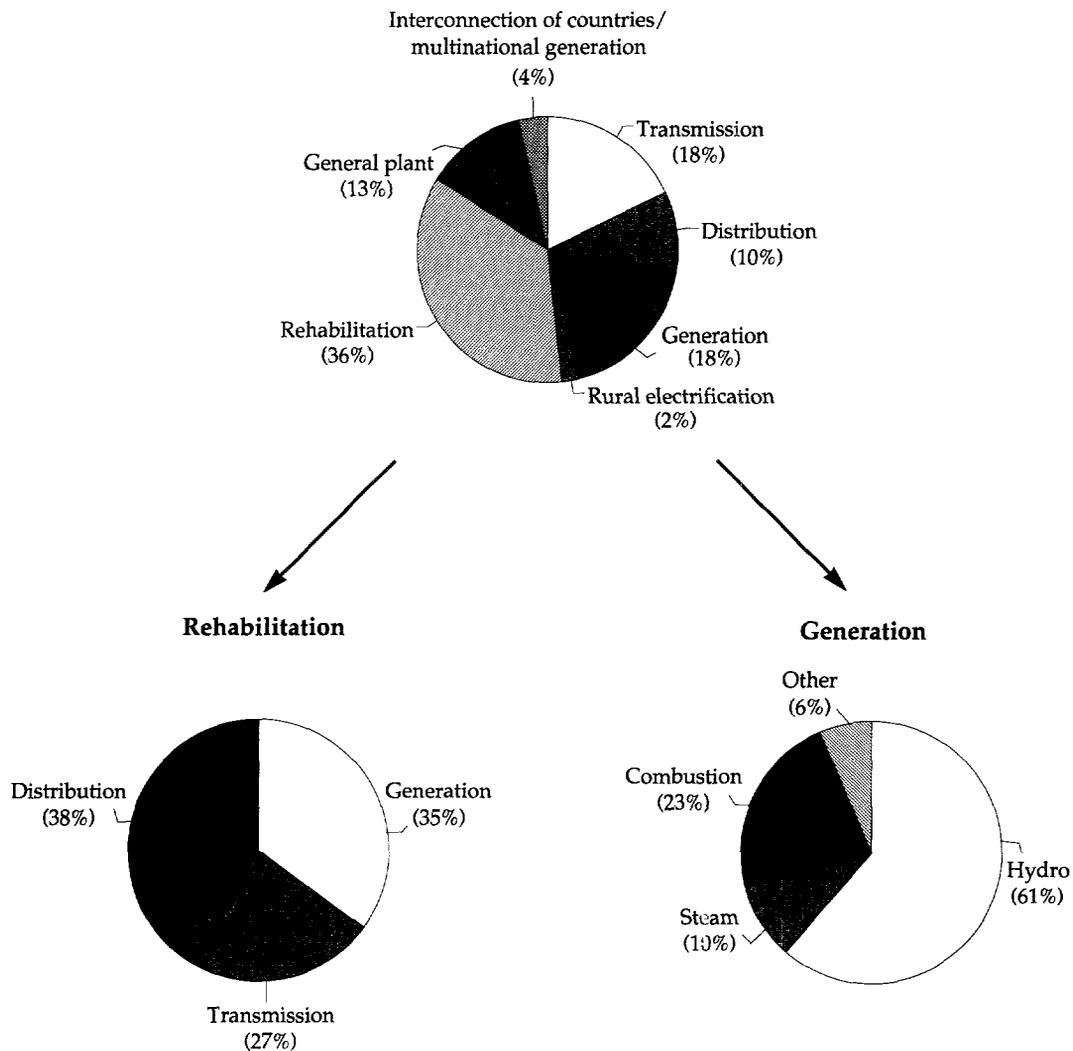


FIGURE 2.3: DISTRIBUTION OF PHYSICAL COMPONENTS IN THE COHORT



development and sustainability ratings. But a comparison can be made for the period 1989–93, during which 64 percent of SSA's 22 completed projects had satisfactory outcomes compared with 74 percent Bankwide. The projects' institutional development impact was rated as substantial in 27 percent of the cases (38 percent Bankwide), while sustainability was considered likely in 36 percent (68 percent Bankwide). When earlier projects in the cohort are included, sustainability ratings rise to 48

percent. This downward trend in sustainability is another cause of concern in SSA.

The poor performance of institutional development was given little weight in the outcome rating. This was because loans were often the sector's first or second, which, given the long-term effort needed for institutional development, did not allow sufficient time for change—hence, the uncertain and sometimes unlikely sustainability.

TABLE 2.2: OED RATINGS OF COMPLETED POWER PROJECTS, 1978–93

Rating	Number of projects	Percent
<i>Outcome</i>		
Satisfactory	28	64
Unsatisfactory	16	36
<i>Institutional development impact</i>		
Substantial	11	25
Modest	21	48
Negligible	11	25
Not rated	1	2
<i>Sustainability</i>		
Likely	21	48
Uncertain	18	41
Unlikely	4	9
Not rated	1	2

Economic rates of return (ERR). ERRs were recalculated for 22 of the 41 projects. The results are paltry when compared with the 12–15 percent average ERRs of all Bank power projects completed since 1978: ten projects were below the minimum 10 percent of Bank guidelines, and only three were greater than the appraisal estimates—one each in Liberia, Tanzania, and Zimbabwe (Figure 2.5). With few exceptions, ERRs were calculated using input market prices, net of taxes and import duties, and tariffs as a proxy for the economic value of power. In eight projects, the ERRs were not recalculated because of lack of data. In ten technical assistance and one sector adjustment operation, the ERRs were not applicable.

The low values of the recalculated ERRs stem from a combination of factors, the most frequent of which, in order of decreasing importance, follow: (a) project output valued at the prevailing electricity average price; (b) actual volume of power sales lower than forecast; and (c) project cost overrun. In rare cases, such as the First Power and Water Project in Mali, an attempt was made to value the economic benefits by using the estimated willingness to pay for electricity service. Yet, the recalculated ERR was still

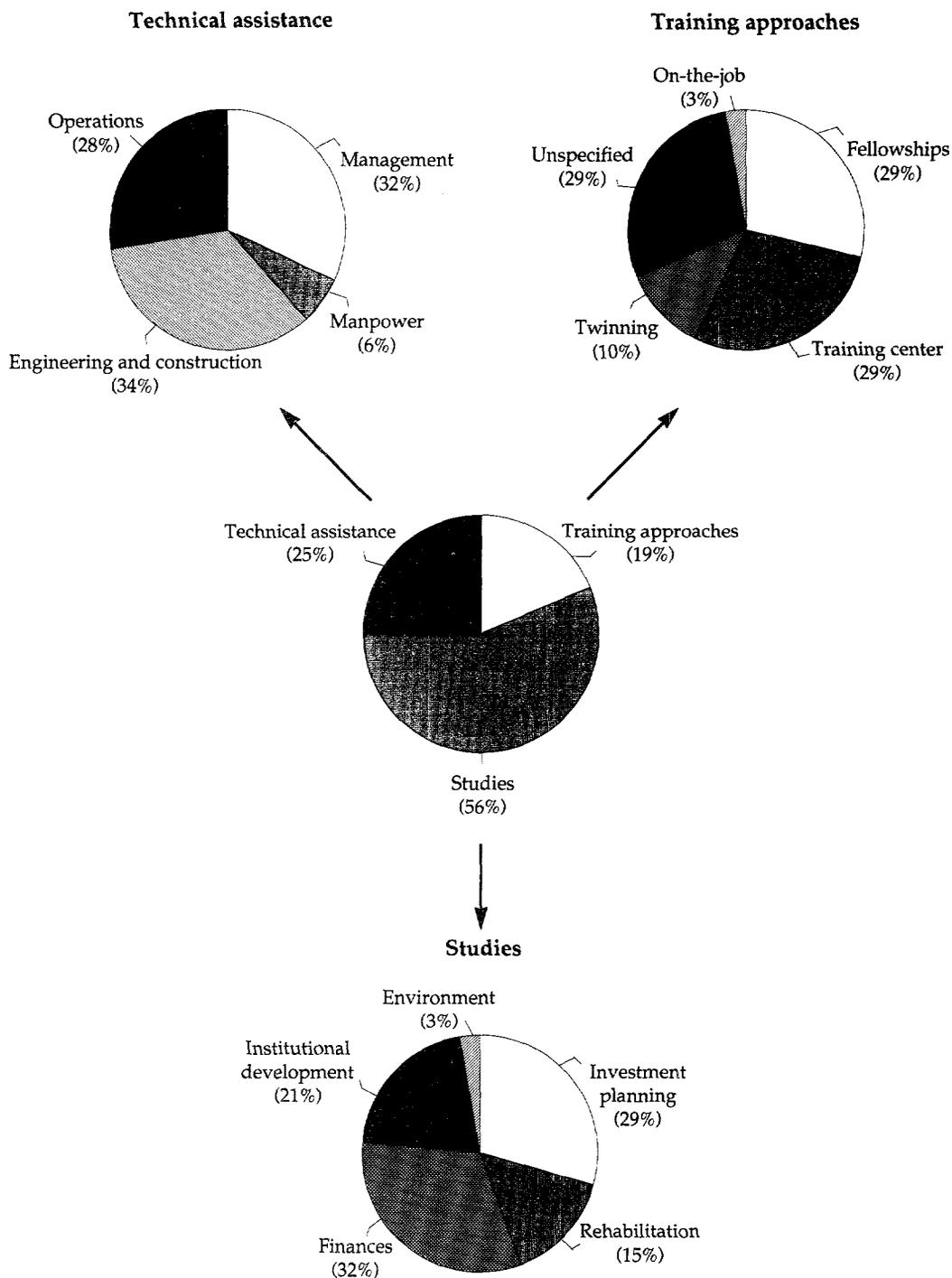
lower than 10 percent because the cost overrun and the lower-than-expected electricity output offset the consumers' surplus, estimated as the difference between willingness to pay and power price.

Consistently low ERRs in a given country cannot be dismissed on grounds that tariffs are a poor proxy of project output value. Tariffs reflect, if not the reality, at least the perception by the regulators of the consumers' willingness to pay for electricity, and it is difficult to argue that economic value of electricity is high but that the willingness to pay for it is low. A low ERR is a telltale sign of either one, two, or three important facts: the regulators' perception and cost recovery policy underestimate the consumers' willingness to pay; generation and delivery costs are excessive; or the project does not meet an effective demand.

Institutional development and technical assistance

The purpose of technical assistance (TA) is to fill gaps in local skills. Early Bank operations in SSA (for example, in Côte d'Ivoire, Guinea,

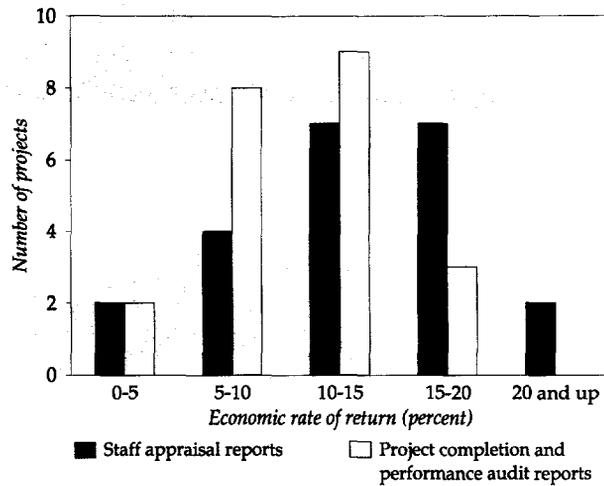
FIGURE 2.4: DISTRIBUTION OF NON-PHYSICAL COMPONENTS IN THE COHORT



and Mali) were TA projects with modest investment components. In the case of Guinea and Mali, the lack of success of investment operations resulted in two follow-on projects that were, for all intents and purposes, TA projects. The performance varied with the type of TA, which took the form of help with project design and construction supervision, utility management, studies, and training. Management assistance essentially took three forms. The first was "twinning," where management and backup, sometimes including counterpart training, were provided by a foreign organization. This approach was used successfully in the formative stage of Ghana's Volta River Authority in the 1960s and of Nigeria's National Electric Power Authority (NEPA) in the 1970s, and again in the reform of Ghana's electricity corporation in the late 1980s. The second form of management assistance was in the "secondment" of expatriates from other well-run utilities to fill management positions without close institutional backup or short-term obligation to train successors. Such an approach was used in Botswana to fill the chief executive officer and other crucial management positions. It was also used by the Uganda Electricity Board and by the Swaziland power utility to fill some key managerial positions. The third type of assistance included "hiring of untied," qualified expatriates, as occurred in Malawi.

Project design and construction supervision. This type of TA was the most common. Practically all Bank-financed power projects in SSA included project design and construction supervision in one form or another, whether or not specifically financed by the Bank. Engineering consultants usually provided these services. This kind of TA was generally successful, even in less-developed countries, which reflects its recognized usefulness and acceptance by country counterparts. The countries' preference was to retain the same engi-

FIGURE 2.5: DISTRIBUTION OF PROJECT ECONOMIC RATE OF RETURN



neering firm for project preparation and construction supervision. This worked well, particularly when the consultant came from a country willing to finance the services, as was the case in Ghana, Guinea, and Nigeria.

Management assistance. Management assistance was most effective when the expatriates providing the assistance were given executive authority (Côte d'Ivoire, Ghana) for a period of time. To be accepted, such a transfer needed the strong commitment of parent ministries and of the local entity's managers. Where expatriates were not given executive powers, new management practices did not take root (Guinea, Tanzania).

Management assistance, especially the temporary assignment of managerial authority to expatriates, is usually strongly resisted, particularly by the organization receiving the assistance (for example, Ghana, Guinea, Nigeria). In most cases, opposition is unlikely to disappear until constraints turn into crisis (Côte d'Ivoire, Ghana, Guinea), or when it is obvious to all that a new organization would have no chance of taking off (Nigeria's newly created NEPA in the early 1970s).

Studies. Studies covered a wide variety of subjects. They were carried out predominantly by foreign consultants, Ghana being an exception: the Volta River Authority executed some of the studies required for the Power VI Project. The studies' impact as instruments of knowledge transfer was mixed because of problems concerning relevance, specificity of findings, and absorptive capacity.

Studies of least-cost development programs, tariffs, and human resource development appear in many TA programs as a part of Bank-financed power projects. In most cases they are well justified, except where they tend to substitute for action, or where they are carried out according to "blueprints" that fail to address some of the most important institutional capacity problems. Côte d'Ivoire, Ghana, Guinea, Nigeria, and Uganda provide examples of these weaknesses.

Training. Training components—often funded by cofinanciers—are found in almost all the power projects in SSA. Training occurs in varied forms: on-the-job (often used to train managers); formal courses and seminars, or a combination of formal instruction and learning-by-doing in the country or abroad; and scholarships in the country or abroad. In addition, suppliers often provide training for personnel operating the equipment being supplied, a generally successful activity carried out both in the country during the equipment's installation and initial operation, and abroad in the supplier's manufacturing facilities. Bank-financed projects sometimes build training facilities and provide teaching materials. Unfortunately, the performance of training activities is only vaguely documented.

Compliance with covenants

Compliance ratings for 13 recent cases show that compliance with covenants was more

often partial (nine cases) than substantial (four cases). The degree of compliance with important financial covenants appears to have been less satisfactory than the overall ratings imply: compliance with rate of return covenants was negligible in four cases out of six; for accounts receivable, it was negligible in six out of ten; and for tariffs adjustments, compliance was negligible in eight out of 13. Compliance with such covenants was not given an important weight in the overall ratings on covenants and borrower performance for the same reason that institutional performance was discounted in outcome ratings—that is, in most cases these loans were the sector's first or second and evaluators thought finances needed more time to improve than was planned at appraisal.

Noncompliance with financial covenants was as pervasive in the distant past as it was in the recent operations discussed above. The percentage of negligible compliance is sensibly the same for rate of return (ROR) and tariff covenants and worse for accounts receivable. Performance was better on self-financing and on debt service because utilities had very modest targets on both and borrowing was on very favorable terms or restructured into government equity. Table 2.3 summarizes the study cohort's performance.

Environment and resettlement

Completed power projects financed by the Bank in SSA seldom raised critical environmental and resettlement issues. Many were about plant rehabilitation and had negligible or positive impacts. Even when power networks expanded, they were (and still are) at such an early stage of development that the encroachment of power lines and substations on natural resources was relatively minor. Thermal generation in several countries was based on small diesel-fueled sets, a relatively clean technology. Also friendly to the environ-

TABLE 2.3: COMPLIANCE WITH FINANCIAL COVENANTS

<i>Covenant</i>	<i>Substantial</i>	<i>Partial</i>	<i>Negligible</i>
Rate of return on assets	4	3	9
Accounts receivable	1	3	9
Tariff adjustments	5	5	8
Self-financing	5	4	1
Debt service	10	2	3
Asset evaluation	4	4	4

ment were the coal-fired power plants developed only in Botswana (Morupule) and Zimbabwe (expansion of Huange), which use appropriate technology to abate pollution. The potential for large impacts on nature and population, however, was greatest where generation was based on hydro power.

