Folder Title:	Power - Follow up - 1974
Folder ID:	30248807
Subseries:	Early special evaluation studies working files
Series:	Special Evaluation Studies
Dates:	08/20/1974 – 08/26/1974
Fonds:	Records of the Office of Operations Evaluation
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OED SPECIAL STUDIES

85035--003

Power - Follow up

1974 (July 25 - Aug)

Aurora file Kenya Second Power

MR A E BAILEY

HOTELINTERCON

NAIROBI

KENYA

AUGUST 26, 1974

TELEX

EXT. 3880

WHEN ASKING BORROWER PREPARE COMPLETION REPORT PLEASE ENSURE IT WILL INCLUDE THEIR OPINION ON REALIZED AND EXPECTED BENEFITS AND ALSO GENERAL IMPACT ON ECONOMIC DEVELOPMENT REGARDS

ERKMEN

107A

Cleared in substance with and cc:
Mr. Burrows
Mr. Israel

Esraf Erkmen, Deputy Chief
Public Utilities Division
Eastern Africa Regional Office

EErkmen:atm

KENYA - Second Power Project

FORM NO. 75
(7–73)

WORLD BANK GROUP

ROUTING SLIP	DATE August 23, 1974

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Mr. Willoughby	
X 5459 Wilson OED(6)	
9/5/74 file Power	
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REMARKS

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FROM	ROOM NO.	EXTENSION
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M. Willoughby

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

PUBLIC UTILITIES DEPARTMENT

DOCUMENTS SERIES

INDEX

August 20, 1974

Central Projects Staff
Public Utilities Department

DOCUMENTS SERIES - INDEX

ABSTRACT

The following provides an up-to-date listing of documents prepared by the Public Utilities Department in recent years.

The Subject Index refers the reader to the Category and Page where the full listing of date, number of pages, author, and a brief abstract may be found. Unless otherwise stated these documents may be obtained through Ms. Peter's office D758 ext. 5459.

Prepared by Ms. Phyllis Peter

TABLE OF CONTENTS

SUBJECT INDEX

PUBLIC UTILITIES SECTOR

ENERGY

POWER

Power: General

Power: Pricing

Power: Rural Electrification

TELECOMMUNICATIONS

WATER SUPPLY & SEWERAGE

Water: General

Water: Economic Analysis

Water: Pricing

Water: Village Water

RESEARCH SERIES

The Research Series includes those research papers which have been prepared for or by the Public Utilities Department. They represent the result of analytical and expository studies which are considered to be of interest to operational staff. They are in no way intended to be statements of Bank Policy.

RES 1 Economic Analysis of Electricity Pricing Policies: An Introduction January 9, 1974 - 14 pages. D. Anderson and R. Turvey.

"Electricity pricing policies have been dominated by financial questions; in particular by the need to maintain tariffs at levels that will help finance the large capital requirements of continually expanding systems; and also by a questionable accounting approach to the design of tariff structures. But how fast should expansion be? How should output be distributed between homes and industry and between rich and poor? Can capital be utilized more fully? These neglected questions of economics and equity also need to be worked into pricing policy. A balanced approach is needed: finance to spur expansion; economics and equity to contain and direct it. This paper discusses how pricing policies can be formulated which are efficient while satisfying the constraints of finance and equity. Additional constraints set by the need for simple tariffs, risk, ignorance about consumer reactions and by the costs and technical difficulties of accurate metering are also discussed. The paper is an introduction to a series of case studies, research papers and guidelines designed to help Bank staff, utilities and their consultants adopt a new point of view and start solving the difficult but worthwhile problems of implementation that it poses."

RES 2 Village Water Supply and Sanitation in Less Developed Countries March 15, 1974 - 145 pages. J. Warford and R. Saunders.

RES 2A Summary and Conclusions of Full Report March 15, 1974 - 10 pages. J. Warford and R. Saunders.

"The major difficulties in village water supply and sanitation programs are not technical, but rather administrative and financial. The problems are in large part due to the relative poverty of rural communities; their failure to appreciate and make proper use of potable water; the relatively high cost per consumer of village supplies as compared with urban supplies, the encumbered administration stemming from geographical dispersion; and, undoubtedly most important, the common neglect of operation and maintenance due to the lack of proper allocation of budgetary resources, the lack of ongoing technical assistance, and the lack of administrative attention. This paper which consists of a review of the current state of knowledge and of the experience of a number of less developed countries in the field of village water supply, concentrates on these areas, highlighting the factors which are significant

in determining the likelihood of success or failure of village water supply projects or programs, and their priority in national development planning. There is also a discussion of the problem of identifying and quantifying the benefits of investment in this field.

Since the best means of dealing with many of these issues remains a matter of debate, and in view of the considerable diversity of rural communities in less developed countries, the general approach of the paper is to draw attention to possible courses of action and approaches which Bank staff should consider in appraising such projects. The paper does not pretend to outline actual policies to be followed by the Bank in controversial areas, however, the intention primarily being to make operating staff aware of opposing points of view and of various possible implications of specific actions, so that they would be in a better position to exercise judgment in any particular case. The paper is being widely circulated in order to attract comments to assist the Public Utilities Department in preparing guidelines for the appraisal of village water supply projects."

RES 3 Framework for Electricity Tariff Studies March 18, 1974
22 pages. D. Anderson and R. Turvey.

"The paper on the Economic Analysis of Electricity Pricing Policies (P.U. Report No. RES 1) examined some of the problems and principles of electricity pricing. The present paper now suggests an approach to applying these principles. It is couched in terms of a series of 13 questions which will need to be answered in most cases, the significance of each being explained in some detail. The first six relate to the structure of costs, and the next three to the market for electricity, relevant distortions in the economy and the existing tariff structure. The tenth question asks what practicable cost-reflecting tariff might be introduced and is followed by questions about modifications necessary to meet financial and social objectives. Finally the ability of the utility to cope with a tariff reform is mentioned. No answers are proposed to any of the questions, the purpose of the paper being to suggest how missions or consultants might usefully undertake a tariff study."

OTHER RESEARCH PAPERS PREPARED WITHIN THE DEPARTMENT:

Estimation of the Economic Benefits of Water Supply and Sewerage Projects October 1973. Messrs. Warford, Bahl, & Coelen.

** Report presented by the Syracuse University Research Corporation, Maxwell School of Citizenship and Public Affairs.

"This paper examines the premise that investments in public sewerage and water facilities will be reflected largely in increased land values. This was done by first defining the

theoretical issues, then attacking the problem through the use of an empirical model which compared property values in the "project" area to those in a similar "control" area over a period which included the installation of the water/ sewerage project in question. Original data from case studies in Nairobi and Kuala Lumpur was used."

Electricity Pricing Case Studies - Tunisia Sudan
D. Anderson, R. Turvey.

(Sudan - June 1973 - 46 pages)
(Tunisia - October 1972 - 32 pages). Available in DRAFT form.

The Economic Return on Electric Power Investments
January 1973. 31 pages. D. Anderson. Available in DRAFT form.

Standards of Urban Electricity Distribution - December 1973 - 33 pages.
(Electricity Council Overseas Consultancy Service)

"This paper reviews the "State of the Art" of the technology and economics of supplying electricity in urban centers. While its primary purpose was to set the stage for investigations into the relationship between investments in distribution systems and the standards of supply which their customers enjoy (which it is planned will be carried out during the course of the second half of 1974) it has already thrown light on some important features of distribution which are presented here. It is intended that this paper will be followed by "guidelines" for use by the Bank in appraising electric power projects where distribution investments are a substantial component."

In connection with the Energy Task Force we contributed:

a) Sectoral Adjustments to Higher Energy Costs - Power

Chapter II of Background Paper V for Prospects for Developing Countries (IBRD Report #477). July 8, 1974 - 20 pages.
E. Friedmann with assistance from Messrs: Erkmen, Minnig, Russell and Salazar.

This report discusses the impact of higher fuel costs on generating costs for various types of plants; on demand for electricity; on investment choices for generation and transmission; and finally, reviews the likely effects on power planning in LDCs identifying five groups from the hardest hit and least likely to adjust in the medium term, to those which can most easily overcome the effects.

b) Energy Supply Demand Outlook, 1980-1985

Background Paper II for IBRD Report #477 - Prospects for Developing Countries. July 18, 1974 - 20 pages. E. Friedmann

This report discusses past trends in supply and demand of energy; non-OPEC energy supply options for the period up to 1985 including traditional (coal, oil, gas, hydro) and non-traditional sources (oil shale, tar sands, synthetic hydrocarbons, etc.); the petroleum potential of oil importing LDCs; energy demand price and income elasticities; fuel substitution and conservation possibilities; scenarios for energy balances in 1980 and 1985 under various oil prices assumptions (from about $4 to $12 per barrel f.o.b. Persian Gulf).

The following two consultants' reports were prepared for the Public Utilities Department under E. Friedmann's guidance:

Coal: State of the Art

April 1974 - 65 double-spaced pages plus 4 annexes.
Powell Duffryn Consultants, U.K.

Unedited final draft of an information paper reviewing the state of knowledge on coal resources, production, consumption and trade. It discusses major uses of coal, production methods and costs, prices in different regions, prospects for increasing supplies, coal gasification and liquefaction.

Dominant Issues on Nuclear Safety

March 1974 - 54 double-spaced pages.
Dr. A. Admantiades.

A background report prepared to support the conclusions presented in the Board Paper "Nuclear Power: its significance for the developing world" of April 19, 1974. Discusses routine radioactive emissions, severe nuclear accidents, diversion of nuclear materials, waste disposal, licensing and regulations. Mainly addressed to the controversy on the safety of Light Water Reactors. Contains extensive bibliography on subject.

UNDER PREPARATION:

Village Electrification

D. Anderson. In progress; due October 1974.

Copies of the Report prepared by the Universidad Jose Simeon Canas "Electrification Rural" Vol. 1 - Vol. IV are available on loan from D. Anderson's office.

POLICY/ISSUES PAPERS

The main policy and issues in Public Utilities are set out in Operational Policy Memorandum No. 2.63, Public Utilities (March 1971, 8 pages) and in three Sector Working Papers (Water Supply & Sewerage, Telecommunications, and Electric Power), available in printed form from the Publications Department.

Water Supply and Sewerage Working Paper

October 1971 - 13 pages. (Available in translation - French and Spanish.)

Telecommunications Sector Working Paper

November 1971 - 18 pages. (Available in translation - French and Spanish.)

Electric Power Sector Working Paper

December 1971 - 17 pages. (Available in translation - French and Spanish.)

> "These papers describe the distinctive economic, financial, and institutional characteristics of each sector; outline the role played by each sector in the general process of economic development; review the scale and approach of World Bank operations in the sector; and summarize the Bank's philosophy about how its own operations, together with the activities of other aid donors, can contribute to building up each sector - physically, financially, and institutionally - in its member countries."

Other Policy/Issues papers published by the Public Utilities Department in 1974 are listed below.

P01P74 Nuclear Power: Its Significance for the Developing World

Distributed to the Board for information April 19, 1974 (SecM74-266) - 39 pages plus 5 annexes.
F.H. Howell and E. Friedmann.

> "The report reviews recent trends in nuclear power plant construction in the industrial and the developing countries; evaluates the state of various reactor technologies, operating experience and the international supply capabilities; compares investment and operating costs of nuclear and conventional

plant; reviews the nuclear fuel supply situation; appraises the safety and environmental aspects; and lists the preparations which are required in developing countries (regulatory, training, etc.) prior to the introduction of the new technology."

P01P74 Issues in Rural Electrification

Distributed for information only July 25 - 64 pages. D. Anderson.

"After an introductory review of rural electrification in developing countries, the report discusses three main topics: 1) The prospects for successful investment in rural electrification; 2) Approaches towards investment as regards economic justification, identification and preparation, finance, technical problems, and institutional problems; and 3) Implications for Bank policy and procedures."

P03P74 Economic Evaluation of Public Utility Projects

Distributed to PRC for information only, July 24 - 19 pages. Public Utilities Department Staff.

"This paper discusses the significance of the internal economic return (IER) calculation as applied to investments in the public utility sectors (Water Supply, Power, and Telecommunications). The economic evaluation of public utility projects involves consideration of three basic factors: the demand forecast, selection of the least-cost method of meeting the predicted rate of consumption, and comparison of project costs and benefits. The paper is intended to be explanatory rather than to raise new conceptual ideas."

P01W74 Issues in Village Water Supply

Under preparation.
H. Shipman and J. Jennings.

GUIDELINES SERIES

The Guidelines Series includes a variety of papers on economic, financial and technical subjects. Some of them will result from the natural sequence of PBP's innovative tasks - Research, Policy Papers, Guidelines; others will result from PBP studies of operational techniques, methods, or procedures; others will reflect changing Bank practices in the utility sectors. Guideline papers are circulated in draft to the Division Chiefs and a selected panel of staff in the Regions and other Departments. Any disagreements of substance are thoroughly discussed. For those Guidelines which prescribe actions, procedures, or methods, staff are expected to observe the Guidelines unless there are convincing reasons to support a departure.

GAS 1 WHO/IBRD Cooperative Program
May 1973 (reissued May 1974) - 4 pages plus annexes.
H. Shipman.

"The WHO/IBRD Cooperative Program in Water and Wastes was formally established in October 1971. This note describes the scope of work that may be executed under the Program (principally sector studies) and the procedures to be followed by WHO and by the various IBRD departments in connection with the Program."

GAS 2 UNDP/Special Interest Project Procedures: Water and Sewerage
August 1973 (reissued June 1974) - 5 pages.
H. Shipman.

"This note sets out briefly the procedures to be followed on UNDP-financed studies in the water and waste disposal sector for which WHO has been designated executing agency and in which the Bank has expressed "special interest"."

GAS 3 Guidelines for Project Monitoring System for Public Utilities Projects
November 8, 1973 - 2 pages plus annexes.
E. Friedmann, H. Shipman and J. Jennings.

"This paper introduces guidelines for a monitoring system which should be applied in all Public Utilities projects.

The system provides for presentation in appraisal reports of general indicators selected by the appraisal teams as being representative of key factors in the success of the project and the enterprise. Progress as measured by these indicators would be checked during project execution, and reflected in supervision reports.

Two annexes list examples of indicators which may be applicable in the Power and Water/Sewerage sectors. Suggested indicators for Telecommunications will be issued later."

GAS 4 Guidelines for Sector Work in the Water Supply and Waste Disposal Sector - November 9, 1973 - 18 pages plus annexes. (Available in French translation; Spanish translation in progress.) Public Utilities Department Staff.

"These guidelines suggest the means for acquiring the information about the water supply and waste disposal sector needed in order to prepare plans for its development. Sector studies are primarily for the benefit of decision makers at the national and local level, but they also benefit outside agencies interested in efficient development of the sector. To be effective, sector work must involve both appropriate officials and the sector specialists in the country in question, and be seen as part of a continuous process for building up knowledge and improving decisions in the sector. Several typical sector issues are discussed, along with a number of practical considerations for organizing sector work. Detailed planning of sector work is emphasized. Annexes provide, among other things, checklists which help to assure that important aspects are not overlooked."

GAS 5 Guidelines for Sector Work in the Power Sector - November 20, 1973 - 13 pages plus annexes. E. Friedmann and F.H. Howell (Available in Draft French translation.)