Environment. In the 15 hydroelectric projects completed in SSA, the Bank assessed to varying degrees their impact on the biota and agricultural land upstream and downstream of the plants. In nine cases, the environmental impact was considered insignificant where the projects were small (six cases) or were to expand existing facilities (three cases). The experience for the other six projects was mixed. In Ghana, Akosombo and its expansion were approved in 1962 and 1969, and Kpong was approved in 1977, long before specific Bank guidelines on environment and resettlement were published (1980 and 1984). The project completion and performance audit reports emphasize resettlement issues and do not discuss physical impacts. Although these projects were approved in 1984, project documents do not report on the impact of Kiambere's 25 km² reservoir in Kenya or that of Ruzizi at the borders of Zaire, Rwanda, and Burundi. For Nangbeto, the University of Benin concluded that the flora and fauna did not need special protection because the affected species were well represented elsewhere in Togo. For Mtera in Tanzania, satisfactory health programs, a nature reserve, and a fishing program in the

reservoir were already in place by 1978 as part of the previously constructed Kidatu dam.

Resettlement. A review of environmental and resettlement aspects of projects financed by the Bank in Africa since 1981 noted that power and other sectors have similar resettlement outcomes. Hydro power projects account for about 18 percent of the 190,000 people displaced.¹ Evaluation of resettlement in the 15 Bank-financed hydro projects in SSA shows that results are mixed but no worse than those for other regions. Resettlement was an issue in only five SSA power projects. In four of them, the number of families or persons to be relocated was grossly underestimated, as was the magnitude of the effort to restore their livelihood: Akosombo (about 84,000 people); Kpong (not the 5,700 people estimated at appraisal but about 7,000 people); Kiambere (not 1,000 but about 6,500 people); and Ruzizi (not 30 but about 2,600 families). Although the lapses for Akosombo—the 84,000 resettlers were displaced in a last minute operation at the time of reservoir impoundment—helped improve resettlement in the Kpong project, 80 percent of the settlers and hosts remain dissatisfied, particularly with post-resettlement services. Similar errors and lateness occurred later for Ruzizi (no resettlement plan, allocation of land was still pending in 1992) and Kiambere where 4,500 people received only cash compensation for cultivable land and property valued well below market. On the other hand, 11,000 people affected by the Nangbeto

project were successfully resettled in Togo. In sum, in the three out of five cases where resettlement issues arose, these issues were not handled in compliance with Bank guidelines, even though projects were approved after the guidelines were published in the early 1980s. More importantly, the learning that took place early in Ghana to restore resettlers' productive systems and social

environment was not systematically applied elsewhere in the region.

Note

1. Cynthia C. Cook (ed.), *Involuntary Resettlement in Africa: Selected Papers from a Conference on Environment and Settlement Issues in Africa*, World Bank Technical Paper No. 227, Washington, DC: World Bank, March 1994.

3. Program impact

Overall, Bank lending had a substantial impact on least-cost expansion and mobilization of cofinancing, but in terms of other OMS 3.72 objectives, the impact was limited. After the two oil shocks, large hydroelectric plants were often seen as the least-cost alternative. Investment in transmission contributed to market integration. Cost and time overruns, while substantial, were no worse than those for other regions. Labor productivity was low, and planned service objectives and standards were seldom met. By the early 1990s, losses were still high, as were arrears, particularly those of the public sector. Cost recovery and utilities' contribution to investment financing were inadequate. Increased access to service by the poor did not—and probably could not—take place on a substantial scale given the financial woes of the utilities and the stagnation of per capita income.

The impact of completed projects is assessed below with respect to the policy objectives of OMS 3.72.

Least-cost development

Most completed projects included generation expansion. In the aftermath of the 1973 and 1979 oil shocks, relatively large-scale hydroelectric plants were often considered the best alternative for expanding generation. These large schemes provided *economies of scale* and contributed to *market integration*, although

their very size caused financial problems when demand growth proved considerably less than originally estimated, as in the case of Tanzania's Mtera project.

From 1973 through 1991, hydroelectricity's share of total power output increased from 42 percent to 59 percent. It is estimated that in 1991, hydroelectric generation of some 28,000 GWh helped SSA save 8.3 million tons of fuel.

ESW and later energy assessments provided good quality analyses of development issues and options. But these analyses did not always influence project identification. With the exception of Nigeria, few options other than hydro were considered: coal was developed only in Zimbabwe; geothermal power only in Kenya; and gas could have been justified in Côte d'Ivoire and Tanzania but was not pursued because neither the Bank nor the country was ready for that option. The Bank gave temporary support to hydro projects that were marginal, such as Soubre in Côte d'Ivoire and Manantali in Mali. Worth noting, however, is that the Bank refused to finance several hydro projects that were not economical (Kompienga in Burkina Faso, Konkoure in Guinea, and Bumbuna in Sierra Leone).

As may be expected, the drop in oil prices since 1986 has reduced the expected benefits of hydroelectric plants in a few SSA countries.

Gas alternatives now look more attractive in Nigeria, Tanzania, and Côte d'Ivoire, which is most vulnerable to hydrological uncertainties.

Still, hydro has an edge over thermal power in other countries. The annual generating costs of three completed hydroelectric plants (150 MW Kiambere in Kenya, 80 MW Mtera in Tanzania, and the small 26.6 MW Ruzizi shared by Burundi, Rwanda, and Zaire) range from 4.6 to 7.7¢ per kWh. For the large 40 MW diesel and 30 MW gas turbine generating plants built in landlocked places of SSA and operated with liquid fuel from crude oil at \$20/bbl, the generating costs range from 7 to 10¢ per kWh, or 11 to 17¢ per kWh if crude oil prices were to jump to \$30/bbl. These costs are higher for smaller diesel and gas turbine plants.

Distribution expansion received a smaller share of attention. Overall, generation (with 31 components) and transmission (with 30) dominated over urban and rural distribution networks (with 20). Distribution normally does not fare as well in other regions for two reasons: (1) many countries in other regions have a greater problem coping with generation requirements, which are very capital-intensive; and (2) current Bank power lending practices are not well adapted to projects that involve smaller, dispersed components, use little foreign exchange, and call for relatively less procurement through international competitive bidding.

Efficiency and strengthening institutions

Project cost and time overruns, while substantial, were no worse in SSA countries than in other regions. But improvements to the efficiency of technical and commercial operations of SSA power utilities were, with few exceptions, only marginal. By the early 1990s, most SSA countries were faring worse than the

Bankwide median on losses, accounts receivable, self-financing, and, to a lesser extent, debt servicing and returns on fixed assets. Electricity prices ranged from the very low (2¢/kWh) to the very high (25¢/kWh) and very seldom covered the full cost of service.

Time overruns. Of the 41 completed projects, 17 experienced time overruns in excess of 50 percent and six in excess of 100 percent. The average time overrun of 49 percent compares well with the average 60 percent time overrun for all Bank power projects since 1974.¹ None of the lumpy infrastructure projects were completed on schedule, although a few sectoral adjustment, technical assistance, and engineering operations were. The most frequent causes of time overruns include delays incurred by borrowers in meeting credit/loan effectiveness conditions and in providing counterpart funds; protracted procurement processes; bureaucratic delays affecting the importation of goods; unexpected technical problems; deficient project management; and delays in carrying out studies. Less frequent causes include the suspension of credit/loan disbursement because of borrower noncompliance with major covenants and government failure to meet its obligations with the Bank.

Cost overruns. Forty-one percent of projects had cost underruns, 24 percent had costs about the same as the original estimate, and the remaining 35 percent experienced overruns about evenly distributed in the range of 10 percent to 50 percent (only one project having exceeded 50 percent). Compare with the 30 percent cost overrun experienced by all Bank power projects since 1974.² The most frequent causes of cost underruns were cancellation of project components for lack of financing (shortage of counterpart funds or failure of cofinancing to materialize) and prices lower than those estimated for major equipment procured through international competitive bidding. The most frequent causes

of cost overruns were underestimation of base costs and contingencies at appraisal, claims by contractors of civil works, and additional engineering and administrative costs induced by time overruns. Importation of services tended to be beneficial for engineering and construction supervision.

Rehabilitation versus new capacity. Power plants and distribution systems were rehabilitated (Ghana, Guinea, Tanzania, and Zaire), but sometimes after less urgent expansions (Tanzania, Zaire). In Ghana, the Volta River Authority was particularly successful in assisting the Electricity Corporation of Ghana to rehabilitate its northern distribution network. The outcome of most projects was mixed, and the sustainability of the physical improvements uncertain (Guinea, Tanzania), due to lack of effective maintenance. In other cases, the outcome was unsatisfactory as the targets were only partially met and achievements unlikely to be sustained (Sudan, Zaire). By any standards, total electricity losses were very high, ranging between 15 percent and 20 percent for most countries, with a few in the 30–40 percent range. Two-thirds of the countries experienced a loss rate higher than the Bankwide median of 15 percent (Table 3.1). The lack of disaggregated data makes it impossible to assess the extent of nontechnical losses by cause, that is, illegal connections, and underbilled and unbilled electricity.

Labor productivity. Productivity, measured by operation and maintenance costs, number of customers per employee, and production per employee, was also low (Table 3.1). To address these deficiencies, most projects chose the route of skills enhancement, but their approach was piecemeal and did not form part of comprehensive manpower development programs embracing the entire sector. The impact of the efforts deployed ranged from modest to negligible. As a way to circumvent the weak human resource base and to gain time to redress this situation, new options have recently been considered: management contracts in Côte d'Ivoire, Ghana, Guinea, and Mali, and independent power generation in Côte d'Ivoire.

The operating indicators presented in Table 3.1 are generally used to gauge productivity. The number of consumers and MWh per employee depend to a great extent on the general economic conditions of individual countries and the size of their power systems. Still, a majority of the countries under review exhibit ratios below the Bankwide median.

Service objectives and operating standards. Service objectives and operating standards are embodied in laws, decrees, regulations, and policy statements, and in concession, management, performance, and other contracts. They purport to define the service area, including who should be served, and the quality of

TABLE 3.1: OPERATING INDICATORS IN THE EARLY 1990s

	Total system losses (%)	Consumers per employee	MWh per employee
<i>Sub-Saharan Africa</i>			
High	40	122	1,308
Low	7	9	5
Median	18	31	240
<i>Bankwide</i>			
Median	15	104	602
<i>SSA cases above Bank median (%)</i>	67	5	15

service. All the countries under review have a more or less elaborate body of objectives and standards. Among the obligations of power producers, the planned quality and reliability of service have seldom been met. In extreme cases, low service quality causes industry and individuals to install backup auto-generation beyond the extent that would be economically justified. In 1985, for instance, Guinea had a power generation shortfall of about 47 percent of estimated requirements; load shedding had become a daily reality. From 1983 to 1992, the private sector installed for its own use some 70 MW of power generation, and in 1993 produced some 109 GWh of electricity, that is, almost as much as ENELGUI, the national electricity enterprise.

Tariff setting. Technically, electricity pricing is complex. Thus, in most countries, the work of consultants has often been used as an “anchor point” from which subsequent adjustments have been made, frequently based on cost of living or other price indices. Long-run marginal cost (LRMC) has usually featured prominently in these tariff studies. LRMCs provide good guidelines for improving tariff structure but must be vetted by

financial projections before they can be used as targets for setting average tariff levels. In Côte d’Ivoire, capacity was abundant, and the long-run marginal cost so small that it was not considered viable. This case is typical of many SSA countries where growth has been slow and capacity expansion has increased debt service burdens.

In spite of the many pricing studies carried out, information on electricity supply costs in SSA is unreliable and insufficient to allow meaningful comparisons of revenues with service costs. But a comparison of average revenues across countries does provide an indication of the relative efforts made to recover costs. Table 3.2 and Figure 3.1 portray the ranges of average revenue per kWh and compare the experience of the early 1990s with that of the late 1970s. In some countries, prices show a decreasing trend toward levels as low as 3–4¢/kWh. Such prices are lower than the long-run marginal cost and prices in most countries. In Asia and Latin America, with the exception of China, Ecuador, Honduras, Nepal, Trinidad and Tobago, and Vietnam, the price of electricity is in the range of 7–14¢/kWh³ while in OECD countries 13¢/kWh is the average tariff.⁴ Only a few SSA countries collect 18 to 22¢/kWh: Benin, Niger, Senegal, and Togo.

None of the countries under review has incorporated tariff setting rules in their laws or set up independent tariff boards. Instead, governments have formulated their tariff objectives in policy statements, issued mostly prior to external borrowing, including when borrowing from the World Bank. However, due to political expediency, such statements have often been diluted or ignored.

Another difficulty has been the lack of up-to-date financial information. In many of the Sub-Saharan countries, sector entities can run out of cash long before financial statements are

FIGURE 3.1: AVERAGE REVENUE FROM ELECTRICITY SALES

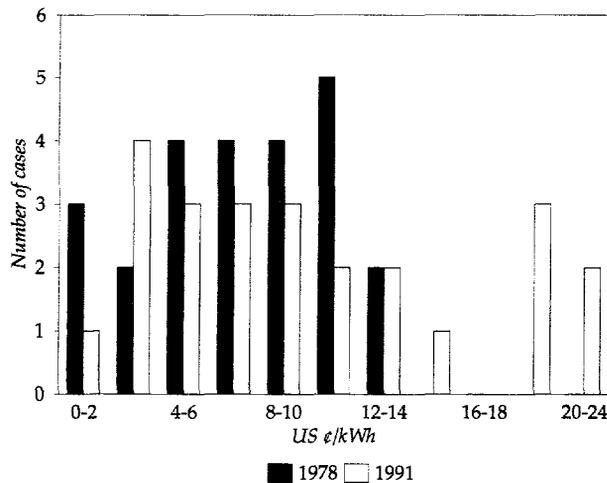


TABLE 3.2: FINANCIAL INDICATORS IN THE EARLY 1990S

	Rate of return on revalued assets (%)	Debt service coverage (incidence)	Outstanding accounts receivable (days)
<i>Sub-Saharan Africa</i>			
High	15	80	462
Low	-16	-534	60
Median	4	4	131
<i>Bankwide</i>			
Median	6	16	84
<i>SSA cases above Bank median (%)</i>	41	23	67

available. Tariff adjustments are frequently made on the strength of tentative financial projections, mostly on an ad hoc basis, too late to enable an entity to meet its obligations. This results in the need for additional measures, such as rescheduling or converting into equity part or all of the sector's debt.

Accounting, billing, and collection. Without exception all Bank loans/credits include standard covenants aimed at ensuring adequate accounting, billing, and collection. However, in SSA the results are not encouraging. In the early 1990s, collection of electricity bills in two-thirds of SSA countries was worse than the Bankwide median (Table 3.2). More than 75 percent of outstanding accounts receivable were more than 90 days old: 24 percent were between 90 and 150 days, and the remaining 52 percent were more than 150 days. While there is a perception that collection efficiency was no better in the early 1980s, the fragmented nature of available information precludes a meaningful comparison.

Arrears tended to increase with the billed price of electricity: both were small in Malawi and Zimbabwe; both were high in the Benin, Central Africa Republic, and Mali. However, the worst performance belonged to Nigeria

with arrears at 460 days with the low price of 3.2¢/kWh and Sierra Leone at 390 days with a price of 10.8¢/kWh.

Ineffective billing and collection systems, weak management, and lack of penalties or willingness to apply them to delinquent customers are often cited as the causes of this chronic problem. In the harsh economic environment of the 1980s, enterprises and households were hard put to pay their electricity bills—the bulk of the arrears were from the public sector. The problem was exacerbated by government not allowing the power companies to withdraw service from public sector entities for nonpayment. Repeated Bank efforts to address this problem (covenants, dialogue, and other understandings), particularly in the periods preceding the approval of a new credit, produced only short-lived results. It is not exaggerated to conclude that until governments regain fiscal control, and adopt a more commercial outlook, the problem of public sector arrears will continue.

A handful of countries have started using management contracts or lease contracts with reputable independent operators as an expedient way to introduce commercial discipline in the power utilities. Box 3.1 delineates the differences between the two. These contracts

BOX 3.1: MANAGEMENT VS. LEASE CONTRACTS

A management contract is an agreement through which operational control of a company or part of a company is delegated to an external operator. This agreement is formalized by a medium-term contract. Personnel from the external operating company occupy some of the company's key positions, but the company remains the owner of its installations and controls all investment decisions. The operating company's intervention is generally limited to service provision: In addition to placing high-level personnel within the company's hierarchy, it may carry out one-off short-term support missions. The operator is paid either by the company it is managing or by financial backers and does not, therefore, bear the risks related to operations. When the operator's remuneration is linked to management improvement criteria (billing rate, recovery rate, and so on) or quality criteria (availability rate, and so on),

the contract is called a management performance contract.

An operations contract is an agreement through which local authorities grant (concede to) an operator the right to operate installations. The beneficiary of the lease (lessor) may be a private or semi-public company. The lessor is responsible for an operation and agrees to maintain installations in accordance with conditions laid out in the lease's terms of reference. These contracts provide for a minimum level of service and establish quality standards for energy generated and distributed. The lessor is paid on the basis of the operating balance. Installations are made available to the lessor by the local authority in exchange for a rental fee, which the lessor pays to the local authority. This is generally a long-term contract lasting from 10–20 years.