"These guidelines suggest why studies of the power sector in developing countries should be carried out, point out that decisions affecting the sector's evolution reach across the whole economy, and caution that mere inventory of facilities does little to illuminate the problems and prospects associated with the assurance of a long-term dependable supply of power appropriate to the needs of the country's development. A general approach is outlined, supplemented by reminders of specific information sought. The annexes are offered as Aides Memoire in this connection."

GAS 6 Guidelines for Estimating Costs of Tunnel Construction - January 17, 1974 - 4 pages. F.H. Howell and R. Bloor (consultant).

"This paper deals with the problems of estimating costs to execute underground works where uncertainties may be great. It suggests areas to which special attention should be given, and advocates the routine collection of data on costs as experience is gained so that the basis for judging estimates may be broadened."

GAS 7 Telecommunications Handbook Part I: An Outline of Telecommunications
March 1, 1974 - 64 pages.
Public Utilities Department Staff.

"Summarizes basic telecommunications technology in simplified technical terms, concluding with a shorter chapter on management of telecommunications enterprises. It is designed to be a source of general information about the nature and organization of telecommunications, the physical and cost structures of networks, and the basic engineering and management functions of an operating authority."

GAS 8 Telecommunications Handbook Part II: Telecommunications in Developing Countries
June 28, 1974 - 24 pages.
Public Utilites Department Staff.

"An attempt to relate the basic concepts of Part I to the special problems of developing countries and will be of particular assistance to new telecommunications staff."

UNDER PREPARATION

Telecommunications Handbook Part III: Economic Issues in Telecommunications
(Due by December 1974.)

Previously Written Paper which may be of interest:

Handbook for Appraisal
November 1970 - 27 pages. J. Jennings.

"Includes a Checklist designed to help plan and organize the Work of Appraisal Missions, and an Outline for Use in Preparation of Appraisal Reports."

PUBLIC UTILITY NOTES

Public Utility Notes are information or "state of the art" papers on utility sector related subjects. They are used to: provide perspective on subjects of current interest (Petroleum Notes): disseminate information on the operational significance of on-going research (Village Electrification); explain the origin of current research and help retrieve past work (Utility Pricing); summarize, for the benefit of a broad audience, the contents of bulky research papers (Village Water Supply); or draw attention to innovative operational work (Finland's Pollution Control). These notes are issued under the sole responsibility of the Public Utilities Department and do not represent statements of Bank policy.

PUN 1 Petroleum Notes
January 24, 1973 - 19 pages. E. Friedmann

"The purpose of these Petroleum Notes is to provide some basic information and understanding of the most important factors related to the supply, demand, and pricing of this commodity. They would serve as background to further notes and guidelines aimed at improving energy-related sector work. This would include, in due course, notes on Energy and the Environment, Nuclear Power Technology and Economics, Guidelines on Energy Aspects of Power System Planning, etc. It is also hoped that the Notes may be of some interest for country, transportation and industry economic work."

PUN 3 Generating Plant Reserve Margins
June 20, 1973 - 9 pages. T. Berrie

"This Note describes some practical approaches to determining the amount of spare generating plant capacity that should be planned for in order to achieve an optimum standard of security for a particular electrical supply system."

PUN 4 Standards of Urban Electricity Distribution
June 28, 1973 - 6 pages. T. Berrie

"This paper is topical in that it deals with some of the newer emphasis in the Bank's operational work, e.g. emphasizing that part of the service nearest to the consumer (distribution) as distinct from the more "traditional" wholesale parts of the service (generation and distribution). It also deals with that aspect of access to service which considers trade-offs between the standard of existing service and the expansion of access to service."

PUN 5 Pricing in Power and Water Supply
July 1973 - 10 pages. T. Berrie

"This Note brings the reader up-to-date with respect to Bank work in Public Utility Pricing, indicating what lessons have been learned, what information is now available for operational use and what further work is being done. It suggests that economic, social and fiscal aspects of utility pricing be more systematically considered in all phases of operational work."

PUN 6 The Appraisal of Village Electrification Projects
August 1973 - 7 pages. T. Berrie

"The object of this Note is to report on some of the operational lessons and indicators which have emerged from the Bank's research work on village electrification, mainly in El Salvador. The topics covered include the criteria for judging the merits of village electrification projects; the measurements that must be made in order to assist investment decisions; tariffs, finance and fiscal effects; and income distributional aspects."

PUN 7 The Changing Energy Scene
December 1973 - 29 pages. E. Friedmann

"A discussion of the nature and causes of the energy crisis of October 1973. A follow-up of PUN 1 "Petroleum Notes" covering events up to December 1973."

Unedited DRAFT based on a Conference to Bank Staff.

PUN 8 Finland's Water Pollution Control Program: The Role of Economic Analysis

February 20, 1974 - 24 pages.
J. Warford and T. Pellegrini (IBRD), and A. Kneese and K. Mäler (consultants).

"This note is the report of a mission which examined the role that economic analysis should play in the evaluation of a project designed to improve the quality of Finland's lakes and rivers. The project, consisting of the installation of effluent treatment works in industrial plants, is part of the first nationwide environmental improvement program with which the Bank has been involved, and for this reason the report is circulated for the general interest of staff members.

The paper contains some rather controversial recommendations on such issues as the subsidization of polluters, effluent charges versus standards, and the role of benefit-cost analysis in pollution control. As in the case of other notes, the report which was originally prepared for the DFC's Division of EMENA, is not to be interpreted as a policy statement or as a working instruction. In fact, it is to be sent to the Finnish authorities, the final position to be taken by the Bank being the outcome of the ensuing dialogue between us."

PUN 9 Water Desalination - February 20, 1974 - 11 pages. H. Shipman. Also issued as a Board paper SecM74-6.

"Desalination is increasing in importance in areas of the world where the need for domestic and industrial water approaches or outstrips economically available fresh water supplies. At present there are about 800 desalting plants in operation; they produce an aggregate of 4 million m^3/d, equivalent to the daily consumption of 20 to 30 million people. The paper reviews salinity tolerance levels for various water uses, desalination technology, operation and maintenance problems, and the importance of the cost of energy on overall production costs. Noting that desalination costs are 10 to 15 times greater than the cost of conventional water production processes and that scientific breakthroughs to dramatically reduce costs are unlikely, it discusses the prospects of effecting savings through dual purpose plants, better plant utilization and economies of scale. Criteria for evaluating desalting processes and comparing them with alternative water supply projects are presented along with a guideline suggesting that desalination may be a viable option if alternative fresh water must be piped more than 200 km. Because of the high costs and the large quantities required, the paper concludes that desalination for irrigation is unlikely to prove economic except for a very few specialized situations."

PUN 10 Status and Outlook of Geothermal Energy
March 7, 1974 - 35 pages. G. Coury (Consultant)

"This Note examines the values and prospects of geothermal development: potential reserves, actual and planned installations, available cost data, technological constraints, research needs and programs of national and international agencies, including those of the UN Resources and Transport division.

It forms part of a series of papers reviewing the principal sources of energy -- nuclear power and coal are next -- designed to serve the needs of energy and power sector work and to be used also as inputs to the work of the Energy Task Force.

It reproduces a report commissioned by the Department from Dr. Glenn Coury in connection with last summer's utility staff seminar on geothermal energy.

PUN 11 Urban Water Supply and Sewerage Pricing
March 22, 1974 - 9 pages. J.J. Warford and R. Turvey

This note discusses the various objectives of pricing policy as applied to urban water supply and sewerage. Revenue-raising, equity, and administrative simplicity are important criteria to use in evaluating pricing policy, but the paper emphasizes an aspect that is usually neglected, namely, the role of price as means of influencing consumer behavior. The paper outlines an approach to tariff policy that recognizes all four objectives, and indicates the type of compromise that often has to be made between them.

PUN 12 Lahore Water Supply - Tariff Study
August 7, 1974 - 19 pages. J.J. Warford and R. Turvey.

This note is the report of a mission which examined Water Supply and Sewerage Pricing in Lahore, the intention being to provide guidance on economic aspects of tariff setting to the engineering and financial consultants hired by the Lahore Water Supply Authorities. The report analyzes the way in which marginal cost should be estimated, given the reliance of Lahore upon ground water supplies, and indicates the engineering and hydrological data that need to be collected in order that this may be done. It then discusses the implications for tariff policy of illustrative estimates of marginal cost, special emphasis being placed upon the metering decision.

EDI DOCUMENTS

Please note that in addition to the Department documents, the following are available from recent EDI Seminars:

Water Supply Case Studies and Work Exercises:

Volume I -- pages 1-358

Volume II - pages 359-659

Edited by Lamson-Scribner and Burnett. 1973. Economic Development Institute.

August 1974
PPeter

Mr. Willoughby 0/r

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

POLICY REVIEW COMMITTEE

PRC/s/M/74-11a

August 14, 1974

PRICING AND COST RECOVERY POLICIES FOR PUBLIC SECTOR PROJECTS

STAFF REVIEW - MINUTES

Attendance:
Messrs. van der Tak (Chairman), D. Anderson, Avramovic, Chandran, Chopra, J. R. Hansen, Haq, E. K. Hawkins, Mrs. H. Hughes, Lerdau, Lowenstein, Montfort, Raizen, Ray, T. B. Russell, E. Stern, Thalwitz, M. Wolf, Yenal, M. Miller (Acting Secretary)

1. A staff review of the "Pricing and Cost Recovery Policies for Public Sector Projects" was held on Wednesday, July 31, 1974.

2. The Chairman explained that the paper should be regarded as an "issue paper" rather than a "policy paper," and that its purpose was a limited one; namely, to clarify the general principles which could guide staff in the preparation of sectoral guidelines on pricing and cost recovery policies. He pointed out that the paper was one of many now being prepared on related aspects such as "Economic Analysis of Projects," "Rate of Return on Utilities Projects," "Rural Electrification" and "Village Water Supply."

3. In the ensuing discussion it was generally agreed that the paper was commendable as an exposition of the principles of pricing and cost recovery, but that the recommendations as to which principles to apply and how to apply them did not adequately recognize the difficulties in applying them. Reference was made to the lack of knowledge regarding (i) elasticity of demand, (ii) the feasibility conditions for cross-subsidization through price discrimination, and (iii) the full incidence of subsidies or taxes. It was observed that advocacy of a cost pricing rule is not very helpful when there were so many problems in determining what the short- and long-term marginal costs really were and in estimating the effects of using it. Others drew attention to the need to consider the feasibility of applying it under different institutional conditions.

4. Another participant commented that deviations from "efficiency pricing" should not be treated as a guiding rule, especially where the objectives of building viable institutions or better income distribution were also important objectives. Value judgments had to be made in setting objectives and it was misleading to assume that the market economy gave price signals which were reliable guides to investment policy.

5. In the discussion on follow-up, a basic question was posed regarding the need for a paper of this generality on this topic. Before the task of revision was undertaken, it was suggested that some projects be reviewed to assess what effects differences in pricing and cost recovery policies might have in terms of extra workload and the benefits attained. It might be found that it was not worth elaborating theoretically attractive rules where there were sufficient data and conceptual problems to make the intellectual refinement not too worthwhile. It was not clear that present practices in project analysis were "off the (ideal) beam" to a degree which warranted further work on this paper, especially when it was acknowledged that no one could determine quantitatively what the correct beam was.

6. The Chairman said that the scope of this paper should remain a limited one, viz., to clarify the general principles which could guide staff in the preparation of sectoral guidelines on pricing and cost recovery; and the paper should be issued as such, after appropriate revisions to clarify the points raised in the meeting.

Morris Miller
Acting Secretary
Policy Review Committee

cc: Those Attending
IBRD Department Directors
Chief Economists
Program Coordinators
Mr. Qureshi (IFC)

Follow-up Report on actions taken within the Bank relating to the Recommendations of the Electric Power Evaluation Report (No. Z-17)

1. This report presents the opinions of the Operations Evaluation Department regarding the relevance and effectiveness of the actions and studies undertaken by the various Departments of the Bank concerned by the implementation, in the methodological and operational fields, of the recommendations of the Electric Power Evaluation Report (No. Z-17) submitted to the Board in April 1972. The following judgements and conclusions were based on a review of the research studies and operational guidelines and memoranda issued within the Bank and of the appraisal reports issued during the last Fiscal Year 1974, as well as on the outcome of discussions and meetings held with the Central Project Staffs and the Regional Public Utilities Divisions. After a brief recall of the Evaluation Report' main conclusions, each Recommendation and the related actions and achievements undertaken will be reviewed and discussed in turn.

2. A first conclusion of the Electric Power Evaluation Report was that the past large expansion of electricity supply in the developing countries would have been probably impossible without Bank soft-term financing. The construction physical objectives of the Bank's loans to the ten public utilities reviewed were to a very large extent successfully met, and some temporary overinvestment in a few cases had resulted primarily from faulty planning. The effectiveness of the Bank's financial and tariff covenants improved over time, and the present form of a minimum annual rate of return on average net fixed assets in operation has been satisfactory, with the result that the Bank financial covenants were met in most years and contributed to the attainment of increasingly satisfactory financial performances of most of the ten companies reviewed. The Bank's impact was quite significant on the integration (at a national or regional level)

of electric power systems, and the Bank helped the companies identify and achieve substantial improvements in their internal organizations; the two unsuccessful among the ten reviewed were those with incomplete jurisdiction over power supply in their service areas. Finally the main lesson from the substantial accomplishments and relative weaknesses of the Bank's actions in electric power is that the Bank's objectives for power should be set in a broader context than the power utilities themselves and the Bank should analyze more thoroughly the role that electric power can play in development and the conditions for its success.

3. Basic dilemmas emerging from the evaluation were: How quickly should power demand be allowed or encouraged to grow? How much can electricity supply induce development or improvements in efficiency in other sectors (eg. small industry and agriculture)? How much expenditure should be allocated to electrification of villages and small towns presently unserved, and how should they be selected? What should be the balance between expanding the coverage of the power systems and improving reliability standards on the existing ones? Which risks of load shedding are appropriate under different economic conditions? Which circumstances justify on a socio-economic basis to provide power at less than cost to serve? The report recommendations discussed below were asking the Bank not only to widen the scope of or improve its operational procedures, but mainly to develop appropriate methods of analysis and project appraisal designed to bring answers to these basic dilemmas.

4. Recommendation for System Extensions: " develop, and accelerate studies on, techniques for analyzing the economic validity of power system extensions to new unserved areas (marginal zones of the cities, villages or small towns, larger regions".

The Bank agreed with the need for such studies which were aimed at finding practical improvements to Cost-Benefit analyses, and also justifying departures from strict economic and financial pricing policies when social objectives are to be met; moreover, the OED suggested

that special attention be given in these studies to financial and institutional issues of rural electrification. A major case study of rural electrification experience in El-Salvador was carried out on schedule and led to several internal instructions and issue papers relating to the economic justification of such schemes (PUN 6 and the conclusions of which were used in a preliminary appraisal of a major rural electrification project in India and will probably be used for a similar project in Iran (Policy Issue Paper on Rural Electrification).