Source: World Bank.

reflect a major change in policy. The first albeit still very young experience is in Côte d'Ivoire. The private company now running the power system under a lease contract has an overwhelming interest in collecting revenue from customers, as it earns its fee only on amounts effectively collected. In FY92–93, its collection rate for private consumers was around 98 percent, up from 63 percent in 1988; due to government nonpayment, its overall collection rate reached only 85 percent. Government arrears caused the company to retain about one-third of the money that should have flowed to the government agency responsible for servicing the sector's debt (CAA). Despite

specific budgetary measures introduced earlier to ensure that the budgets of individual ministries covered electricity consumption, non-payment has continued. Management or lease contracts have recently been signed in Ghana, Guinea, and Mali. Use of advanced technology, such as hard-to-tamper meters with prepayment devices, is being considered in Tanzania as a way to avoid arrears and meter reading, as well as to decrease collection costs.

Financial performance. All loans/credits in SSA have financial covenants that promote adequate returns on assets in operation or a predetermined self-financing ratio. Few coun-

BOX 3.2: NIGERIA: RECOVERING CASH COSTS AND DEPRECIATION

Electricity tariffs remained unchanged between 1979 and 1989. Average tariffs were well below the long-run marginal cost and inadequate even to cover cash operating costs. Substantial increases in mid-1989 enabled the National Electric Power Authority (NEPA) to meet operating costs (with depreciation calculated on historical cost)

and debt service (after conversion of long-term debt into equity and a grant equivalent to 40 percent of the costs of building a new hydroelectric power scheme). Yet on a revalued assets basis, a further 25 percent increase would have been needed to break even. Without tariff increases, NEPA's deficits increased rapidly.

Source: World Bank.

tries met these objectives, among them, Côte d'Ivoire and Ghana (Volta River Authority only). The financial rate of return is of special interest when compared with the prevailing opportunity cost of capital. However, to be meaningful, the ROR must be calculated on the basis of revalued assets, a condition that seldom obtains (Box 3.2).

An analysis of available indicators from the early 1990s points to generally inadequate financial performance. In about 60 percent of SSA countries, rates of return on revalued net fixed assets in operation—and debt service coverage—were worse than the Bankwide median (Table 3.2). On self-financing, three out of four SSA countries were again worse than the Bankwide median, disappointing results given the slow asset growth of SSA countries in the 1980s. RORs ranged from 2.5 percent to 7.5 percent, an improvement over the 0–5 percent rates of return observed in the late 1970s. Kenya, Malawi, and Zimbabwe were exceptions with RORs around 15 percent, while Guinea, Nigeria, Rwanda, and Sierra Leone obtained negative returns in the range of –7.5 percent to –16 percent.

High to acceptable rates of return as in Malawi and Zimbabwe, which charge less than

5¢/kWh, reflected efficient operations as much as adequate tariffs. And some countries exhibited negative RORs, even with average revenues over 10¢/kWh. These were mostly small systems such as those in Central African Republic, Guinea, and Sierra Leone.

Ensuring an adequate threshold rate of return on revalued assets is difficult in a period of high inflation or after a major currency devaluation. Generating sufficient cash internally to finance the largest possible portion of the cost of investments can be far from satisfactory given the "lumpiness" of investments and the long-term nature of power facilities (see Box 3.3).

The facilities of the electric power sector are long-term assets and for this reason long-term business and financial planning are of paramount importance. The lack of integrated business planning within the utilities is one of the greatest weaknesses in SSA. Investment planning and financing are sometimes carried out entirely independently of the operating utilities and of the willingness of the consumer to pay. If tariffs that are already insufficient to cover costs are too high to be increased, what is the justification for expanding capacity? Yet this happens, while governments allow the

BOX 3.3: TANZANIA: CHANGING REVENUE COVENANTS

Between 1978 and 1994, the revenue covenant for the electric power sector oscillated between a rate of return and a cash flow. It changed three times, each time because the previous covenant could not be met. Poor operating efficiency, inflation, devaluations, and late tariff adjustments

resulted in TANESCO, the electric power sector operator, rarely meeting its revenue objectives. When it did meet objectives, it was usually after a debt to equity conversion. In this case, the nature of the covenant used had no discernible impact on the utility's results.

Source: World Bank.

utility to default on its debt, and to reschedule or convert debt into equity, thus tolerating inadequate tariffs, hiding operating inefficiency, or both.

The implementation of viable operating and financial policies would also require readily available foreign exchange for servicing debt, timely acquisition of spare parts and repair material, and investment of temporary cash surpluses, a rare occurrence in the Sub-Saharan region.

Access by the poor

Falling or stagnant per capita consumption of electricity in many SSA countries could be a sign that more small customers have been connected to electricity. Progress was made on connections, but in most countries it was too modest to affect per capita consumption. With few exceptions—Burundi, Côte d'Ivoire, Ghana, Guinea, and Nigeria among them—the provision of electricity service to low-income households was pursued weakly or not at all. Where it was pursued through distribution or rural electrification components, it did not prove sustainable. In Burundi, 6,225 additional connections brought the total number of connections to households in Bujumbura up to

13,000 in the period 1985–90. In Côte d'Ivoire, Bank and cofinancier lending helped bring electricity to more than 120 villages, including their health centers, schools, and community services, and to about 2,700 low-income households in isolated grids and “reseaux araignees.” In Guinea, Bank financing helped 10,000 additional households receive electricity by 1986. Current Bank lending is helping Ghana implement the District Capital Electrification and the Self-Help Electrification Program: by 1994, 20 district capitals had received electricity, as had 240 towns and villages located within 20 km of line supply routes in the national electrification scheme. In the latter case, the towns and villages made material contributions (poles, labor) to the construction of lines. Earlier, in the mid-1970s, Bank lending assisted Nigeria in increasing residential connections by more than 600,000 in 43 cities and 41 towns. In the 1980s, the addition of 930 distribution transformers electrified as many villages.

Overall, electricity service coverage in SSA countries is modest (Figure 3.2). Massive connection programs such as Nigeria's became the exception in the 1980s. The economic crisis depressed incomes—mostly rural—and demand for new connections. Also, cost recovery policies in SSA have generally tended to protect existing customers, wealthy or not,

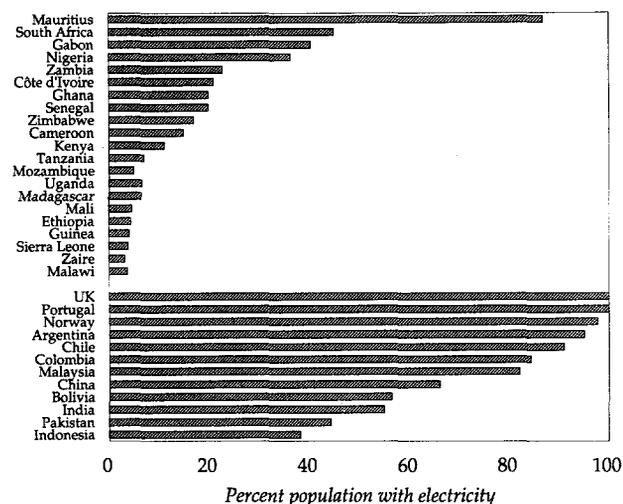
even when the need to reduce utilities' deficits was pressing. Everywhere, generously subsidized tariffs existed for most, if not all, low-voltage customers.⁵ That they benefited the landlords rather than the poor consumers is plausible given the pattern of urban housing tenure in many SSA countries.

A household connection to the grid is expensive (for example, \$600 in Burundi, \$240 in Côte d'Ivoire). It is the recovery of that cost, not the price per kWh, that constitutes the greatest hurdle to getting electricity. More consumers would be able to afford it, and more utilities could recover their expenses, if the connection cost were spread over the life of the distribution system. In this regard, a worthwhile lesson may be borrowed from Côte d'Ivoire's water supply sector, where, in the early 1990s, the cost of connection for those with limited consumption was included in the general water tariff, and "free" connections made. The result was dramatic: in the space of two to three years, about 30 percent more customers were connected.

Resource mobilization

Since 1978, investment in Bank-financed, completed projects in SSA has reached \$3.3 billion, of which the Bank and the cofinanciers have funded 36 percent and 44 percent respectively (Table 3.3). For ongoing projects, commitments amount to \$2.3 billion, of which the Bank's share is 49 percent and cofinanciers' is 46 per-

FIGURE 3.2: ELECTRICITY COVERAGE IN AFRICA VS. OTHER COUNTRIES



Source: World Bank, Industry and Energy Department.

cent. In the Asia and Latin America and Caribbean regions, the Bank has funded respectively 24 percent and 31 percent of Bank-financed power projects.

Table 3.3 reveals a steep decrease in the countries' share of project financing, from 20 percent in the past to about 5 percent for ongoing projects. The countries' relatively low contributions stem from their poor overall economic performance, low cost recovery, and weak or absent local capital markets. However, as the countries make good on their obligations to provide financing for costs overruns, typically 20 percent of total costs, the respective shares

TABLE 3.3: FINANCING OF POWER PROJECTS IN SUB-SAHARAN COUNTRIES (\$ millions)

	Bank		Cofinancing		Country		Total	
	\$ millions	Percent						
Completed projects	1,189	36	1,447	44	634	20	3,273	100
In supervision	1,136	49	1,066	46	121	5	2,323	100
Total	2,325	42	2,513	45	760	14	5,596	100

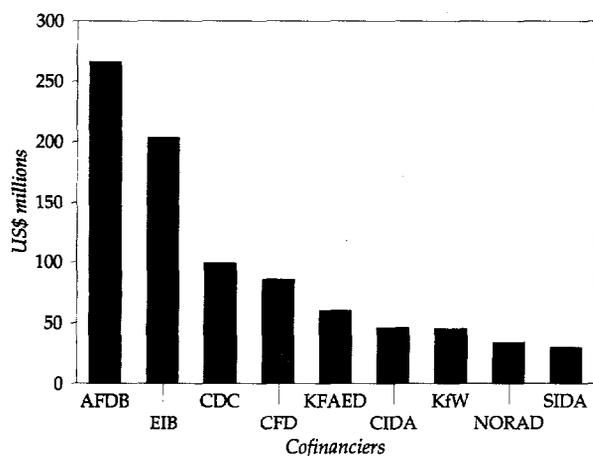
of financing may be expected to remain essentially the same as in the past. Total cofinancing of 45 percent of project costs is substantial, and the Bank deserves some of the credit for its catalyzing presence.

Cofinancing since 1978 has involved as many as 39 cofinanciers comprising 28 multilateral and bilateral lending institutions, nine countries, and two private lenders (Figure 3.3). Next to the Bank, the African Development Bank (AFDB) has contributed \$266 million and the European Investment Bank (EIB) \$203 million. Other cofinanciers having provided \$30 million or more include Commonwealth Development Corporation (CDC), Caisse Française de Development (CFD), Kuwait Fund for Arab Economic Development (KFAED), Canadian International Development Agency (CIDA), Kreditanstalt für Wiederaufbau (KfW), Norwegian Agency for International Development (NORAD), and Swedish International Development Agency (SIDA).⁶ In terms of the number of projects cofinanced, EIB heads the list with 14, followed by CFD with eight, KfW six, CIDA

five, AFDB five, CDC three, and SIDA, KFAED, and NORAD, with one each. One can speculate that the lending institutions and countries that have participated in only one or two operations since 1978 do not have a strong commitment to the region's development.

The study examined the power sector's foreign debt in relation to total country debt in six countries for the period 1987 to 1991. As a percentage of total country debt, the foreign debt of the power sector was found to have decreased from 13.4 percent to 10.5 percent in Burundi; 8.6 percent to 7.7 percent in Côte d'Ivoire; 4.9 percent to 3.3 percent in Guinea; 12.6 to 9.2 percent in Mali; 17.2 percent to 6.1 percent in Nigeria; and 8.0 percent to 7.4 percent in Tanzania. In absolute dollar terms, the power sector's foreign debt has remained more or less constant in Burundi, Ghana, Guinea, and Mali, but has increased by 42 percent in Côte d'Ivoire and decreased by 42 percent in Nigeria. Its composition has shifted significantly from bilateral to multilateral sources of financing. The ratio of multilateral to bilateral and other sources of financing was 30:23:47 in 1987 and changed progressively to 48:25:27 in 1991.

FIGURE 3.3: COMPLETED PROJECTS: CONTRIBUTIONS BY MAJOR COFINANCIERS



Notes

1. 1992 *Evaluation Results*, World Bank Operations Evaluation Department, Washington, DC: World Bank, 1994, Figure 1.11, p. 73.
2. 1992 *Evaluation Results*, Figure 1.12, p. 74.
3. A. Malhotra, O. Koenig, and P. Sinsukprasert, *A Survey of Asia's Energy Prices*, World Bank Technical Paper No. 248, Washington, DC: World Bank, 1994.
4. Organización Latino-Americana de Energía, *Energy Statistics 1992*, Quito, Ecuador, 1992.
5. In Ghana, for instance, most of the low-income residential households consume less than 200 kWh of electricity per month; one-quarter consumes less than 52 kWh. Yet, every consumer is entitled to a life-line block of 100 kWh per month at a flat \$0.87. Consumption above that block is priced at only 3¢/kWh.
6. \$30 million equivalent is the average amount lent by the Bank in 41 completed projects.

4. Performance factors

External and country factors—the oil crises, macro-economic instability, and recession—influenced project outcome and impact. But these factors also existed in other regions. Process factors often viewed as defining Bank relationships with Sub-Saharan countries played a major part. Varying project objectives created difficulties. For example, the introduction of nonpower components increased project complexity, and the numerous adjustment operations seldom supported sector objectives. Borrowers did not own institutional and policy objectives, except in rare cases, when the situation had become dismal. No evidence was found that the Bank had a significant influence on nurturing ownership. Bank tolerance of inadequate compliance with covenants compounded the problem. Except for some studies, technical assistance was generally relevant, but seldom elicited borrower commitment; where it did and consultants adapted well to local conditions, success occurred, even in the delicate area of management assistance by expatriates. Donor coordination was reasonably good on project implementation, but competition among donors sometimes undermined the Bank's policy and complicated the design of technical assistance.

External and country factors

Most factors influencing project performance are usually grouped into three categories: (1) external factors, (2) country and sector characteristics, and (3) process factors, for example,

design and implementation variables. Most external factors, such as international interest rates, currency movements, and terms of trade, played a role in power sector and project performance insofar as they influenced the cost of capital, fuel, spare parts, and other imports, as well as the economy at large. This influence was definitely negative. In many cases, local currency devaluations caused cost underruns in dollar terms; in local terms, they caused overruns and increased the debt burden (Ghana, Tanzania). International fuel prices also influenced the finances of power companies with mainly thermoelectric systems (Senegal, Sierra Leone); the impact was negative until 1985, and positive afterwards.

Regional/country factors played a role as well. Indeed, the influence of fuel prices was masked or aggravated in many countries by fluctuations in the availability of hydroelectric energy. For instance, in Sahel countries, a long period of drought between 1978 and 1985 depleted reservoirs and eroded utilities' financial reserves; the drought also hampered economic and therefore power demand growth.

The weakness of the human resource base in SSA countries is often cited as a problem. It may partly explain some of the technical inefficiencies encountered in project execution and utilities operation (high losses, low capacity availability). Still, a comparison with India's

state electricity boards—where skilled labor is not scarce but where similar inefficiencies are frequent—indicates that more factors are at play here, in particular the institutional framework that determines autonomy and incentives in management and execution alike.

All external factors and many of the country factors listed above were shared by many countries in other regions. In particular, Latin America was rocked by macroeconomic instability as much if not more than SSA. If there is a specific difficulty with Africa, it must therefore come down to Bank and borrower performance. This performance was rated as satisfactory in a high percentage of cases because of the good execution of physical components. The evaluation would have been less favorable if policy and institutional components and covenants had been assessed more critically. With this in mind, it is appropriate to focus on a few factors related to the process of project design and implementation. These factors, often seen as central to project outcome, include:

- choosing project objectives and ensuring their relevance;
- obtaining borrower ownership;
- optimizing Bank involvement;
- providing effective technical assistance; and
- mobilizing cofinancing and donor coordination.

Choosing project objectives

Bank-country relations in the electric power sector could be expected to be affected primarily by the dictates of OMS 3.72, which lists the broad objectives to be pursued by staff in lending to the sector.

Power and infrastructure. Bank objectives as stated in OMS 3.72 were the same for all utilities: power, telephone, and water/sanitation. Strictly though, the emphasis should have been different. For example, promoting access to service by disadvantaged populations can be justified more easily for water and sanitation than for power—an expensive energy with often cheaper substitutes—and telephone services. Also, achieving reasonable cost of service is often possible at a local scale for water and telephone, but almost never for power. Differentiation in the identification and design of the various utilities should have followed, but the Bank usually fostered planning at the national level for all sectors, and chose to overlook the cost and socioeconomic justification of underpricing electricity almost as much as it did for water.