The major conclusions recently derived from these previous studies are: a - a sound basic integrated program for rural development is desirable for successful rural electrification, though seldom available; b - success of village electrification requires that the village average per capita income be above a particular "threshold" level (US$ 50-60 in El Salvador) where demand begins to develop, and that prospects for a rapid growth in consumers' need and demand for electricity be clearly established; c - economic benefits can and should be routinely assessed for the productive uses of electricity (such as irrigation and agro/village industries), but not for other cases and types of consumers for which the respective willingness-to-pay should be used as a minimum measure of the benefits (this is claimed to be acceptable since it normally captures the main elements of net benefits: savings on alternative sources of energy, value of higher quality energy, value of resulting extra output); d - it is essential to take a long-run (20-year) rather than a medium-run (5-year) approach, due to increasing network utilization and scale economies in costs over time; e - tariffs may be set below marginal costs during the early years because of the generally high initial fixed costs, the need to promote use of the service, or social reasons (to help small business and low income families), but subsidies (or taxes) should be made explicit and tariffs should eventually aim at reflecting the level and structure of long-run marginal costs of supply in order to secure an efficient allocation of resources; and f - the analysis of an Internal Economic Return (otherwise proposed for application to all power projects, § para 7) derived from the financial internal financial return by some adjustments to costs and revenues, provides a test of pricing policy and project acceptability, by focussing

on the relationship between prices and marginal costs and testing investment decisions against the consumers willingness-to-pay.

The recent appraisal reports of projects and investment programs including some components of distribution in marginal or unserved areas, or of rural development projects, do not reflect any use of the above studies and conclusions. Indeed, despite a widespread interest within the Bank, practical guidelines for, and demonstration in the field by its authors of, the implementation of the proposed method for appraisal of rural electrification projects are still expected. Both will not be made before a second case study of rural electrification be carried out (desirably in a country of lower development level than El Salvador, in a West African country for instance). Moreover, before being implemented, the proposed method may require some additional thought about the adequacy of using everywhere the consumers' willingness-to-pay in dealing with such a public good as electric power characterized by externalities, income distribution effects, and politically recognized in some countries as a "merit want" or "basic need". Also, the transposition of the above conclusions and methods to the case of marginal or unserved zones of urban areas will require that a solution be found to the possible incompatibility between using the principle of marginal cost pricing and the undesirability or political unfeasibility of charging different tariffs to marginal and established adjacent zones of the same urban area.

In conclusion, major methodological work has been carried out, which still needs some further improvements and mainly transcription into practical guidelines before being used routinely in operations.

13. Recommendations on New Connection Policies (and Self-Help for Distribution Expansion) (from the Evaluation Report of Colombia Operations, No.): "assess the new connection policies of public utilities at both selection and appraisal stages to see if they respond satisfactorily to any opportunity that may exist for accomplishing significant development benefits from spread of electrification – eg. increasing efficiency of small industry or aiding production and education in

rural or marginal areas".

" Encourage authorities and power companies to find appropriate institutional mechanisms for mobilization of self-help for distribution expansion".

With respect to these two recommendations, the Bank undertook only to encourage its staff to pay attention to these aspects and look out for successful experiences in self-help mobilization with a view to possibly propagating them.)

(The Rural Electrification case study mentioned above indicates that agricultural and industrial productive uses of electricity can bring substantial development benefits, and that labor constitutes a significant portion (up to 25%) of the investment cost which could be partly saved (by self-help), thus releasing scarce financial resources for further expansion.

Actually, in most of the recent appraisal reports new connections policies of assisted companies have not been looked at (very few appraisals of projects including a distribution component even state basic data such as the number of new connections expected), and no systematic effort has been made to propagate within the Bank the experience from known successful uses of self-help in distribution expansion. This lack of attention and concern may have come from the relatively low share of distribution in Bank-financed projects (this share has not greatly increased in recent years, see Annex 1); however, the comprehensive application of a recently proposed approach to the economic evaluation of public utilities projects (cf. para 7) using internal financial and economic returns should require the Bank to look at new connection policies of the borrowers and to establish (and advise borrowers on) economically optimal rates of expansion and programs of new extensions.

5. Recommendation for Power System Reliability Standards: " The Bank should develop, and require of utilities and consultants, more systematic procedures for rational determination of reliability standards appropriate to different countries and areas, with a view to eventual

presentation in appraisal reports of explicit justifications of the standards selected... .. Distribution and transmission standards would need consideration as well as generating capacity reserves ".

The Bank agreed again with this proposal and, pointing out the difficulties of estimating the possible economic losses involved by lower standards of services, referred to planned studies and research, to be completed by early 1974, on standards of urban distribution and on generation/transmission reliability standards (the latter due to OED insistence), with a view to monitor pre-appraisal and appraisal reports on these subjects. Two Bank internal notes (PUN 3 and PUN 4) and a recently completed consultant study, reviewing respectively the factors to be taken into account in establishing standards and the European practices for distribution, have constituted preliminary steps but there is still the need for precise instructions and guidelines regarding the choice of appropriate reliability and distribution standards for specific cases, and this will require substantial amounts of additional study (in particular testing and extending the results of the consultant study to various developing countries). Indeed, the Bank staff has continued to review these subjects essentially on the basis of experience and judgment, and no progress was made in transposing to developing countries the information available in developed countries on costs of failures to supply electricity; moreover appraisal reports do not contain justifications of the type recommended, and tend to present even less information than they used to do (on capacity reserve in particular). Nor have the consultants terms of reference for feasibility studies been reviewed, and complemented, by the Bank for their coverage of these matters. However a recent consultant study for Mexico - CFE studied (apparently outside Bank's initiative) the various generation and transmission reliability standards to be retained for large interconnected systems, as well as some crucial economic indicators to be envisaged in the selection of a particular reliability standard; it could be usefully summarized for circulation

and discussion within the Bank, and could bring useful suggestions for the expected guidelines.

There has been a general agreement in the Bank that there is important scope for reducing distribution costs, either to reach presently adopted standards or to reduce excessive standards in some countries, as illustrated by some recently initiated power sector reviews and a consultant feasibility study in various African regions.

There has been agreement also that simple and operation-oriented guidelines should be prepared, calling for rational and substantiated justification in the consultants feasibility studies and, to the extent possible, in appraisal reports of: a- the standard of supply reliability aimed at; and b- the costs of providing this standard as against the next lower standard (for distribution projects, at least two alternative network layouts should be compared). Remarks about the worthiness of these extra costs are likely to be generated automatically. However, preparation of guidelines for generating reserves is not a high priority[1], since many of the more important Bank borrowers still have no adequate generating reserves (with the probable exception of Brazil and some East-Asian countries).

12. Recommendation on Urban Context: " Appraisal and sector reports could usefully consider power in its urban environment and treat explicitely the question of balance between power and other services and facilities in terms of the quantity and quality of their supply ".

It was considered in the Bank that public utilities appraisal teams have neither the opportunity nor the ability to comment on the adequacy of other services compared with power and that these issues, if serious, should be treated in the Bank's country programs and in discussions with Governments as to appropriate projects. Since the recommendation stems from the existence of such problems at least in the past, and likely presently in some places (Sudan, Nigeria, Istanbul, due to lack of water), the Bank's program officers, if not the appraisal missions, should, perhaps in the President's Reports

1] In view of staff shortage, temporary useful guidelines could be rapidly worked out on the basis of Annex 1 (Security of Supply) to P.U. Report No. RES 3. This Annex, in addition to sensible practical suggestions, points in particular to the need to investigate the adequacy and improvements of systems arrangements for load control and load-shedding.

attached to power appraisal reports, clearly assess whether imbalance between power and other services may appear or worsen due to the proposed power projects, and support their judgments with statistics on the comparative availability and coverage of various utility services in the main urban areas to be covered by the projects.

7. Recommendations on Tariff Structures: "The Bank should increasingly examine the relationship between cost and tariff structures, analyze wherever possible the extent to which the tariffs charged to different consumer groups reflect social marginal costs of supply, and justify explicitly significant deviations in terms of (a) taxation of inelastic consumers, or (b) subsidies to induce consumption and its resultant economic benefits."

This recommendation was accepted by the Bank; and case studies (Tunisia, Sudan), research (RES1 and RES3, parallel to that made for rural electrification) and guidelines (PUN 5, the latter very generally accepted) were completed on schedule in mid-1974. Tariff structures have been in recent years given attention or reviewed by the Bank, or asked for review by consultants in loan documents, in an increasing number of countries (Burma, Sudan, Malawi, EMENA countries), and will be given deep attention on a routine basis when the new proposals (The Economic Evaluation of Public Utilities Projects) for economic analysis of tariffs and use of internal economic return for all power projects (cf. para. 4 on System Extensions for description and desirable improvements of these proposals) are applied on a general basis. The main constraint to more frequent analyses of tariff structures on a marginal cost basis has been in recent years, and may remain in the next years, the shortage of Bank staff and consultants qualified for analyzing the structures of long-run marginal costs of supply, relating them to the tariffs structures and justifying the significant deviations.

19. Recommendation for Centralized Power Institutions: "Wherever possible, the Bank should aim at the development of a strong central institution in the power sector (or regional institutions in very large countries)".

The Bank has continued during the recent years to assist the development or reinforcement of such institutions in several countries (Brazil, Nigeria, Zambia, Indonesia), and to encourage their emergence in other countries (India, Yougosla-

via, Iceland, Cameroon, Morocco). This however does not constitute a major issue[1] since an increasingly large number of countries have national public utilities.

6. Recommendation for Utility Performance Indicators: "Give systematic attention to technical and financial indicators of performance other than the minimum rate of return, and include in appraisal reports simple tables showing the trends over the past years of selected efficiency indicators (in particular the cost per unit of energy sold); in case of serious problems, express in loan documents specific relevant performances targets agreed upon during negotiations (along with schedules and specific steps or studies to attain them) and check them regularly during supervision missions".

There has been initially and presently an apparently unanimous agreement that benefits from more systematic use of technical/financial performance indicators and targets are potentially large, and emphasis was initially put on their use for broad international comparisons and yardsticks rather than for targetting improvements in specific utilities. Instructions for the systematic use of such indicators in appraisal reports (GAS 3) were issued in late 1973; no use was made of them in all recent appraisal reports (except perfunctorily in one), and this lack of response probably reflects the frequently recognized lack of sufficient expertise and sector knowledge (in the Bank) for establishing meaningful and feasible sets of targets for relevant improvements in the operations of a particular utility. However, in the case of a borrower in a critical situation (Indonesia's PLN), an elaborate "Plan of Action" for improvement with regard to schedule and completion of certain studies and steps was developed, presented in the appraisal report, and reported upon after one year to the Board at his request, but still it did not specify numerically the performances expected in the company's physical operations.

In conclusion, more technical advice to operating staff is required; it may however require the prior completion of ongoing studies on distribution expansion and standards generally the relevance and feasibility of performance targets which will influence the design of project distribution components which in turn condition

[1] nor does the recommendation calling for Unified Control and Jurisdiction of Generation, Transmission and mainly Distribution in Urban Areas. The Bank agreed to the limited relevance of this recommendation in certain circumstance; its relevance has been substantially reduced by the growth of national bulk supply agencies for generation and transmission and by the power sector rationalization arrangements made in many regions and cities.

updating appraisal checklists,
The Bank agreed with this recommendation, and planned for preparing Standard Financial Annexes to appraisal reports and for more supervision in this field. The Standard Annexes were not distributed and dropped, and improvements have been small, in particular in Africa and Latin America. Cash-flow planning has been inadequate and requires special attention in many cases due to its importance. As suggested and illustrated by the IDB, the borrowers' auditors could be used by the Bank more intensively for supervision or progress reporting.

appraisal checklists still need updating

18. Recommendation for Construction Cost Estimates: "It is important, and possibly frequently needed, to employ specialized consultants to check project construction cost estimates, especially for important civil engineering works".

This recommendation was agreed to in the Bank, and a note (GAS 6) was prepared and circulated on the precautions in estimating tunnel costs for hydroelectric projects. The expensive recourse to specialized consultants for revision of cost estimates was made in one of the recent hydroelectric projects (Zambia) and in one lignite-based project (Turkey); satisfactory results were obtained. It does not seem that such recourse was necessary in the other recent projects.

8. Recommendation for Shadow Pricing: "It is important to adjust cost estimates in the economic analyses of projects, and shadow prices can be reflected if necessary in utilities' tariffs".

The Bank agreed, and guidelines and studies circulated (see paras 4 and 7), recommended that shadow prices for foreign exchange, labor and capital be used in benefit-cost analysis, project selection, marginal cost pricing, and internal economic return calculations. Actually, there has been a widespread recognition of their usefulness; shadow prices have been used mainly in the selection of least-cost alternatives (Nigeria, Gabon, Morocco, Iceland), in a few instances in economic return calculations (Turkey, Algeria), but seldom in marginal cost and tariff reviews (Burma only); the two tariff structure case studies (Tunisia, Sudan, cf. para 7) did not use shadow prices, despite the need for it in these countries, due probably to the lack of data or assistance from the Bank country economists (for F.X. shadow prices in particular). Finally, shadow prices were not included in documentation to consultants responsible

for early selection and design of projects considered for Bank financing.

In conclusion, internal Bank arrangements should be made to insure that the shadow prices (for foreign exchange in particular) available from country specialists and general economists be shared with the public utilities staff and be used in all possible instances not only for project selection and internal economic returns calculations, but also in marginal cost and tariff setting and review and in terms of reference to consultants selected for feasibility and system-planning studies (if politically acceptable,

9. Recommendation on Fiscal Contribution of Power: "Examining the contribution which the power companies make to development, there may be increasing need to look at the fiscal aspects of the companies operations in the interests of sound resource allocation and avoidance of overexpansion of power relative to other services; it might be useful to include regularly in appraisal reports a paragraph or two about these fiscal aspects".

The Bank agreed with reserve to this point, rightly pointing out that not only the public revenues levied on power utilities and sales but also the public funds granted to the utilities for their investments should, and could easily, be considered; notes and instructions in updated appraisal checklists and outlines for appraisal reports were to be prepared. Fiscal aspects were referred to, and asked for review, in a note (PUN 5) circulated in 1973, but as mentioned before appraisal checklists were not updated; most recent appraisal reports have not included the proposed paragraphs on fiscals aspects. However, the Bank has continued to press for improvements in this field, either suggesting payments by the utilities of taxes or dividends to the Government (Ethiopia, Ghana) or recommending exemption of such payments for increasing companies' profitability (Philippines, Iceland). The recent presentation of a Bank general note on "Pricing and Cost Recovery of public sector Projects" will probably contribute greatly to the preparation of specific instructions for public utilities.

(despite a large agreement that this would merit more attention and be easy,)

It remains true that, without waiting for completion of these instructions, appraisal reports could easily include at least one paragraph describing the various aggregate flows of funds between the Governments and the public utilities with comparison to figures from other countries; important relevant issues would come out by themselves.

(which should investigate the possibilities of substitution and complementarity between marginal cost pricing and sales taxes for taxation of certain or inelastic consumers)

16. Recommendation for Sales of Participations in Bank Loans: "In order to avoid the administrative complexities of its traditional Joint Financing Arrangements and make up when necessary for shortages in its funds, the Bank should consider making arrangements with all major export credit agencies of the power project supplies countries whereby funds available for export financing be used to buy participations in Bank loans in amounts related to contracts won by their nationals and on terms comparable to those of the replaced export credits".

This point has not been very relevant in recent years during which the Bank did not have difficulty in raising funds. However, consideration should be given to using the proposed scheme as means for oil-exporting countries to participate in Bank loans.

15. Recommendation on World Trends in Power Financing: "The Bank should consider undertaking a systematic review of world-wide trends in capital requirements for power in the developing countries and in prospects for financing from other sources; this would be a useful complement to country and sector data in planning power lending".

This recommendation was agreed to in principle by the Bank, but given low priority due to staff constraints. However, in connection with the energy crisis and its impact on Bank's member countries, it seems that the Bank has recently found necessary to carry out a similar review on a more detailed level, since capital requirements for a faster than expected expansion of electric power will probably require a much more important share of world-wide loan financing.