Power and biomass. Objectives and components dealing with traditional energy resources started appearing in power projects in the 1980s. This occurred in Mali where the projects also dealt with water supply, and in Burundi, Madagascar, Tanzania, and Zaire where they included biomass and improved stove components. The latter were mostly pilots, and met their objectives in two out of three cases. In the same period, about 19 agriculture/forestry projects featured fuelwood plantations, 70 percent of which were successful. The inclusion of biomass components was not overly detrimental to the outcome of the biomass or power components, but it tended to make priorities more diffuse and demanded a broader range of skills that often was not available to supervision missions.

Traditional energy is essential to most people in Sub-Saharan Africa. It raises not only a need for fuelwood plantations, but also raises issues of rational distribution, pricing, and use. The Energy Sector Management Assistance Program dedicated 13 studies to household energies in 11 countries and 23 studies to

nonconventional technologies in 14 countries (biomass, charcoal, stoves, peat). These studies provided fresh opportunities for the Bank not only to pilot a few biomass components in power projects but also to develop stand-alone operations that could demonstrate its ability to design small but cost-effective loans in a non capital-intensive area of the energy sector. Yet, the study did not spot any such operation among the completed projects.

Power and macroeconomic objectives. Power is also at the heart of the fiscal and foreign exchange imbalances of many SSA countries. In some cases, power projects became vehicles for granting balance of payment relief, with their power sector objectives subsidiary to broader goals. Sometimes (Nigeria), the efficacy of nonpower-specific projects suffered with respect to power sector objectives when major sector principles were left aside, which might have been avoided had a free-standing power project been implemented instead.

In the 1980s, a total of 23 SALs were implemented in SSA countries, of which eight, in eight countries, had energy sector conditions. More often than not, adjustment operations were missed opportunities to address in a sustainable manner the fiscal burden posed by power utilities. For example, Côte d'Ivoire's Energy Sector Adjustment Loan correctly identified the sector's problems and proposed approaches that seemed appropriate. However, in seeking to be comprehensive, the operation emphasized too many issues, many of them in the oil sector, and therefore failed to pay appropriate attention to the dismal financial performance of the nation's energy company (EECI). In the case of Ghana, power sector objectives were well coordinated with those seeking changes to the macroeconomy, yet little progress was made on cost recovery. At other times (Burundi), the sector benefited and advances were made because sectoral

objectives were specifically addressed in separate power projects, which were coordinated with broader adjustment operations.

OED evaluations¹ show that SALs in the 1980s were most effective in reforming the energy sector when (a) reforms were urgent because energy consumption per unit GNP was high and prices were very distorted; (b) reforms were easier because energy intensity and the share of industrial consumption were high; and (c) technically sound action plans had been prepared (often under previous investment loans), and all they needed was a decisive push by core government entities (finance ministry). These conditions existed less for power than for petroleum and less for SSA countries than for other adjusting ones. It is only recently though that ESW and ESMAP studies have begun to focus on preparing country-specific reform action plans for the power sector.

Conclusion. All of the findings point to the need for a carefully designed country assistance strategy that is based on substantive sector work undertaken in cooperation with the borrower. The pursuit of multiple objectives is inevitable, given the Bank's agenda, but how many objectives can be successfully tackled in one project? Power projects are not the best instruments to deal with fossil fuels or rural energy issues. Similarly, public sector management issues should be addressed as part of institution-building interventions, which require limited to no lending resources. Power projects should support the broad strategy, but focus on power sector objectives with up-front actions designed to ensure appropriate borrower commitment.

Eliciting borrowers' ownership

Country commitment is a key determinant of project quality at entry. Ownership of objec-

tives varied markedly among stakeholders and with the nature of the objective:

- Expansion of supply was generally well owned by government and even more by the concerned utility.
- Expansion of facilities was owned more than their rehabilitation, and power generation more than electricity distribution.
- Institutional strengthening was owned by the beneficiaries, but the degree of ownership varied with the know-how to be transferred and the mode of delivery.
- Policy and institutional reforms (tariff increases, reduction of arrears, reduction of over-staffing, deregulation) were owned less by the government than by the power utilities.

The least-owned institutional measures. The least-owned institutional measures in the power sector usually have been the most crucial—the achievement by the utilities of a reasonable measure of autonomy, large *tariff adjustments*, and *staff reductions* or adjustments in *remuneration*.

The resistance to *increased autonomy* stems in part from the sector's capital-intensive nature, which gives tremendous clout to whomever controls investment and financing decisions. Also, where governments retain the ownership of sector assets—the general case—they must be involved if only to discharge their fiduciary responsibility and keep the power sector solvent. This and the utilities' inefficiencies usually provide the excuse for government intervention in day-to-day operations, which in turn perpetuates insolvency and inefficiency. In the case of multinational undertakings, such as the Ruzizi hydroelectric plant, the interested countries have been reluctant to curtail prerogatives or to delegate them to the entity they control.

The measure that governments usually resist most is *electricity tariff increases*. The huge size of the increase needed to make a dent in sector deficits makes it impossible to effect the increase in one installment. The need for such adjustments comes mostly from past failures to adjust tariffs regularly in small increments. A major obstacle is the general belief that electricity should be "affordable," meaning highly subsidized for most of the customers, especially where operations are inefficient. There is also the practical difficulty of making transparent the relationship between the cost of service and the electricity rates paid due to lack of cost accounting. Finally, it is difficult to justify increased tariffs when service is of decidedly poor quality and operating efficiency is obviously poor.

Measures involving *staff reductions* and *changes in remuneration*, though often agreed on paper, are rarely owned by the entities that have to implement them. This is not only because of the social repercussions in an environment with high unemployment, but also because it is often politically impossible to deal with these issues in the power sector alone.

Four power projects in Ghana provide an excellent example of the different degrees to which various stakeholders own objectives (Box 4.1).

Ownership of reforms. OED reviews of policy reforms show that ownership stems from several factors: (a) locus of initiative; (b) intellectual understanding of issues by government; (c) commitment to act and spend political capital if needed; and (d) acceptance by major stakeholders. The Bank had little success in eliciting the stakeholders' ownership in bringing about reform in the SSA power sector. It did not pay systematic attention to the four factors above.

The locus of initiative has to be the country, and it must be perceived as such by major

BOX 4.1 : GHANA: A CASE OF MIXED OWNERSHIP OF POWER PROJECTS

The last four power projects financed by the Bank in Ghana [Electricity Corporation of Ghana (ECG) Rehabilitation, Volta River Authority (VRA) Northern Grid, ECG Power V, and VRA Power VI] provide an excellent example of (a) the differences in government and utilities' ownership of project objectives and strategies and (b) the weakness of coercion not supported by a detailed plan of action. Indeed, the rehabilitation of ECG's facilities, VRA's development of ECG's Northern Grid, and the institutional reform of ECG were objectives

that Ghana fully owned. Even the restructuring of ECG, which involved the temporary takeover of ECG's management by a foreign group, was endorsed by Ghana. Success occurred in all three areas. In contrast, in the financial area, where the political will to adjust tariffs was limited, where ECG's determination to maintain pressure on its customers was weak, and where the Bank had relied on covenants without spelling out (for example, in side-letters) the modus operandi for achieving goals, the results fell short of the objectives.

Source: World Bank.

stakeholders. Timing is also important: an implementation schedule that suits the country may not agree with the Bank's view. In some cases (Côte d'Ivoire and Guinea) the thrust of the action plan seemed to be coming from the Bank, who even helped perpetuate traditional approaches, although signs existed that bolder approaches would have been acceptable. For example, in Burundi, the Bank supported a substantial but gradual reduction in the power utility's personnel, while the country decided to reduce staff by 30 percent—in a single step.

The Bank did attempt to promote intellectual understanding in the area of loss reduction through hands-on seminars and 17 studies in 13 countries organized by ESMAP. Policy seminars were also organized, but they tended to dwell mostly on principles. As a result, intellectual congruence with government on policy issues existed but was often shallow. When the actual implications of the measures envisaged became clear, ownership by the interested enti-

ties vanished. It could have been helpful to have had a more thorough discussion of issues² and to have conducted visits to countries where similar measures were originally resisted, but ultimately successfully implemented.

Political commitment to act, when it emerged, was less the result of Bank persuasion than of inescapable facts, namely the fiscal crises that afflicted Burundi, Côte d'Ivoire, Ghana, and Guinea. Reforms went faster and farther where they were conducted outside the normal framework by strongly empowered units such as Côte d'Ivoire's Direction Générale des Grands Travaux.

Potential losers accept reform only if they can see some long-term gains or immediate compensation to offset their losses. Stakeholders who saw themselves as potential losers (whether true or not) were existing consumers, government leaders, and sometimes even utility staff; they were effective in obstructing

reforms until incentives changed. The immediate winners, utilities and long-term winners (would-be consumers, consumers of other services, and tax and duty payers), were never heard. Incentives for obstructionists weakened, however, when service deterioration and fiscal deficits reached abysmal proportions. Governments were then forced to discourage rent seeking. In any event, sources of rent were quickly drying up for everyone. There was no case of reform being attempted before that point was reached.

No evidence was found of Bank efforts to enlist the support of potential reform “winners” and change the incentives of potential losers of reform. Recently, it did change those incentives in a way, when it started linking its flow of aid to performance. This relatively blunt approach worked in Burundi, Côte d’Ivoire, and Ghana. It did not, however, work in Nigeria where the foreign exchange generated by oil exports reduced the clout of foreign lenders and donors.

Optimizing Bank involvement

Persistence of involvement. Bank involvement in SSA’s power sector has been driven by the perception that the sector is very important for economic growth, is demanding in terms of capital and natural resources, and presents issues that touch on many institutional, efficiency, and economic aspects affecting not only the power sector, but the economy at large. The projects analyzed show that in many instances, the Bank was keen, too keen perhaps, to give its financial support. More often than not, it avoided sanctioning countries, even in the face of repeated breach of covenants, to the extent that it sometimes undermined its own agenda. In Zaire for instance, suspension of disbursements was avoided, even though suspension would have been easy given the project’s focus on rehabili-

tation. In Guinea, the second project came too soon to extract government commitment or incorporate the lessons of the first one.

Larger loans did not buy better performance on policy and institutional development. For instance, five loans of about \$100 million each were made, but sustainability is likely for only two of the projects supported and institutional impact was considered substantial for only one. Policy adjustments never met agreed targets in Côte d’Ivoire and Nigeria where initial conditions were dismal and in Kenya and Zimbabwe where a surge in capacity expansion made it urgent to improve cost recovery.

The desire to maintain a presence in the sector, to ensure a positive aid flow, and to not undermine broader-scale adjustment efforts supported by the Bank may have been at the root of the Bank’s decision to rush a second loan or to not invoke remedies. Arguments also exist in favor of big loans: they boost aid flow, leverage the uncompressible cost of Bank staff involvement, and can be turned into a visible show of donor coordination when several cofinanciers are involved. None of these reasons for large loans is compelling though if the assistance does not support the ultimate reason for getting involved in a particular sector—to achieve progress on specific development issues. Ensuring that sectoral goals support overall development objectives is a test of coherence and credibility. But the power sector can seldom claim to be part of a core Bank assistance program. The examples of Egypt and later Brazil, Colombia, and India, where Bank power lending was scaled down when borrower commitment to reform was unmistakably absent, illustrate this interplay of broader development objectives. Such a reduction can yield results, especially if combined with a well-articulated argument that draws on the Bank’s global experience.

Intensity of involvement. Once the Bank decides to lend to a country, a substantial amount of Bank staff involvement is inevitable: staff have to make sure that policies and procedures are correctly understood and have to agree with government on objectives and strategies. Implementation also entails a substantive use of staff resources. Bank involvement in project preparation and implementation is always a balancing act between too little and too much. Too little involvement leads to projects that cannot be processed or to operations whose value added is unsatisfactory. In the context of Sub-Saharan Africa, this usually means a worthless project because of the lower average level of development, and because most of the projects under review (except perhaps those for Ghana and Nigeria) were among the Bank's first operations in the sector. Too much involvement, on the other hand, leads to a confusion of roles and responsibilities with the borrower. This reduces the borrower's ownership and increases the risk that the Bank's approach will not be fully understood, and its intervention will be resented as overbearing. The Bank's Portfolio Management Task Force reported that excessive Bank involvement was one of borrowers' most frequent complaints and one of the greatest sources of their low performance.

Has Bank involvement in SSA countries been more intrusive than in other regions? In the power sector, such a perception could arise from the large number of studies and consultants involved in Bank projects, but not from the intensity of average Bank staff involvement, which is line with Bankwide averages:

- 180 staff weeks per project, less than 10 percent higher than the Bankwide average for power projects;
- 90 staff weeks from identification to approval, 18 percent below the Bankwide average;

- 90 staff weeks spent on supervision, 27 percent above the Bank average; and
- on average, 1.8 supervision missions per project per year.

Evaluators have never rated supervision intensity as excessive. On the contrary, completion reports of unsuccessful projects in SSA often conclude that Bank *supervision* was insufficient. In Guinea's unsuccessful projects, however, an average of two missions per year visited the country. It is unlikely though that the Bank could field, on a sustained basis, more than two supervision missions per project per year. It is also unlikely that more intense Bank supervision could have reversed the outcome of projects that failed mainly because of insufficient quality at entry. No amount of supervision can make up for a country's lack of commitment to bring about change. Evaluations of portfolio management suggest that the Bank should restructure or cancel projects earlier and more often and refocus rather than increase supervision. In particular, concentration of supervision in the first third of the implementation period has been strongly correlated with success.

Identification and appraisal often require the Bank to exercise strong judgments about national priorities and project quality. Although necessary and in the interest of the countries, borrowers at first rarely appreciate these judgments, which they see as intrusive. Although not more so than in other regions, this was the case in Sub-Saharan Africa, where the Bank rejected the Kompienga hydroelectric project in Burkina Faso, Konkoure in Guinea, and Bumbuna in Sierra Leone and where it chose to downsize Ruzizi in Burundi, Rwanda, and Zaire. By contrast, Bank interventions were generally welcome when they mobilized cofinancing.

During *preparation*, when the potential for confusion of roles is greatest, the Bank was often

BOX 4.2: BANK INVOLVEMENT IN PROJECT PREPARATION

In connection with the Ghana Kpong project, the Bank played an advisory role in renegotiating the contract between the Volta River Authority (VRA), a generating company, and its main client, VALCO, a private aluminum smelter. It had played a major role in the agreement of the early 1960s. The Bank also contributed substantially to the formulation of the Power System Rehabilitation Project, which introduced top to bottom changes at the Electricity Corporation of Ghana (ECG), including temporary management of the utility by expatriate consultants. The Bank was also heavily involved in the unconventional assignment of VRA to expand the national transmission and distribution grid in the northern part of the country and to operate the regional system. This was done on the strength of VRA's institutional capability, a recognition that proved fully justified.

In Nigeria, the Bank was in a more traditional role when it tried to take advantage of

successive political changes to help improve planning and management practices in the power sector. Thus, in the early 1970s, during the appraisal of the Power IV project, Bank staff prepared the first investment program and financial statements for the then recently created National Electric Power Authority. In the late 1970s, in the preparation of Power V and Power VI, it tried to induce the Nigerians to balance their investment program, which over-emphasized generation. In the mid-1980s, while preparing Power VII project, the Bank provided models and terms of reference for studies to underpin approaches largely new in Nigeria (twinning, contract programs, pilot developments, and so on). In each instance, the Bank's recommendations were similar to those successfully received in many countries. But in Nigeria, the recommendations were unwelcome and failed to produce lasting improvements, even though they were reflected in project conditionalities.

Source: World Bank.

engaged in more discretionary activities, although, again, not more so than in other regions. The two country examples in Box 4.2, one exhibiting success, the other failure, illustrate the range of such activities and their outcome, often determined more by country factors than by Bank performance. In Nigeria, the Bank's efforts to improve planning and management failed, even though they were traditional in nature, while in Ghana, its advice was accepted, even though it was less conventional.

Effectiveness of technical assistance

Setting up a technical assistance program and modalities. In the less-developed countries, the various development agencies, especially the Bank, play a major role in shaping TA programs. In the SSA context, with its relatively simple sectors and generally obvious need for TA, this task did not receive the analytical scrutiny it deserved. Experience shows that TA success is elusive, except for TA associated with design and implementa-

tion of physical project components, which is usually implemented in accordance with the spirit and the letter of donors' rules.

In capacity-building areas, the performance of TA programs has been affected by the degree of local ownership, the relevance of the TA component, the individual sectors' absorptive capacity, and the knowledge of (and sensitivity to) local conditions possessed by expatriate consultants.

Local ownership. The success of TA programs depends a lot on the degree of borrower ownership. Countries generally assign low priority to technical assistance and TA programs, in contrast to the urgency they give to developing infrastructure. This bias and the lack of agreement that may follow between the Bank and borrowing country are frequently resolved by postponing action programs until after studies have been carried out. The reform of Ghana's Electricity Corporation in the late 1980s, however, was an exceptional success without the benefit of a previous study. The twinning program for management assistance succeeded because of the good interaction between a few expatriates and an essentially new management team of young, ambitious people who were strongly motivated and eager to learn (Box 4.3).