17. Recommendation for Follow-up Evaluation Studies: "Analysis of the Bank's financing of equipment local procurement and its contribution to the growth of efficient local electrical equipment industry would be useful for future policy. Second, a thorough study on the economic validity of the Volta River Project in Ghana would be worthwhile".

Nothing has been undertaken with respect to these two proposed studies, due

to the staff shortage and lack of concern. However, serious attention should be given to the Volta River project post-evaluation, because doubts have remained (by the Bank), if not increased, about the project aspects questioned by the Electric Power Evaluation Report, i.e. the long-term fixed low price contract (which has been recently renegotiated on a temporary basis only) (with VALCO), the important resettlement problems (still unsolved), and the probably worsening ecological negative effects.

Conclusions and Suggestions.

In planning its actions for dealing with the recommendations of the Electric Power Evaluation Report, the Bank allocated the correct priorities and the largest attention to the recommendations with the more important impact on and relevance to Bank operations, i.e. system extensions and rural electrification, tariff structures, economic evaluation of power projects, and to some extent distribution standards. A large amount of research and case studies was undertaken and resulted in useful and clarifying policy papers and some guidelines. Due to the large dimension of efforts and staff to dealing with the energy crisis during the last Fiscal Year, the first step of research has not been followed by the required amount of transposition of the research results into practically guidelines for Bank operational staff and into demonstration in the field of the proposed methods. As a result of this and of the shortage of power economists in the public utility divisions of the Bank directly responsible for the projects, actual operations and recent appraisal reports of power projects have barely reflected any effect of the issued guidelines and research and policy papers; the responsibility for this may be shared with the Evaluation Report itself which did not bring its recommendations sufficiently down to the very practical level of specific instructions proposals. Nevertheless, the few specific and practical proposals of the Evaluation Report for adding in the appraisal reports a few simply descriptive paragraphs (or Annexes) respectively on generating reserves standards selected, utility performances indicators, net fiscal contributions of public utilities, and for reviewing the consultants' terms of reference with respect to reliability standards and training of local power system planners in particular, have not received sufficient

attention and follow-ups in the Banks, despite the relative easiness required for their implementation; it is likely that a more sustained and systematic

The following measures and actions proposed for a more positive and efficient implementation of the Evaluation Report recommendations are listed in order of decreasing priority:

interest and requests from the Board for the latter simple actions, when reviewing the appraisal reports and approving the power project loans submitted to it, would have greatly contributed to raising the required efforts in the Banks.

c - Extend the results of completed rural electrification studies to urban marginal areas, and transpose both studies into practical and operational guidelines;

d - Complete ongoing work on distribution standards and propose more specific and more operational guidelines and instructions;

e - Propose new instructions regarding the use of Utility Performances Indicators;

f - Complete the available Tariff Structure studies with respect to electric power viewed as a public good and to effects of taxes on electricity sales;

g - Update the appraisal checklists and appraisal report outlines on:

1 - Generating reserve margins (see Annex 1 of P.U. Report No. RES 3)
2 - New connection policies of companies,
3 - Net fiscal contributions of public utilities
4 - Standard financial covenants;

h - Make arrangements for a more systematic use of available shadow prices;

i - Envisage and prepare instructions to Program officers for proper discussion (perhaps in the President's Reports) of power projects impact on balance of public services in urban areas;

j - Prepare guidelines for deeper review of borrowers' power planning units and instructions for reviewing consultants' terms of reference on training;

k - Assess the usefulness of a review of world trends in power financing; and

l - Envisage and prepare a post-evaluation of Ghana's Volta River project, with a view to possible rehabilitation projects to be financed by the Bank.

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a - Prepare a plan for the assessment and recruitment of the desirable number of power economists for the Bank's Central Project and Operations staffs;

b - Accelerate the preparation of an EDI course (presently under consideration) for senior power utility staffs on tariff structures, rural electrification, distribution and reliability standards, and related terms of reference to consultants;

INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

INTERNATIONAL FINANCE CORPORATION

Supplementary Qns.

Self-help for Distribution?

(look at spms)

Water Distribution — process?

participation & programs people in project selection

regional balance

development benefits" / induce dev.

optimize distribn standards

(V. Africa — utility mgrs)

[Indian study]

INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

INTERNATIONAL FINANCE CORPORATION

Why did we not, in end, sell Kafue participation to Italians

Application of Van der Tak approach.

Oil countries & participation

Economists & their use.

old PUs Dept.

Bangladesh
Aligeria
Squire

Skolnik

✓ Berrie D1025

✓ Russell / B. Montfort

✓ Bates

✓ Bolte

+ An/ Other in EMENA

Jerling L.A.

~~Yamaoka~~

✓ Anderson

~~(Friedman) (Waterston)~~

How does the commenting & "quality control" actually work!

CPS says & then man to go to Director of Reg. Projects

~~Pap & HG Power~~
~~Mauritius Rural Dev~~

Bangladesh Econ Report

REC Appr.

Elec Appr.
Corporate Appr.

Telecom Appr.

Appraisals -

Istanbul Distribn.
Ecuador Nagan hydro
Djakarta Distribn.

Use of economists for sector reviews?
What impact on ops?
Mining - Burma prices?
or project selection
What is a good ∯ review? — but energy & fuel source questions

not used for general review of reports from econ pt of view.

Is CPS not demanding enough on projects, & appraisals,
& so that is why economists side tracked to
sector papers.

Quite serious need to consider new
connection pols — do people pay connection
charges, where expanding, etc. — as well as
prices = long run m. c.
even w. bulk suppliers.

Problem of people not taking note of CPS
requirements / advice for Appr reports? or
is it too late? "cosmetics".

What is real use of source of finance & global requirements study?

Dev. Impact

Recog of need for promotional pricing in early years for areas of new demand

threshold levels
demand response: build-up rapidity

Difficulty of calculating in practice, regular way the non-~~priced~~ charged, C-surplus, benefits.

Urban balance

some this problem encountered
In some of the cities BR
also financed water - Bogota
but not Medellin
T&T
IDB, but not necessarily enough.
No guarantee it's being avoided.
the macroeconomic /CPP/ source of new

	Rovani 5361		Monday 2.30 pm
Sx E. Asia.	Eric ~~Arnold~~	~~4205~~	
	Jack Beach	2422	Monday 4.00 pm
LAC	Dick Sheehan	4601	Tuesday 2.30 pm
EMENA	~~Jim~~ Russell Fish	~~4743~~ 4742	Tuesday 10.00 am
W. Africa	R. Ribi	2617 (A337)	Tuesday 11.30 pm.
E. Africa	Charles Morse	4761	Friday 3.00 pm.

Electric Power

In 1971 the OE unit carried out, as one of its first studies, a review of Bank lending for electric power, mainly on the basis of ten cases in which the Bk had been associated for 5 to 15 years and to each of which the unit made several loans in the same general purpose, but from country contexts

1. Follow-up to Power & power part of Colombia I

2. Main conclusions on Bk actions.

3. Broad lines lending for power since
   Projects same no
   more money
   rapidly declining distribution.

   mainly old borrowers.

4. New research efforts & papers issued.
   leading to development & make IFR = more IER, on
   a policy framework — beyond cost-minimization.

   - PPA long term.
   - CAS guidelines to be observed.
   - RES research
   - PUN ~~guidelines~~ & op. notes.