By contrast, in Nigeria after 1975, ownership was consistently lacking, mostly because the supervising agency was itself weak and existing managers retained their old positions. The outcome was an unmitigated failure. Failure also occurred in Guinea in part because expatriates were limited to a weak advisory role to unresponsive local managers.

Relevance. Least-cost sector development and other studies often lack relevance in that they fail to take account of the sector's stage of development and performance levels. In Guinea, Mali, and Nigeria through the late

1980s, it was neither realistic nor meaningful to call for traditional least-cost development studies that assumed demand depended essentially on exogenous factors and foresaw coverage of such demand by a least-cost investment sequence. Power sector development in these countries was rather obvious and largely determined by their financial and physical implementation capacity. A simpler study would have made more sense: it could have provided an outline of short- and medium-term development, which could have been the basis for Bank-financed projects. The Bank recognized this in Nigeria in the early 1970s, when it carried out a rough analysis of a likely program on its own, and included an in-depth study in the project. On the other hand, the Bank required sophisticated tariff studies in Guinea in the early 1980s and Uganda in the late 1980s, where available data were of poor quality and where reasonable estimates of tariff level and structure could have been determined at much less expense.

Capacity for absorbing technical assistance. Some SSA countries face inadequate basic schooling, especially for lower echelons. This not only affects the starting point but also the pace of carrying out a TA program. Hence, many actions contemplated in TA programs are never carried out, and their planned outcome is only partially or never achieved. When a sector with limited staff capability has embarked on a relatively large infrastructure development program, the more capable staff are very likely to be mobilized as a matter of priority to ensure the program's success. Imparting the very first knowledge is always the most difficult. Absorptive capacity should increase over time because there is synergy in learning. This is evidenced in SSA countries where some sectors, notably the power sector in Ghana, have developed a remarkable absorptive capacity.

Training needs in SSA are tremendous due to the pressure to employ as many local people

BOX 4.3: TWINNING WITH EXPATRIATES: GOOD PRACTICE

A twinning arrangement between Ontario Hydro of Canada and Volta River Authority (VRA) of Ghana made up for VRA's lack of technical and management capacity during its early stages of development. A team of expatriates managed VRA operations and trained the locals who progressively took over. VRA has maintained a cordial and close relationship with Ontario Hydro for more than 25 years and derives from it the benefit of both specialist expertise and training facilities, often on short notice.

In a more recent twinning arrangement between the Electricity Supply Board of Ireland (ESB) and the Electricity Corporation

of Ghana (ECG), ESB provided managers in a number of key positions (managing director, director of operations, project manager, co-principal of the training center). These managers helped ECG prepare a corporate plan for the period 1989-92 to be rolled forward and provided staff training. Their line responsibilities were well accepted and relations were cordial. Success was achieved in the areas of personnel management (creation of incentives, staff reductions and development) and program investment, not in the reduction of energy losses. After three years, locals, with newly developed competencies, replaced the expatriates.

Source: World Bank.

as possible, in spite of their inadequate preparation to fill positions in a technologically sophisticated sector such as power.

One of the difficulties often faced is the inadequacy of basic schooling, especially for lower level jobs (mechanics, electricians, linesmen, accountants, administrators, and so on). The question is how to overcome this shortcoming. One option could be to include some elements of basic schooling in the utility's training programs to compensate for what the education sector is unable to provide. A case in point is Tanzania, where TANESCO, the electricity utility, provided a successful literacy program that resulted in every employee being able to read and write. Another difficulty has been the lack of enlightened management and business organization capable of justly valuing and using fresh skills. Last, utilities lose trained staff

mostly to the private sector, mainly because of inadequate salary levels (although the cost of training is not wasted since it partially benefits other sectors of the economy).

Performance of consultants. A high incidence of dissatisfaction is observed among governments and sector entities with regard to the performance of consultants employed in support of sector efficiency and development (Burundi, Guinea, and Mali). Large consulting firms appear to have difficulties interfacing with utilities of modest size. These firms are said to take too much for granted in matters that local officials feel should be discussed and explained. Selection criteria for such consultants should include their proven ability to work with small organizations. The most experienced consultants are not necessarily the most desirable in this environment since they tend to advocate sophisticated solutions and to be paternalistic.

Conversely, lack or scarcity of well-prepared government and sector counterparts limits the quality of the consultants' performance. Further, there is the never easily solved question of compatibility between trainer and trainees, especially when cultural backgrounds differ. Finally, local managers of small entities such as those in Burundi, Mali, and Swaziland are often overly suspicious of the motives of expatriates, especially when they belong to powerful worldwide organizations.

Limitations of Bank instruments. Bank staff are often too remote or lack the skills to supervise and help implement TA. Field offices as currently constituted cannot make up for these shortcomings in most areas. On the other hand, donors, such as Deutsche Gesellschaft für Technische Zusammenarbeit and Swiss Development Corporation, have greater field presence and effectiveness, but their areas of expertise are mostly in technology. The Bank has not used donors enough in situations where it would have been advantageous to substitute them for Bank staff (Burundi). Further, the Bank has not been effective in forging partnerships with entities able to dispense experienced personnel to meet the challenge of building government's role as regulator and policy-maker through innovative approaches.

Conclusions. The following conclusions are particularly, if not exclusively, valid for SSA countries:

- Technical assistance needs to be embedded in a program to ensure that the TA (a) pursues worthwhile objectives, (b) contributes to synergy, (c) is within the implementation capability of the entities concerned, (d) fits within the context of the local culture, and (e) is properly timed.
- Management assistance involving delegation of executive power to expatriate consultants has the best chance to succeed when (a) the overseeing authority in the country is fully committed to the TA program and prepared to enforce the program's execution, (b) the expatriates are able to adapt their work style to suit the needs of modest power utilities, and (c) a large number of the local management team are new to the positions for which they are being trained.
- Training programs should be designed as components of a comprehensive program for the sector. When urgent measures need to be taken without the benefit of being part of a comprehensive program, it is important to ensure that they (a) address pressing needs, (b) are coordinated with other measures (for example, those funded by cofinanciers), and (c) are not in jeopardy because of a lack of necessary parallel or supportive action.
- Training programs must be seen against the background of the trainees' general schooling: some skills that are usually imparted in school may have to be taught or upgraded in the context of power sector training.
- The Bank should avoid studies as a proxy for concrete action when the type of action needed is well known (for example, tariff adjustments, personnel cuts, changes in salary structure, and so on) but the quantitative adjustments required are uncertain. With or without a study, it is always possible to define steps—albeit falling short of the estimated ultimate goal—that could be included as a prerequisite for lending.
- As a corollary, studies and the implementation of their recommendations need to be taken seriously, or left out altogether as project components.

Cofinancing and donor coordination

The Bank has been very successful in catalyzing cofinancing—less so in coordinating the roles and actions of other lenders and donors. The extent of Bank involvement in such coordination depends essentially on its relations with and the capability and willingness of the government and other interested entities to play their roles in a way that is compatible with the Bank's approach. Even in straight cofinancing the Bank had virtually no role to play in Nigeria, where the country's revenues from petroleum in the 1970s and early 1980s precluded the need for cofinancing coordination. In Côte d'Ivoire, because of other major participants in the sector, the Bank played only a minor role.

Donor competition has many advantages for borrowers, but it can be a mixed blessing, particularly for smaller countries. Because of the pressure on development agencies to help the priority countries of Sub-Saharan Africa, plenty of money was available in principle to develop their power sectors. But the kind of competition that developed for project identification among would-be lenders sometimes became detrimental. The Bank's influence was undermined when other donors financed projects it had rejected as uneconomical (for example, Komienga in Burkina Faso). In Burundi, competition led to delays in the construction of the Ruzizi II regional hydro project and to the premature construction of the Rwegura hydro plant, a project that was not the least-cost solution. In Uganda, in the late 1980s and early 1990s, the investment program was driven mainly by the availability of funds and donors' preferences. Lately, however, the policy agendas of the most important donors have increasingly converged.

Sometimes the design of TA was not closely coordinated among donors—so that it became diffuse, included conflicting elements, and

resulted in gaps and inconsistencies. For instance, in Uganda in the late 1980s and early 1990s, the TA program was a superimposition of essentially donor-driven programs, which taxed the country's absorptive capacity. Rwanda experienced a similar situation during the same period. In Côte d'Ivoire, inconsistencies in the TA program resulted from a lack of clarity of sector objectives and strategies, and the differences in their interpretation by the country and the main donors. Here, the Bank was hampered in its efforts by the fact that its participation was that of a minor donor and its relations with the main actor in the country were strained.

Coordination during implementation seems to have gone reasonably well. There were only two recently reported cases of unmet expectations. In the first case (Tanzania Power IV), one of the co-lenders withdrew its contribution because the civil works contract was not awarded to a contractor of its country; another cofinancier reneged on its pledge to finance TA; and two of the cofinanciers did not disburse funds because of the country's arrears to them. In the other case (Guinea Second Power Engineering Credit), the Bank organized and chaired donor meetings, but the Bank-financed team that was to assist in the coordination of donor-financed rehabilitation did not arrive in the field until very late.

Conclusions. The Bank needs the credibility provided by a sustained and reasonably successful sector involvement to effectively promote its sector improvement agenda. An understanding and congruence of views among co-lenders on broad sector issues and how to address them are necessary ingredients for successful coordination.

Most power sector entities in the least-developed SSA countries are ill-equipped to prepare and implement complex financing arrangements involving several co-lenders.

There is a need for streamlining. The Bank could take the lead in introducing new approaches with little risk if operations are small, as they often are in SSA.

The Bank should forge a strategic partnership in the sector and arrive at a division of labor with co-lenders. Even in cases where a nearly permanent presence is needed and where the Bank might wish to continue overseeing a particular project component, it might consider

delegating supervisory functions to agencies that permanently have specialized staff in the country and that are often more experienced than the Bank in field operations.

Notes

1. C. Jayarajah and W. Branson, *Structural and Sectoral Adjustment: World Bank Experience, 1980-92*, A World Bank Operations Evaluation Study, Washington, DC: World Bank, June 1995.

2. A non-African example is the Seminar on Power Sector Issues in India, which took place in Jaipur in October 1993.

5. Implementing the new policy

The Bank's new power sector policy stresses the commercial nature of power supply, an elusive goal in Africa. The Bank is optimistic about the performance of ongoing projects. However, the picture is mixed. SSA countries still lack a transparent and arms-length regulatory process, and even corporatized utilities lack a business orientation and autonomy. "Contrats de plans" have clarified utilities' objectives but do not provide a legal basis to curb government interference. In one country, progress has come recently from lease and management contracts for utility operations. Importation of services has been key to these contracts and to the success of twinning arrangements for management assistance in a few other cases. Most recent projects feature elements of the new policy with upfront conditionality on regulation and management contracts. They signal that more countries are committed to reform. However, private investment has not occurred yet on a substantial scale.

The new policy

The fourth objective of OMS 3.72—Improving Access by the Poor—was arguably the least feasible objective of completed projects for SSA countries, given their financial and fiscal woes, their low per capita income, and their stage of economic development. This is also true for the foreseeable future. The Bank's latest power sector policy was approved in October 1992 and issued in January 1993. While the

new policy maintains the implicit principles of economy and efficiency of OMS 3.72, it signals a notable shift in emphasis.¹ It also reaffirms the importance of Bank policies on resettlement and environmental sustainability, but abandons access to a minimal electricity service as a welfare objective.

The 1994 World Development Report (WDR) argues that, given its current dominance, the public sector will continue to have prime responsibility in most countries for the provision of infrastructure services. This is certainly the case for SSA countries. Improving the effectiveness of providers of public sector infrastructure is thus critical, and WDR proposes instruments akin to those found in the new policy to reinforce the commercial operation of the public sector.

The new policy identifies *five guiding principles* for Bank support of *power sector restructuring programs*. These are transparent regulation, commercialization and corporatization, importation of services, private investment, and commitment lending. These principles make up the menu from which "committed" countries are expected to choose when resolving their specific problems.

Concomitantly, a new policy was introduced to emphasize the need for demand management and energy conservation in several

sectors, one of which was electric power. This chapter reviews recent project trends and examines the prospects for a sample of six SSA countries to internalize the guiding principles of the new policies.

Trends in recent projects

Of 25 ongoing projects in SSA, 11 were approved after the new sector policy was introduced (Annex Table 1.2). These projects decidedly stress rehabilitation (34 components) and distribution expansion (11) over expansion of generation and transmission (20). The number of studies (48) is decreasing from three to two per project, mostly because rehabilitation and pricing have all but disappeared as a topic. On average, one out of two projects includes elements of the new policy, particularly for sector structuring and regulating, management contracts by private operators, and manpower development. Rehabilitation generally involves greater energy efficiency; the projects do not include a direct demand management component and continue to rely on tariff reform.

The performance of these projects has been rated as high by the region. The FY94 Annual Review of Portfolio Performance (ARPP) indicated that 87 percent were likely to meet their stated development objectives. This percentage is optimistic when compared with the FY93 ARPP rating (74 percent), the Bankwide rating for power projects (84 percent), the regional average for all sectors (81 percent), the Bankwide rating for power projects exiting the portfolio (72 percent), and the historical average at completion. In the past, project ratings have been consistently more optimistic at supervision than at completion, with a disconnect of about 5 percentage points at the last supervision mission.

A joint OPR and OED internal study reviewed the quality of economic analysis of projects

approved in 1993. This evaluation suggests that Bankwide appraisal of power projects still suffers from many of the weaknesses diagnosed by the Portfolio Management Task Force: lack of risk analysis, unrealistic assumptions about tariff increases, weak integration of environmental impact assessments into project design, and lack of analysis of social impacts. Two projects in SSA—Ghana National Electrification and Tanzania Power VI—were in the sample of ten power projects reviewed by that study. They exhibited some of these flaws but were cited as good practice examples in two different areas: analysis of fiscal impact and cost recovery in Tanzania and a very good quantitative sensitivity analysis in Ghana.

Also, quality at entry depends a great deal on the project's relevance to the five principles of the new policy and on the chances of the SSA countries adopting these principles. The meaning of project success would be diminished if project objectives were only marginally relevant to these principles or too modest to make an impact. This chapter reviews how much progress has been made thus far on each of these principles and in particular how far the Bank has gone in applying the principle of commitment lending.

Transparent regulatory process

Regardless of ownership of power sector assets, government must set objectives, articulate overall policies, and coordinate sector development. It must also establish the legislative and legal framework to protect the interests of the various stakeholders. Aspects to be covered by the framework include, among other things, investment programs, pricing, access to and reliability of service, energy conservation, environmental issues, and disclosure requirements.

The purpose of transparency is to enable the greatest possible degree of accountability, thus

prompting and enlightening public debate. Accountability means answering for an assigned responsibility—an activity best performed when responsibility is clearly defined and information on the area of responsibility readily available.

The regulatory process should be arms-length and should ensure an unequivocal separation of responsibilities between the government (responsible for policy formulation, compliance review, and enforcement) and the entities responsible for power supply. An autonomous regulatory agency should also be instituted to enforce regulations and settle disputes.

Evidence suggests that separation of responsibilities between regulating authorities and operating companies is deficient in the power sectors of all SSA countries. Government financing and ownership create budgetary and stewardship responsibilities, which require some government involvement, not all of which can be delegated. However, in the countries under review, this involvement has gone way beyond discharging statutory responsibilities.

One must look beyond the text of the enabling legislation or entity by-laws that generally give the utilities the theoretical authority to manage their sectors. In practice, the chairperson and often all of the directors of state-owned utilities are government-appointed, a cozy arrangement that makes it easy for parent ministries to ignore the board's authority and make decisions for the utilities (Box 5.1).

Performance contracts (contrats de plans). In order to enhance transparency and performance of the public enterprises, the Bank has promoted the use of performance contracts by its borrowers. These define, in more or less detail, the relationship between governments and the management of their public enterprises. A Bank review of some of these contracts² concludes that (a) their major weakness is that

they are not legally enforceable, and often governments have not carried out their part of the understandings; (b) the hope that performance contracts would enhance the autonomy of government-owned enterprises has not realized; and (c) they have not proven particularly effective mechanisms to help enterprises with serious difficulties. The experience with performance contracts in Burundi, Ghana, and Senegal is revealing: the government still acts unilaterally and violates agreements. However, the problems with performance contracts stem more from their implementation than from conceptual weaknesses.

In spite of their limitations (they are not legally enforceable), *contrats de plans* have clarified the objectives of many state-owned enterprises, stimulated a dialogue between government and enterprise management, and introduced better management information, accounting, and audit systems, as well as physical and financial performance indicators.

It is easy to imagine the power that can accrue from the ability to make major investment and procurement decisions in a sector as capital-intensive as electric power. For this reason, in countries with long traditions of governments making those decisions, it may prove very difficult to change the *de facto* allocation of responsibilities to empower the utilities with the desired authority.

Another reason for government interference, although possibly more amenable to change, is the ministries' lack of training in policy formulation, control, and enforcement. Yet another reason often mentioned for government involvement in sector operations is the opportunity for nepotism and patronage, or simply to find jobs for new graduates. The extent to which this exists is not easily ascertained.

Disclosure requirements. Without information, markets cannot function properly or at all.

BOX 5.1: BURUNDI: SEPARATION OF RESPONSIBILITIES ON PAPER

Burundi's power utility is REGIDESO. It is a government-owned enterprise under the Ministry of Energy and Mines, which has overall responsibility for policy formulation. The board of REGIDESO is composed of government appointees and representatives from the Chamber of Commerce and the Municipality of Bumbura, the capital city. REGIDESO's board is (in principle) responsible for all necessary decisions to meet the company's objectives, set administrative and financial rules, regulate personnel, propose tariff changes, and prepare

annual budgets. Expansions are financed in part by multi- or bilateral agencies, with the government making final investment decisions. The board's written prerogatives notwithstanding, the government continues to finance part of REGIDESO's expansions and to guarantee the remainder of financing requirements. The introduction of a five-year performance contract between the government and REGIDESO in 1989 has added a new focus on improving sector performance, but this has not changed the locus of major decisions.

Source: World Bank.

Without continuous, reliable information there can be no transparency and, hence, little if any accountability. One of the characteristics of many SSA countries is the inadequacy of accounting systems and of the staff who operate them, and the substantial delay in closing the books. The audited financial statements of the Tanzania Electric Supply Company have been issued with such delays as to be meaningless as feedback and control mechanisms. The Volta River Authority of Ghana, however, has done well (Box 5.2).

Commercialization and corporatization

The new power sector policy states that "for power enterprises to operate on commercial principles, they must be treated (and behave) like commercial enterprises. They should pay interest and taxes; earn commercially competitive rates of return on equity capital; and have the autonomy to manage their own budgets,

borrowing, procurement, salaries, and conditions pertaining to staff."

Experience in the region and elsewhere shows that while many wholly owned government corporations—for example, airlines, railways, and so on—behave commercially in many respects, they are not exclusively or not strongly profit-oriented, and continue to drain public resources. In other words, corporatizing publicly owned enterprises is no assurance that they will operate as business enterprises. Kenya's power utility is partly privately owned, yet it was instructed by government to not comply with its lease agreement for use of the large Kiambere Dam. This led to the financial insolvency of its owner.

Many of the region's utilities that have a corporate or similar status behave in many respects like commercial enterprises—for example, the Tanzania Electric Supply

BOX 5.2: FINANCIAL REPORTING: GOOD AND BAD PRACTICES

In Ghana, "The accounting and budgeting systems used by VRA are generally satisfactory and provide timely and reliable financial information. The reorganization of the corporate planning and finance function in 1990-91 has been completed and the key managerial positions filled. Improvements in financial management and information systems, corporate planning and reporting have been made following the full computerization of VRA's accounts. Other improvements are

expected as a result of the full integration of financial management."

Tanzania's electric services company, TANESCO, has been unable to meet its reporting deadlines. In FY80 and FY81, audited financial statements were produced one year late. Then again, audited accounts for 1983 were not completed until July 1985; the 1990 accounts were submitted only in February 1993, and the 1991 accounts in June 1993.

Source: "Ghana—Thermal Power Project: Environmental Assessment," Environmental Assessment Report No. E51, Washington, DC: World Bank, January 1994.

Company. Unfortunately, though, many of the ingredients of a business orientation are missing: investment decisions are the purview of government; tariffs are approved on an ad hoc basis; service cannot be systematically withdrawn for nonpayment; personnel policy is shared between government and the utilities; foreign exchange is difficult to obtain for current needs; and much improvement is needed in operating performance, financial management, and reporting.

The transformation of most utilities has been underway for a long time, with remarkable advances and equally striking setbacks. In this, the general state of the world and local economy has played a very major role. Nevertheless, the prospect for meaningful progress appears to be substantial, especially in view of the growing consensus on the benefits of commercializing public utilities, and the fact that the region may be coming out of the depression of the 1980s. Once the general liquidity problems have been resolved, governments should be able to clear up arrears. With

increased prosperity, regular tariff adjustments will become easier to entertain and many other aspects of commercialization will be seen as natural and more readily accepted.

Importing services

The procurement of services—including expertise for long-term planning, project design, construction, construction supervision, tariff studies, and a variety of technical advice and training—from sources outside the country or even region is not new. In the majority of countries, the importation of services, including the training of nationals in foreign countries or the use of foreign trainers in local institutions, has been too piece-meal and narrowly focused to have had much impact on the corporate culture or cost structure of local utilities. One notable exception has been Ghana's Volta River Authority. VRA has used a "twinning" arrangement with the same foreign public utility for specialist advice and management services, including term assignment in Ghana and staff training in

Box 5.3: MANAGEMENT CONTRACTS AND STAFF STREAMLINING: GOOD PRACTICE

The major problems of Burundi's electric power sector were diagnosed as government interference in day-to-day management, lack of management experience of otherwise technically competent engineers, and government reluctance to privatize any activity. As a first step, a team of five expatriates was given executive responsibility and charged with improving operating performance and training local managers. Each team member had a specific expertise: human relations and capacity building (the team leader); investment programming, economic justification, and tariff development; inventory management; accounting and finance; and computerization of the management information system. The exer-

Source: World Bank.

cise is considered a success. After only three years, the expatriate team has left the country and the company's management is firmly in the hands of local professionals.

During this three-year period, personnel was reduced from roughly 1,500 to 1,000 without any noticeable social problems. This was done by ensuring that the staff released were placed in the private firms that began to carry out work heretofore done in-house, such as the production of wooden poles, the connection of new customers, and so on. Another major accomplishment was the reduction of accounts receivable, excluding those from the public sector, from about nine months of sales equivalent to less than three months.

the foreign utility's country, ever since its establishment more than 25 years ago.

Among imported services, though, management and lease contracts have the greatest potential to make a strong impact. But they are usually seen as complex and are believed to have little chance of success since local staff are bound to resent them. Experience in two of the countries under review does not support such apprehensions. In Burundi, for instance, in a period of just three years a foreign management group successfully realized considerable improvement, including the transfer of certain functions to the private sector accompanied by a substantial staff reduction (Box 5.3). Côte d'Ivoire provides an example of a long-term lease contract with equally impressive results (Box 5.4). The

partners in CIE, the private company that runs Côte d'Ivoire's power sector, have drawn on their intimate knowledge of the local culture to improve overall performance. Expatriates comprise less than 1 percent of CIE's 3,500 employees. Its African manager considers that with appropriate adjustments this approach can be replicated in other African countries.³

Commitment lending

The new policy leaves no room for complacency. Yet, it is not couched in "absolutes"; it only requires substantive progress toward the objectives embodied in the first three principles of the new policy. A review of ten Bank-financed projects in SSA (five approved

BOX 5.4: LEASE CONTRACTS ("AFFERMAGE"): GOOD PRACTICE

Until the 1980s, the electric power sector of Côte d'Ivoire had operated relatively efficiently under a concession contract with EECI, a company majority-owned by the government. However, during the decade that followed, the sector experienced a general if gradual performance deterioration. A combination of low operating efficiency and weak financial management brought the sector into progressively deeper financial difficulties, eventually leading to its inability to service its debt.

In the late 1980s, a department of the Prime Minister's Office charged with the supervision and control of the major investments of state-owned companies, presided over the sector's reorganization. As a result, EECI retained responsibility for sector planning and investment, including the ownership of sector assets on behalf of the government, while CIE, a private company created for this purpose in October 1990, was awarded a management contract for operation and maintenance.

One of CIE's main shareholders is also one of the major shareholders of SODECI, the suc-

cessful private company that has been responsible for the operation and maintenance of Côte d'Ivoire's urban water supply since 1959. CIE has substantially adopted the modus operandi and corporate culture of SODECI. It is very decentralized, has elaborate procedures and descriptions of responsibilities, a good reward system, and a strong budgeting and time management system, and offers training and other social support to its staff. Some 20 percent of its shares are quoted on the Abidjan stock market, and its employees can buy shares at a preferential price.

The results so far are impressive. Between 1989/90 and 1993/94, power losses declined from 19.8 percent to 17.4 percent, and the average number of hours of power outages from about 50 to 18. Likewise, the number of employees per thousand customers dropped from 9.5 to 6.9, while the collection ratio for energy consumed in low voltage increased from 67 percent in 1991 to 88 percent in 1995. Some 2,000 employees out of a total of about 3,200 have received some form of training, for which CIE spends the equivalent of 4 percent of its total annual salaries.

Source: World Bank.

in 1992, four in 1993, and one in 1994) shows that a few are still designed in a rather traditional way (Togo/Benin, Malawi). However, the vast majority of the loans include elements of the new Bank policy.

- In Zimbabwe, an operational plan is aimed at changing the legal and regulatory frame-

work, to increase the autonomy and complete the commercialization of the power companies.

- In Guinea, a new regulatory framework and the restructuring of the power company, ENELGUI, will allow the transfer of operations management to a private group.

- In Rwanda, similarly, sector operations will be contracted out following the creation of a mixed company in which the government will own no more than a 20 percent share of capital.
- In Sierra Leone, a performance-based management contract will lay the basis for an autonomous and commercially viable entity.
- In Angola, a new institutional and legal structure will be created, including the separation of regulatory functions from the administration and management of the utilities and the development of commercially viable and autonomous power companies.
- In Ghana, the commercial operations of ECG, the power distribution company, will be carried out by a private firm under a performance contract (Box 5.5).
- In Tanzania, the power company will offer for sale the construction activities of its in-house transmission and distribution networks and will study other privatization options.

Upfront and disbursement conditionality. Convincing SSA countries to change their modus operandi after condoning it, for decades in some instances, is difficult, and a good design does not guarantee commitment on the borrower's part. After having accepted many breaches in covenants it seems that the Bank is now more cautious. In this respect, the following examples of upfront conditions—such as for negotiations, board presentation, and effectiveness—are worth noting. So are conditions of disbursement when the project components are appropriately phased.

- *Conditions of negotiations* were used to obtain a satisfactory proposal for technical assistance with a mature utility (Sierra

Leone), and for government to settle arrears of certain public sector entities (Tanzania).

- *One condition of board presentation* was used to ensure the settlement of public sector arrears (Sierra Leone).
- *Conditions of effectiveness* were used for the signing of a performance-based management contract and the settlement of cross-debts (Ghana); the reduction of staff by 200 employees, the conclusion of the power company's capital restructuring, the preparation of a regulatory and institutional framework, and the invitation to bid for the management of the power company (Guinea); the completion of a new tariff structure, a 15 percent tariff increase, and the invitation to bid for the management of the gas company (Rwanda); the implementation of a 45 percent staff reduction (Sierra Leone); the selection of external auditors (Angola); a tariff increase and the settlement of government agencies' debt (Tanzania).
- *Conditions of disbursements* were used for the enactment of a regulatory framework, for holding sector assets, and for the conclusion of arrangements to transfer the power company's management to a private operator (Guinea); the publication of the law establishing the regulatory and institutional framework for public enterprises, and the hiring of a private operator to run the gas company under lease contract (Rwanda); and the hiring of a private firm under a performance-based management contract (Sierra Leone).

Supervision reports show "normal" implementation with a good deal of compliance, as well as a few examples of delays in taking action. Angola offers an interesting lesson. The power sector rehabilitation project approved in May 1992 had to be modified in mid-1994 as a

BOX 5.5: COMMERCIALIZATION WITH A MANAGEMENT CONTRACT: GOOD PRACTICE

In Ghana, the ultimate objective is a financially viable, well-managed sector, whose institutions are highly autonomous and capable of delivering a reliable and economic supply of electricity. Measures to facilitate the achievement of these commercialization objectives, some of which were initiated under the National Electrification Project, include:

- developing "a suitable power sector regulatory framework with the necessary regulatory authority over tariffs and other related matters;
- creating... a task force... to evaluate options for improving the efficiency and efficacy of the ownership and corporate structure arrangements now in place in the utility subsector;
- maintaining the tariff-making process on a sound technical basis using a formula-based approach;
- improving the internal efficiency of commercial operations in ECG by engaging a contractor on the basis of a performance-based management contract to revamp billing, collection, and customer relations (underway); and
- engaging a consultant to recommend a scheme of service for both utilities, including matters such as staff deployment, remuneration levels, incentives, sanctions, and any other such matters likely to affect the motivation and efficiency of the utilities' personnel."

Source: "Ghana—Thermal Power Project: Environmental Assessment," Environmental Assessment Report No. E51, Washington, DC: World Bank, January 1994.

result of the war. Along with changes in the physical components, funds were reassigned to reinforce the institutional component, to be achieved through a study to define a corporate strategy, and to restructure ENE, the national power company. The case of Angola shows that, even when already committed to change, it is possible to accelerate the move toward greater transparency and commercialization without having to wait for the "next" operation.

Private investment

As with other infrastructure sectors, ownership of power sector assets by private entre-

preneurs (assuming their interest could be elicited) may be a touchy political and economic issue in SSA, although privatization of some segments of the operations appears possible.

Private operators can be expected to invest in almost any country if they succeed in hedging their perceived risks. Generally, the higher the risk, the higher the return and the shorter the pay-back period they will insist on. However, the return on investment is not the only consideration. Guarantees also play an important role where the perceived risk is so high that the expected return would have to exceed a certain level. Because of guarantees, deals are

seldom if ever consummated with returns in excess of say 20 percent to 24 percent. Sometimes, an intimate knowledge of the market and long exposure to a country's culture suffice to sufficiently reduce the perceived risk. Such was the case of the recent creation of CIPREL (Côte d'Ivoire's power producing company), a new private venture formed by the two major shareholders of CIE to construct and operate a combined-cycle gas turbine plant.

Implementation of the first three principles enunciated in the Bank's policy would go a long way toward reducing the perceived risk to potential investors. Even in the countries

that have applied these principles, the risks perceived by would-be investors soon after implementation would still call for a premium and guarantees that governments may not wish or may not be in a position to entertain.

Notes

1. *The World Bank's Role in the Electric Power Sector: Policies for Effective Institutional, Regulatory, and Financial Reform*, World Bank Policy Paper No. 11676, Washington, DC: World Bank, January, 1993.
2. John Nellis, *Contrats de Plans and Public Enterprise Performance*, World Bank Discussion Paper No. 48, Washington, DC: World Bank, February, 1989.
3. Zadi Kessy, "Presentation d'une méthode de management appliquée à la Compagnie Ivoirienne d'Electricité," CIE: Abidjan, April 1994.

6. Conclusions and recommendations

The Bank's policy for power lending makes good sense for SSA. Power lending should form part of a carefully balanced country assistance strategy that takes into account other energy resources, such as biomass, and should be supportive of economic management objectives. Large loans should be avoided where either performance is below acceptable benchmarks in key technical and financial areas or no acceptable platform of sector reforms is underway. The Bank should work at increasing ownership in SSA countries of its policy objectives and principles, TA programs, and the mode of TA delivery. It should forge partnerships with other donors to obtain a consensus on criteria governing their involvement in the SSA countries and to improve the deployment of resources.

The Bank should be selective when promoting restructuring and privatization. Enabling conditions for competition in generation are absent in SSA, but an adequate tariff for small- and medium-bulk purchases should be put in place everywhere. Decentralized community-based supply, which has worked well in other sectors, is worth exploring for low-voltage service. Commercialization of distribution is key. Unbundling it from transmission and splitting it into franchise areas would open the field for private operators to compete for management contracts. Privatization is controversial but probably necessary for investment funding. In Côte d'Ivoire, the introduction of an independent power producer for new thermal capacity and the drifting of the lease contract

toward a concession offers a good example of privatization issues and feasible solutions.

Much remains to be done to ensure that utilities operate in a business-like fashion. But some countries are showing that it can be done in SSA. This concluding chapter makes suggestions for the task ahead. These suggestions fall into two categories: first, a common menu for all countries and, second, suggestions about sector restructuring and private sector financing—the “new frontier” of institutional development. The chapter then outlines the Bank's possible role in helping to implement this agenda. It closes with a few recommendations.

The road ahead: immediate agenda

Whether or not utilities remain vertically integrated, attention continues to be needed on four fronts: sector policies, regulatory principles, investment program, and human resources.

Sector policies. Some tenets must be enforced with vigor, often with the help of specific legislation:

(a) Governments should concentrate on their roles as regulators and policymakers and refrain from any other form of control over the sector.

(b) Power utilities should operate on the basis of clear objectives enshrining sound principles of technical and commercial management, including the possibility of contracting out services currently done in-house.

Regulatory principles should strive to ensure sector efficiency and financial viability through the following:

(a) Promoting efficiency and equity through:

- a considerable reduction, if not complete abandon, of tariff subsidies and cross subsidies;
- a shift from cost-plus-based regulation to incentive-based contracts; and
- contracts that are awarded through a transparent and competitive process.

(b) Enforcing certain rules of financial discipline on accounts receivable by private and public sector, self-financing (30 to 60 percent), returns on assets (8 to 12 percent), and transparent compensation by government for any noncommercial obligation that it imposes on the utility, such as subsidized service to rural areas.

Investment program. Power sector investment must be limited to the sector's financial leverage capability. Its composition should be prioritized initially to rehabilitate generation and distribution and later to expand distribution and generation. The internal economic rate of return of the investment program and of Bank-financed projects should be greater than 10 percent when benefits are calculated at the prevailing tariffs.

Human resources. The availability of abundant and skilled human resources and the capability of institutions to put these resources to work are key to social and economic development. For the power sector, the implementation of a

comprehensive manpower development program at all levels is necessary for both the utilities and the government. The integration of expatriates, and twinning arrangements with well-functioning utilities, can initially help both to fill skill gaps and transfer skills to local employees. The task is no less challenging and is largely in uncharted waters when it comes to training government in fulfilling a more sharply defined, and more limited role, as sector regulator. Finally, incentive systems must be created to help power utilities and government institutions make the most of new skills acquired by managers and staff.

The new frontier: restructuring and assets privatization

With few exceptions, the power utilities of SSA countries are government-owned, integrated monopolies responsible for the transmission and distribution of all electricity that they produce. Varying degrees of competition already exist in the running of even the most integrated power utilities, as for example to construct facilities, to contract out certain functions, and so on. One of the tenets of the new policy is that exposure to markets and competition should be increased in order to enhance sector performance. In particular, recognition that not all of the activities involved in the provision of infrastructure services are a natural monopoly is central to achieving greater efficiency.

Competition in generation. At this stage, the small size of the power systems and the weakness of the regulatory frameworks of SSA countries make it difficult to recommend their breakup (unbundling) as was done in some countries like Chile and the United Kingdom.¹ Unbundling generation from transmission and wholesale competition for generation are complex affairs. One consequence is the proliferation of contracts both in the short and long term not unlike those found on spot and

future commodity markets. Another is the fragmentation of the generation system into several pieces for competition to really emerge, and a trend toward smaller plants and less capital-intensive generation.

This model also assumes that economies of scale in generation can be obtained in spite of sector fragmentation or are less important than the efficiency brought by competition. It also implies a streamlined but sophisticated regulatory framework, commercial skills in abundance for contracts management, and above all a strict legal framework to enforce them. Absent these, as they are in most SSA countries, producers will minimize transaction costs and the risks of not having contracts enforced with cartelization and vertical integration (whether tacit or institutionalized). In essence, transaction costs can make a monopoly natural even when economies of scale do not. Besides, such economies exist in SSA countries where large-scale hydro or coal-based power is least cost. From that point of view, competition on a broad scale and system fragmentation are desirable only in systems where small diesel sets or gas turbines are economic over the long term, for example in landlocked or gas producing countries.

Independent producers might be able to compete with utility-based generation in specific circumstances, so there is a need to review the barriers to their entry in the market and the rules for pricing their output. To start with, a marginal cost-based tariff for all small- and medium-bulk purchases should be put in place. Thus, most SSA countries would continue to have a dominant but not unique generating company until conditions for a fully competitive market are met.

Decentralization of distribution. The weaknesses that prevail at the national level in the formal governance system of SSA countries suggest another avenue—that of less sophisticated

decentralized community-based supply. Whether in education, health, water supply and sanitation, rehabilitation, or supply of new housing, this mode of service delivery has elicited responsible behavior and good cost recovery from beneficiaries, and responsive supply by producers. However, these promising results were generally obtained for technologies with no economies of scale and little demand for specialized technical and managerial skills. Decentralized community-based low voltage power supply is worth exploring, but it should exclude most traditional generation technologies except mini-hydro. Decentralization has one drawback in the eyes of many: it often translates into markedly different power prices from one area to the next, a significant departure from the prevailing practice of a national tariff for small consumers.

Unbundling of distribution. Restructuring distribution has attracted less attention than competition in the generation market. This is because the business orientation of distribution is taken for granted in industrialized countries. Distribution should be the prime focus of attention: it is where service delivery and cost recovery happens. In SSA countries, whatever improvements are made in efficiency at the plant and grid levels will be jeopardized if distribution remains grossly overstuffed and unreliable and if utilities do not collect bills. Management contracts can make a big difference, but a major issue can be the scarcity of bidders or the dominance of a few, as has occurred in water supply in some countries. Unbundling distribution from transmission and generation opens the field to private operators who would not have the technical and financial wherewithal to invest large sums. It has only one drawback: distributors may have to set prices above efficient marginal cost-based tariffs in order to remain financially afloat. Unbundling of distribution should be accompanied by its decentralization into sev-

eral service areas designed to make bidding for the franchise attractive.

Privatization. In less-developed countries, the share of privately owned power sector assets is increasing as a result of two movements: the divestiture of existing assets by government, mostly in Latin America, and the emergence of independent power producers (IPPs), mostly in Asia. In SSA, only the latter is happening, and it is happening only in Côte d'Ivoire.

An OED evaluation of completed privatizations shows that ownership of privatization programs by SSA countries was generally lacking, even in the industrial and agricultural sectors. The issues of asset valuation, fair price, labor redundancy, statutes, and perceived need for government control often lie at the heart of this lack of ownership. In addition, assets privatization in the energy sector raises specific problems such as the discomfort of having a private monopoly when regulatory capacity is known to be weak, and the transfer price of national resources such as hydropower and natural gas, which can generate a rent for its producers. All these issues can in principle be solved—through the setting of royalties and strong regulation—but their practical solution is likely to be controversial and protracted. It is likely to be least controversial for new thermal power and, if labor problems can be overcome, for distribution. The problem has often been eased in French-speaking countries by the signing of BOT (build, operate, and transfer) concessions for a limited time after which asset ownership is transferred to government.

Private ownership of assets is probably necessary for investment funding. Though currently less pressing a problem than in booming economies, investment funding will soon become a problem in SSA countries where growth for effective demand is picking up and cannot be met by efficiency gains. Lessons from the past are

clear: first, governments are not prone or financially capable to be good shareholders; and second, management contracts, which by definition do not require operators to finance investments, are no guarantee of adequate cost recovery. In many ways, Côte d'Ivoire is showing both the contours of the issue and possible solutions for SSA countries: arrears are low enough and efficiency and power prices high enough for CIE to meet its mandate, but this is not sufficient to finance system expansion. Even EECI is unable to fund new connections and minor overhauls of the distribution system. A recent amendment to CIE's management contract extends CIE's responsibilities to investments, thus making it evolve toward a concession contract. Côte d'Ivoire is also mobilizing private equity with an IPP contract for gas-based generation.

Reform agenda items are interdependent. Privatization is often not easy, and in the power sector of SSA perhaps not possible, until physical rehabilitation and/or organizational restructuring has taken place. Privatization, on the other hand, can make life simpler if it reduces the need for the regulator to enforce minimum financial targets. Organizational restructuring, by contrast, increases the regulatory burden as the number of entities and pricing arrangements multiply with unbundling and decentralization, clearly a serious constraint for SSA countries to consider in setting the pace of reforms. Although sharing similar cultural traditions, historical evolutions, and several common problems, each country should select its own institutional options² for the power sector and design its own program.

One of the major determinants of the extent of change sought by governments will be the level of awareness among the stakeholders (public officials, political leaders, consumers, and interest groups) about the "correct" behavior in the more successful countries. Another will be their perception that other countries at similar stages of development in the region or

in other parts of the world have benefited from applying the principles the Bank is promoting. Without that awareness and perception, the status quo may well prevail. Action programs seeking to enlighten the stakeholders' leadership of those countries would appear to be essential for the successful transition to a more business-like operation of the sector.

Role of the Bank

The Bank and other multilateral and bilateral institutions have had in the past an important role in assisting the countries build up the sector and overcome energy crises. The Bank, UNDP, and bilateral lenders have also made important contributions in energy assessments and ESMAP initiatives. However, based on sector performance in the early 1990s, their institutional development impact has been mixed. *Together, donors could exercise much more leadership and achieve more than they have in the past in helping the SSA countries implement the agenda presented in the above paragraphs.*

The Bank's comparative advantages are (a) the financial resources that it can provide; (b) its knowledge and experience in infrastructure-related issues; (c) its capacity to pool information; (d) its capacity to insert a power project in a broad policy framework; and (e) its influence on adjustment policies through its lending and technical assistance operations. The Bank faces strong competition though in financing and in knowledge of and experience with infrastructure-related activities. Further, the Bank is increasingly seen as a knowledge and policy advice bank. It should cultivate this relative strength in many SSA countries.

Bank policy for power lending makes eminent sense for SSA. Sub-Saharan Africa's poverty and dependence on foreign assistance do not justify a relaxation of quality standards. Indeed power utilities are peculiarly vulnerable to the

dysfunctions of public management, and poorly performing utilities in turn have a depressing impact on the countries' fiscal performance—already a very weak spot of many SSA economies.

Power lending should form part of a carefully balanced country assistance strategy. The Bank has a strategic interest in the sector but it would be counterproductive for the Bank and borrowers to pour money into unsustainable power sector expansions. The priority given to power lending can be questioned where borrower ownership of sector policy reform is not assured: power infrastructure does not trigger growth on its own and poverty alleviation as well as important energy and natural resource management objectives are best served by the development and rational use of traditional energy resources such as charcoal, fuelwood, and other biomass. Because they are capital intensive, power projects should be especially supportive of economic management objectives (fiscal restraint, efficient use of financial and human capital by public and private sectors) and should complement adjustment operations. Power lending should not be viewed as a vehicle for transferring resources or for targeted subsidy interventions.

Signs exist that the Bank is well on its way to realigning its sector strategy in SSA. Operations dealing with the management of forestry resources, fuelwood distribution, and improved stoves are picking up in scope and number. This reflects changes in the countries (decentralization of resource management) and experience accumulated by the Bank in many studies and pilot projects. For example, projects in Mauritius, Mozambique, and Niger will introduce technologies for transforming biomass—bagasse, fuelwood—into briquettes/charcoal and for manufacturing stoves and furnaces for household and industrial use. They will also create institutions to monitor preservation of biomass. Moreover, six ongoing power

projects in Burundi, Ethiopia, Malawi, Mali, Niger, and Rwanda have one or more components for producing, marketing, and distributing charcoal and crop residues and efficient household stoves.

The Bank is now applying, albeit still not for all SSA recipients of recent loans, the principle of "commitment lending" enshrined in the new policy.

It is encouraging to note the increased use of upfront conditionality for larger operations addressing system expansion. Also encouraging is the association of these conditions with measures that would have seemed too radical only a few years ago—for example, management contracts with private and mostly off-shore operators in half a dozen cases.

The Bank's continuing emphasis on physical and financial rehabilitation is well placed. It allows for very relevant interventions that are modest in size. Such operations can help build up the capacity and test the commitment of borrowers in tackling increasingly challenging objectives on the road to power sector reform.

Few of the SSA countries have reached a stage where the Bank can and should induce large-scale private investment in the power sector by providing guarantees. The cost of these guarantees would end up as unacceptably high compared with the benefits as long as the policy risks are still very substantial or perceived as such. A few such operations, however, may be desirable in SSA countries that stand most to gain from the involvement of independent power producers, as in Côte d'Ivoire or Tanzania, for example, to develop gas-fired generation. In most other cases, the Bank group can assist in many ways as it has done in other parts of the world: provide advice and training for project identification, evaluation, and contract bidding; and help governments obtain alternatives to sovereign or Bank guarantees, equity, or syndicated debt-financing by the International Finance Corporation.

New-style interventions necessitate major modifications in the Bank's role and modus operandi, such as:

- the nurturing and gauging of borrower ownership of the project at every step and in all its dimensions: locus of initiative, intellectual congruence, political commitment, and stakeholders' acceptance;
- better agreement and coordination with other donors on each country strategy; and
- for smaller and TA-focused operations, better deployment of Bank staff and consultants, and better division of labor among donors with experience and presence in the field.

The Bank can help countries build up awareness of the need for sector reforms, by having dialogues with the government, management, and staff of sector entities and interest groups (community consumers, industrial consumers, nongovernmental organizations); and sponsoring regional or national seminars and workshops on successful cases appropriate to the particular conditions of the countries. Such help was provided to Latin America (Cocoyoc Conference in Mexico, seminars in Colombia and Bolivia in the early 1990s), to Eastern Europe and former Soviet Union countries (1993 and 1994 workshops in Vienna, Austria), and to India (1993 conference).

The Bank has accumulated valuable knowledge through studies of the energy sector and the power subsector in SSA countries, which has provided a sound basis for policy choices and donor involvement. The execution of this evaluation, however, has shown that this knowledge is often scant, inconsistent, and not adapted to today's needs. In the region's changing political and economic environment, improved data gathering and analysis is needed to monitor and evaluate sector perfor-

mance and to provide a reliable basis for facilitating private sector involvement.

Finally, the Bank also has relevant and fresh experience in forging strategic partnerships with other donors with respect to infrastructure development—for example, the Road Maintenance Initiative, a five-year program carried out as part of the SSA Transport Program initiated in 1987, which has already yielded rich lessons.

Recommendations

The Bank's new policy orientations for power lending make sense for SSA, where poverty and dependence on foreign assistance do not justify relaxing quality standards. Indeed, power utilities are peculiarly vulnerable to bad management, and their poor performance is a contributing factor to the weak fiscal situations of many SSA economies.

The Bank and other cofinanciers could exercise much more leadership in promoting the sector reforms that form the thrust of the new agenda. Until such reforms take hold, the Bank must exercise caution in providing guarantees to induce large power sector investments.

Based on the foregoing findings, this review has six main recommendations.

Recommendation 1. The country assistance strategies for SSA countries should examine the justification for power lending and establish its coherence with Bank assistance for broad economic adjustment and for the development and rational use of other (especially renewable) energy resources.

Recommendation 2. Except for small operations aiming at institution building or rehabilitating facilities, power lending in SSA should be avoided in countries where sector perfor-

mance is below acceptable benchmarks in key technical and financial areas³ and where little of the following reform platform is under implementation at the time of appraisal:

- The establishment of a transparent and arms-length regulatory framework with legal guarantees that utilities can operate with autonomy—for example, through management or concession contracts.
- The enforcement of regulatory principles to ensure financial discipline, adequate tariffs, and incentive-based, competitive contracting of services.

Recommendation 3. When promoting power sector restructuring and privatization in SSA, the Bank should explore setting up purchase tariffs, decentralizing distribution and unbundling it from generation and transmission, using concession contracts for private operators, and providing guarantees for independent power producers.

Recommendation 4. The Bank should nurture SSA borrower ownership of its new sector policy principles: institutional development programs to support the reforms, and the delivery of technical assistance by locals and expatriates. Effective dissemination of good practice and buildup of stakeholders' support should be an integral part of project preparation.

Recommendation 5. The Bank should forge strategic alliances with other lenders and donors to obtain a consensus on the policy objectives and criteria for their involvement in SSA countries. It should also establish partnerships in the deployment of human resources and share responsibilities in performing those tasks that would benefit from the diverse field assets and competencies of other donors.

Recommendation 6. In collaboration with other interested lenders and donors, the Bank

should help coordinate and institutionalize a systematic effort to gather and analyze data on the power sector in line with the principles of the new power sector policy.

Notes

1. Alvaro J. Covarrubias and Suzanne B. Maia, "Reforms and Private Participation in the Power Sector of Selected Latin American and Caribbean Industrialized Countries," Vols. I and II, Latin America and the Caribbean Technical Department, Regional Studies Program, Report No. 33, Washington,

DC: World Bank, 1994. This document has a restricted distribution.

2. Country parameters influencing the choice of options are level and growth rate of gross domestic product; country size; population size, distribution, density, size, and growth rate (number and size of urban and rural centers); and population literacy. Power sector parameters influencing the choice of options are demand size and growth rate [MW; electricity consumption per capita and growth rate; share of electricity consumption by industry sector; and endowment in energy resources (hydro, gas, coal, petroleum)].

3. Areas to monitor are technical losses, accounts receivable, and rate of return on investments.

Annex

ANNEX TABLE 1.1: THE STUDY COHORT: COMPLETED PROJECTS

Country	Loan/credit number	Project name	Fiscal year	Major objective	Loan/credit amount (\$millions)	Total disbursed (\$millions)	Total canceled (\$millions)	Total undisbursed (\$millions)	Outcome rating	Sustainability rating	Institutional development rating
Botswana	L22090	Power I	1983	Thermal	32.50	18.23	14.27	0.00	Sat.	Likely	Partial
Burundi	C15930	Transmission and Distribution System	1985	Distribution/ transmission	12.30	11.59	3.84	0.00	Sat.	Likely	Partial
Eastern Africa	C14190	Ruzizi/Zai/Rwa/Bui	1984	Hydro	15.00	16.56	0.10	0.00	Unsat.	Unclear	Partial
Eastern Africa	C14200	Ruzizi/Zai/Rwa/Bui	1984	Hydro	15.00	16.55	0.11	0.00	Unsat.	Unclear	Partial
Eastern Africa	C14210	Ruzizi/Zai/Rwa/Bui	1984	Hydro	15.00	16.54	0.11	0.00	Unsat.	Unclear	Partial
Ghana	C16280	Power	1986	Distribution/ transmission	28.00	34.87	0.00	0.00	Sat.	Likely	Substantial
Ghana	C17590	North Grid Extension	1987	Hydro	6.30	6.88	0.00	0.00	Sat.	Unclear	Substantial
Guinea	CS0220	Power Engineering	1980	Power	1.13	0.00	1.13	1.13	Unsat.	Unlikely	Partial
Guinea	C10850	Power I	1981	Power	28.50	23.68	0.00	0.00	Unsat.	Unlikely	Negligible
Guinea	C15950	Power Engineering II	1985	Power	8.00	10.95	0.05	0.00	Unsat.	Unclear	Negligible
Côte d'Ivoire	L18960	Power I	1981	Power	33.00	33.00	0.00	0.00	Sat.	Unclear	Substantial
Côte d'Ivoire	L31500	Energy Sector Loan	1990	Power	100.00	100.00	0.00	0.00	Sat.	Likely	Partial
Kenya	LS0120	Engineering									
		Loan/Olkaria G	1979	Power	9.00	8.40	9.00	0.00	Sat.	Likely	Substantial
Kenya	L17990	Power III	1980	Power	40.00	38.70	1.30	0.00	Sat.	Likely	Substantial
Kenya	L22370	Power IV Olkaria Third	1983	Power	12.00	7.46	4.54	0.00	Sat.	Likely	Partial
Kenya	C14860	Energy Egr Geo	1984	Oil and gas	24.50	30.04	0.00	0.00	Sat.	Likely	Partial
Kenya	L23590	Power V (Kiambere)	1984	Power	95.00	79.00	16.00	0.00	Sat.	Unclear	Negligible
Liberia	L16000	Power IV	1978	Power	10.00	10.00	0.00	0.00	Sat.	Unclear	Partial
Madagascar	C08170	Power I (Andekaleka)	1978	Hydro	33.00	33.00	0.00	0.00	Unsat.	Likely	Partial
Madagascar	C08171	Power I (Andekaleka)	1978	Hydro	10.00	7.57	2.43	0.00	Unsat.	Likely	Partial
Mali	C12820	Power/Water	1983	Power	24.00	23.36	0.01	0.00	Unsat.	Unclear	Negligible
Mauritius	L15480	Power II	1978	Power	15.00	11.10	3.90	0.00	Sat.	Likely	Partial
Niger	C15110	Power	1985	Power	7.50	8.72	0.18	0.00	Sat.	Likely	Substantial
Nigeria	L17660	Power V	1980	Distribution/ transmission	100.00	100.00	0.00	0.00	Unsat.	Unlikely	Negligible
Nigeria	L20850	Power VI	1982	Distribution/ transmission	100.00	100.00	0.00	0.00	Unsat.	Unlikely	Negligible

Rwanda	C14950	Transmission and Distribution Systems	1984	Distribution/transmission	9.00	10.05	0.00	0.00	Unsat.	Unclear	Partial
Senegal	CS0260	Power TA and Engineering	1980	Power	3.30	3.30	0.00	0.00	Sat.	Likely	Partial
Senegal	C17100	Energy Sector	1986	Power	20.00	22.16	1.50	0.00	Unsat.	Unclear	Negligible
Sierra Leone	C07340	Power III	1978	Thermal	8.20	8.19	0.01	0.00	Sat.	Unclear	Negligible
Sierra Leone	C12650	Power Engineering	1982	Power	5.00	5.13	0.00	0.00	Unsat.	Unclear	Negligible
Swaziland	L20090	Power III	1981	Thermal	10.00	10.00	0.00	0.00	Sat.	Likely	Partial
Swaziland	L20091	Power III	1981	Thermal	5.60	5.60	0.00	0.00	Sat.	Likely	Partial
Tanzania	C14050	Power IV	1984	Power	35.00	33.32	2.88	0.00	Sat.	Likely	Partial
Tanzania	C16870	Power Rehabilitation/ Energy	1986	Power	40.00	44.27	1.40	0.07	Sat.	Unclear	Negligible
Uganda	C15600	Power II	1985	Power	28.80	40.17	0.00	0.00	Sat.	Unclear	Partial
Western Africa	C11890	Nangbeto Engineering Credit	1982	Power	1.80	1.70	0.10	0.00	Sat.	Likely	Substantial
Western Africa	C11900	Nangbeto Engineering Credit	1982	Power	1.98	1.85	0.06	0.00	Sat.	Likely	Substantial
Western Africa	C15070	Nangbeto II	1984	Hydro	15.00	17.73	0.00	0.00	Sat.	Likely	Substantial
Western Africa	C15080	Nangbeto II	1984	Hydro	15.00	17.73	0.00	0.00	Sat.	Likely	Substantial
Zaire	C12240	Rehabilitation Shaba Power System	1982	Power	19.00	17.65	0.00	0.00	Unsat.	Unclear	Partial
Zaire	C17120	Power II	1986	Power	37.00	50.33	0.00	0.00	Unsat.	Unclear	Partial
Zaire	C22930	SNEL TA	1992		9.89	7.51	2.82	0.00	Unsat.	Unclear	Partial
Zimbabwe	L22120	Power I	1983	Power	105.00	105.00	0.00	0.00	Sat.	Likely	Substantial
Zimbabwe	L29000	Power II	1988	Power	44.00	42.52	0.00	1.48	Sat.		

Note: Sat. means satisfactory; unsat. means unsatisfactory.

ANNEX TABLE 1.2: ONGOING PROJECTS

<i>Country</i>	<i>Loan/credit number</i>	<i>Project name</i>	<i>Fiscal year</i>	<i>Major objective</i>	<i>Loan/credit amount (\$millions)</i>	<i>Total disbursed (\$millions)</i>	<i>Total canceled (\$millions)</i>	<i>Total undisbursed (\$millions)</i>
Africa region	C23660	Togo/Benin Engineering	1992		2.75	0.63	0.00	2.38
Africa region	C23670	Togo/Benin Engineering	1992		2.75	0.63	0.00	2.38
Angola	C23850	Power Systems Rehabilitation	1992	Energy	33.50	1.31	0.00	34.08
Benin	C22840	Power Rehabilitation	1991	Distribution/ Transmission	15.00	1.59	0.00	14.37
Burundi	C22300	Energy Sector Rehabilitation	1991	Energy	22.80	6.10	0.00	17.22
Central Africa Republic	C19780	Energy	1989	Power	18.00	15.93	0.00	2.48
Ethiopia	C17040	Energy	1986	Power	62.00	49.55	0.00	24.28
Ghana	C20610	Power Sector (ECG Fifth Power)	1990	Distribution/ Transmission	40.00	24.30	0.00	18.04
Ghana	C21090	VRA/Sixth Power	1990	Hydro	20.00	4.32	0.00	17.14
Ghana	C24670	National Electrification	1993	Distribution/ Transmission	80.00	0.17	0.00	77.83
Guinea	C24160	Power II	1993	Hydro	50.00	10.35	0.00	41.07
Kenya	C19730	Geothermal Development	1989	Power	40.70	35.03	0.00	8.76
Madagascar	C17870	Energy I	1987	Power	25.00	21.67	0.00	5.62
Malawi	C19900	Energy I	1989	Hydro	46.70	32.68	0.00	15.60
Malawi	C23860	Power V	1992	Power	55.00	1.87	0.00	53.49
Mali	C19980	Power II	1989	Power	33.00	7.95	0.00	25.97
Niger	C18800	Energy	1988	Distribution/ Transmission	31.50	11.89	0.00	22.44
Nigeria	L31160	Power Maintenance/ Rehabilitation	1990	Distribution/ Transmission	70.00	37.81	0.00	32.19
Rwanda	C24560	Energy Sector	1993	Power	26.00	0.85	0.00	25.28
Sierra Leone	C23560	Power Rehabilitation	1992	Distribution/ Transmission	21.00	1.19	0.00	20.43
Tanzania	C24890	Power VI	1993	Power	200.00	1.29	0.00	202.48
Tanzania	C23300	Engineering Credit	1992		10.00	7.02	0.00	3.69
Togo	C21710	Power Rehabilitation	1991	Power	15.00	5.30	0.00	10.66
Uganda	C22680	Power III	1991	Power	125.00	21.17	0.00	101.43
Zimbabwe	L36960	Power III	1994	Power	90.00	0.00	0.00	90.00

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Introductory note

Feedback of evaluation results within the World Bank

Each study by the Bank's independent Operations Evaluation Department is reviewed by the Bank's management before being discussed by a committee of the board of executive directors. Management provides a detailed response to the recommendations outlined in the study. This response is discussed by the committee and, together with a record of actions promised and taken, is recorded in a "policy ledger" accessible to all Bank staff. The Bank's executive directors have requested that all published studies by the Operations Evaluation Department include a synopsis of the management response and the committee's findings.

Management response

Overall performance of the power sector in Sub-Saharan Africa (SSA), in particular financial performance, has been generally inadequate. This situation is unsustainable and needs to be changed to ensure efficient sector performance and national economic growth. Reforming the power sector is an essential objective that is being pursued actively by the Region. We therefore broadly agree with the analysis and the thrust of the six recommendations proposed in the report, which we find well written and documented.

Our earlier comments have been substantially incorporated in the final draft. Our response and status of action on the main observations/ recommendations are summarized in the attached matrix. In addition, the following comments are worth mentioning.

The report concludes that the Bank and cofinanciers have played an important role in assisting the countries build up the power sector and overcome the energy crisis but that the Bank could more forcefully support implementation of the reform agenda. In particular the report states that the Bank should assist the countries in building up awareness of the need for sector reforms, as was done for Latin America.

With limited success, the Africa Region has taken some initiatives in line with the proposed recommendations, particularly with respect to building borrowers' ownership of the Bank's policy and principles, disseminating good practices and successes, forging strategic alliances with lenders and donors, and sharing information on the power sector. In addition to country-specific actions, the Bank, together with several key donors, is currently preparing a symposium entitled "Power Sector Reforms in Sub-Saharan Africa" to be held in December 1995 in South Africa, which, we hope, will help build commitment around the reform agenda.

For reforms to be sustainable and successful, flexibility must be part of the design and the implementation of reform programs. Research and experience suggest the importance of carefully crafted regulatory arrangements to be operable within the legal, constitutional, and cultural frameworks of the countries. The same model will not necessarily work everywhere. As experienced in the case of Mali with IDA's involvement, implementation of reform programs may also need to be carried out in a phased manner to secure ownership and to take political realities into account.

We are in general agreement with the recommendation to avoid lending where performance is below acceptable benchmarks and that in such cases progress on power sector reform should be required by the Bank. There are cases, however, where Bank lending has played a catalytic role for change. In these cases, lending provided a framework for dialogue and implementation of key reforms, which otherwise would not have been considered or would have been delayed. Commitment of the government to the reforms should obviously condition the lending.

With the exception of one or two countries, power systems in SSA are of relatively small size and therefore all may not be suitable for unbundling at this stage; the promotion of private investment in generation may be a more viable approach to improving efficiency. For this to be feasible, retail tariffs set at economic levels are essential. For instance, independent power production, which is currently being promoted in Côte d'Ivoire with IDA's involvement, should be actively encouraged wherever justified. Similarly, activities that could be more efficiently performed by private interests should be removed from the public domain, for example, billing and revenue collection.

Another feature of the power systems in SSA is the relatively low level of access to electricity. Rural areas where poverty reduction should be a priority are particularly affected by extremely low levels of access to electricity. To improve access to electricity in SSA, the public sector has a role to play, preferably in combination with private interests.

Finally, we agree with the recommendation that the Bank should help institutionalize and coordinate a systematic effort to sector data gathering and analysis adapted to the principles of the new power sector policy. The "Live Data Base" recently developed by the Region would be a useful tool for the promotion of this initiative.

OED Ledger
Lending for Electric Power in Sub-Saharan Africa

<i>Major OED recommendations</i>	<i>Management response</i>	<i>Actions proposed</i>
<p>1. Based on sector work, the country assistance strategy (CAS) for SSA countries should examine the rationale for power lending, and establish its coherence and relative importance with respect to Bank assistance for broad economic adjustment and for the development and rationale use of other, especially renewable, energy resources.</p>	<p>We agree. The country assistance strategy provides the basis for the preparation and implementation of Bank lending and nonlending activities.</p>	<p>Lending and nonlending activities must, in all cases, be consistent with the CAS and must be reviewed by the country teams and the DMTs.</p>
<p>2. With the exception of operations for institution building or the rehabilitation of facilities, lending in SSA should be avoided in countries where performance is below acceptable benchmarks in key technical and financial areas and no substantial part of a platform of sector reform is under implementation at the time of appraisal. The lending platform should include:</p> <ul style="list-style-type: none"> ■ policy reform to establish a transparent and arms-length regulatory framework with legal guarantees that utilities can operate with autonomy; and ■ the enforcement of regulatory principles to ensure financial discipline and adequate tariffs, as well as incentives-based, competitive contracting of services. 	<p>We agree that Bank lending should be conditioned on governments' commitment to reforms. However, in implementing the Bank's power sector policies, it is necessary to consider each country's situation, and develop solutions that take account of constraints.</p> <p>The regulatory framework, which should be implemented in conjunction with other economywide initiatives, should focus on setting up transparent and consistent regulatory processes that are clearly independent of power suppliers and that avoid government interference in day-to-day power company operations. The regulatory framework should establish a sound basis for open discussion of power-sector economic, financial, environment, and service policies.</p>	<p>The Region will define acceptable technical and financial benchmarks applicable to the power sectors of SSA countries.</p> <p>For each country, we must assess the most appropriate ways to develop in a sustainable way the power sector, consistent with the Bank's key lending principles as formulated in the power sector policy.</p>
<p>3. When promoting sector restructuring and/or privatization in SSA, options to be explored in priority are: setting up of purchase tariffs, unbundling and decentralization of distribution and advising on concession contracts with private operators, and the provision of guarantees for independent power producers where cost-effective.</p>	<p>We agree that a menu of options needs to be explored. Each situation should be assessed carefully. Unbundling may be appropriate in some countries with relatively large power systems. It may not be appropriate for small systems, while private investments in generation negotiated within the framework of satisfactory retail tariffs may be feasible.</p>	<p>We must continue to review internally and discuss with the governments the feasible options for power sector restructuring and/or privatization in SSA.</p>

<p>4. The Bank should work at nurturing ownership in SSA countries for its policy and principles; the technical assistance programs that will support the reforms; and the modality of technical assistance delivery by locals and expatriates. Effective dissemination of good practice and successes achieved in similar countries on each of the topics where ownership is at issue must form an integral part of project preparation.</p>	<p>We agree that ownership of the reform is essential. While we recognize that ownership was higher for capacity expansion than for technical assistance and reforms, the Bank and other donors have financed some useful technical assistance. This has led to least-cost expansion, tariff changes, management training, and preparation and implementation of other reforms. The Africa Region has taken initiatives to foster borrowers' ownership of the Bank's policy and principles in the power sector. The symposium on power sector reform scheduled in Johannesburg for end of CY95 is one illustration.</p>	<p>We will strengthen efforts to nurture borrowers' ownership of the reform agenda, and disseminate relevant information.</p>
<p>5. The Bank should forge strategic alliances with other lenders and donors to obtain a consensus on the policy objectives and criteria governing their involvement in SSA countries. It should also establish partnerships in the development of human resources and share responsibilities in performing those tasks that could benefit the diverse field assets and competencies of donors.</p>	<p>We agree that strategic alliances should be forged with other lenders and donors. Illustrations include Central African Republic and Mali, where the approaches used to power sector reform were coordinated and agreed with the donors, improving effectiveness of the dialogue.</p>	<p>Periodic formal and informal consultancies with the lenders and donors, already in large part the practice in the Region, should be generalized.</p>
<p>6. In collaboration with other interested lenders and donors, the Bank should help institutionalize and coordinate a systematic effort to sector data gathering and analysis adapted to the principles of new power sector policy.</p>	<p>We agree with this recommendation. The "Live Data Base" developed by the Region will help.</p>	<p>We will expand the "Live Data Base" for this specific purpose.</p>

Committee on Development Effectiveness (CODE) response

The Committee on Development Effectiveness of the Bank's board of executive directors discussed the study. While many speakers agreed that the Bank should avoid lending for power where performance is below acceptable benchmarks and where little progress has been made on reforms, the consensus was that the Bank should be proactive in helping its developing member countries overcome policy and institutional constraints. They noted comments by management that independent regulatory agencies, designed to ensure the autonomy of utilities, do not succeed in Africa and that efficient performance is better sought through other means, including contracts. Unease with the notion that Bank policy no longer emphasizes provision of basic electricity to the poor was prevalent, even though members noted that power lending was not the most effective way to reduce rural poverty unless it formed part of an integrated rural development strategy. Here again, the Committee wished to see a proactive posture by the Bank. Speakers asked how management treated violations of loan covenants, and the Chairman noted that this important issue was part of the broader question of management accountability which the committee planned to examine in 1996. On coordination with donor agencies, the committee suggested and management agreed that power sector issues should be discussed at consultative group meetings, to be chaired by borrower governments locally, so as to ensure issues were thoroughly addressed. A speaker said that both the OED study and the management response were too cautious on the scope for private sector involvement. The Committee requested management to act on its comments and the OED recommendations.

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