R.	O.	G.	Recommendation	
✓	None		1. System Extensions	
ll	None		2. How Connection Pols	
✓	None		3. Self-Help.	
✓?	None?		4. C & T. Reliability Stds.	
✓	✓ useful ofs initiatives.		5. Distribn Standards & Reliability	
Rej.	None?		6. Urban Context — Rej	
✓	✓ useful ofs initiatives, broader		7. Tariff Structures	
✓	✓ many cases		8. Shadow Prices	
—	None.	further guidelines	9. Fiscal Aspects	
✓	None		10. Efficiency Indicators	
none	✓		11. Pkg Units	
✓	✓		12. Tpg	
none	?	ambitious	17. Fin. Rescheduling & Pkg	
Rej.	"		14. World Bonds Financing	

R / O

None — Sector Loan

✓ — ✓

✓ — ✓

✓ — ✓

15. Sales of Participations.
16. Fuel-cost Evaluations
17. Central Power Institutions
18. Local Unification.
19. Cost-Risk Delays Construction Cost Estimates
20. Construction Cost Estimates.

It is econ aspects were not reflected in Ops.

Bank — lot closer to practical solns to the basic dilemmas raised at the start of this report than it was in 1971

Distribution!

Greater emphasis on prices & tariff should write new econ approach

6. Conclusions

research application (a) Rural elect. α

(b) Hfpa guidelines — new connection pts.

less guidelines → more application — eg. system reliability

Conclusions

Net result is a lot of research and useful guidelines, but little ~~effect~~ action yet in actual Bank operations, with some exceptions – India RE

Problems

① lack of economists, especially w. energy problem: eg Tariff, New Connections, Reliability

② insufficient control and discipline on simple things (eg. fiscal, indicators

The Bank has done a remarkably large amount in terms of research and the preparation of policy papers and guidelines in the electric power field, especially in view of the large amount of effort that has to be devoted to dealing with energy problems. Nonetheless the effects of this research and guidelines has been slow to be reflected in actual operations. It may have suffered to some extent from ~~the~~ faults ~~common~~ shared with the evaluation report itself though perhaps less serious at its stage — ~~case~~ namely failure to bring the suggestions ~~and~~ that emerge down to the very practical level of specific instructions.

Power being used as easy way of transfer sometimes last minute

But a major problem in actual operational implementation of some of ~~the suggestions of~~ these ~~papers~~ documents' suggestions, as of some of those of the evaluation report, has been ~~the~~ shortage of economists working in the ~~operating~~ public utility divisions units of the Bank directly responsible for operations.

Priorities right

On the whole more important things ~~of~~ of operational relevance among the suggestions made have received more attention — system extensions, distribution standards, tariff structures.

but slowness in reflecting in practice

An important way of disseminating some of the ideas developed, which is under consideration and seems useful, is an EDI course for senior power utility staff: eg. tariffs & rural electrification. Create demand from the utilities on consultants

of operation in connexion w. "Central Power Institution"

This has covered all the principal concerns of Bk in connection w. power, except one – namely inter-country interconnections, W.Afr., Cent. Amer., E.Afr.

Closing Report on Actions Relating to Recommendations of the Electric Power Evaluation Study

~~Introduction~~

1. Purpose of Report and Basis – contact w CPs, review of research papers & guidelines and of last FY's appraisals
2. Summarize main ~~points~~ conclusions of Report re Bank Action (2 pages).
3.

4. System Extensions : Develop techniques for analyzing economic validity & cost. accelerate work on it.

Bk ~~largely~~ agreed with the need to study – to identify economic & social effects of system extensions to smaller & less dense markets, with a view to finding practical ways to improve C/B techniques and also provide a sounder basis for justifying departures from strict econ/financial pricing policies in attempting to meet social objectives.

Bank has carried out a major research study of rural electrification experience in El Salvador and produced a number of internal instructions and papers relating to the topic. However a preliminary appraisal has been made of a major R.E. project in India, giving special attention to economic justification. A number of other projects with major R.E. components are under consideration: Iran, Zaire, Peru

Studies done lead to conclusions:

1. Econ validity is relatively easy to assess for projects where much electricity will be for irrigation and ~~heat~~ industry (resultant increase in production & savings on alternative fuels), but expensive to do on an individual case basis even there, and almost impossible on individ case basis for residential. (quality improvements, savings on alternative fuels).

2. Thresholds and response (i.e. growth rate) are crucial may warrant subsidize tariffs in early years

3. Most practical way for general purposes is to establish a financial criterion, such as begin to contribute to depreciation (often covering already all other costs) after 5 years, as in India.

4. Go on using internal financial rate of return, converted into internal economic return for system extension as for ~~some~~ bulk supply projects but give more attention to relationship of tariffs to long run marginal costs of supply

Need to propagate the use of this system: practical experience. The Bank intends to have some of those who have done the research participate in project work.

5. New Connection Policies : assess them at both selection and appraisal stages to see if they respond satisfactorily to any opportunities that may exist for accomplishing significant

Further study underway in Ecuador. Appraisals of projects, even those with substantial distribution component, do not yet reflect this work at all.

Electricity generally being left out of rural dev projects (Mexico maybe on first one w. electricity) but not sure this is correct

development benefits from spread of electrification – eg. increasing efficiency of small industry or aiding production and education in rural or marginal areas.

Bank undertook to disseminate results of above-mentioned research as and when available among staff and apply them.

Banks projects have not greatly increased % for distribution

	Fy 70	Fy 71 No	Fy 71 Amt ($)	Fy 72	Fy 73	Fy 74
(1) Total Projects approved						
(2) Total Loan approved						
(3) Distribution Part of Project.						
(4) Loan Funds for Distbn						
(5) (3) as % of (1)						
(6) (4) as % of (2)						

Still v. few appraisals even state the number of new connections expected.

New connection policies need looking at in connection with all projects since part of what Bank is supplying are there, but in almost no project has this been done

Research studies done to show substantial ag & ind dev. benefits. Indian program emphasizes coordinated programs.

~~This will be~~ Looking at new connection policies will have to be done if proposed approach to IFR & IER is rigorously applied.

Bank should get into a position, with its new economic analysis of system extensions, to ~~the~~ assess, & provide advice to borrowers on, whether, from the economic point of view, their pace of new extensions shd be accelerated or retracted. ~~Not essentially controls~~

Power responsibility of Govt

Self-help for distribution expansion

6. Encourage authorities and power companies to find appropriate institutional mechanisms.

~~Necessary~~ The Bank undertook to be on the look-out for successful experience in this field with a view to including them in project or otherwise propagating them.

RE studies done v. weak on this aspect

RE study ~~shows~~ emphasizes labour not a very important part in

of RE, not more than 25% but since financing is a major constraint even this could be a major help to electrifying more people more quickly.

The Bank is aware of several successful applications of this — Andhra Pradesh, Banks of Colombia (Accion Communal), but there is no effort any systematic effort has been made to propagate experience.

7. Generation & Transmission Reliability Standards

The Bank should develop, & require ~~it~~ its utilities & consultants, ~~to~~ more systematic ~~and~~ procedures for rational determination of reliability standards ---- with a view to eventual presentation in appraisal reports of explicit justifications of standards selected ----

The Bank indicated its agreement with this general proposal but emphasized the difficulty of estimating the cost to the economy of providing service at lower standards, ~~even if the cost~~ Research ~~also~~ and guidelines were intended to lead to appraisal reports explicitly stating the standard of risk of failure to supply.

The related research was cut short by staff shortages, but some useful notes were circulated. The subject continues to be reviewed by project engrs on basis of experience and judgment. But no statements of the type suggested are to be found, and no progress has been made in assembling and relating to developing countries, the information gathered in developed countries on costs of failures to supply. Nor are consultant terms of ref systematically examined for their coverage of this aspect.

Mexico - Sofrelec

To get more attention to this simple guidelines

general agreement →

should be prepared, calling for ~~statement~~ treatment in feasibility studies and, to the extent possible, in appraisals of

(1) the standard of risk of failure to supply which is aimed at

(2) the costs of providing this standard as against a next lower one.

Remarks about why these extra costs are worth undertaking are likely to be generated automatically. But not a top priority: many of the more important borrowers are still suffering from shortages & have little or no adequate record, may be more important in some cases - e.g. Brazil.

8. Distribution Reliability Standards

Distribution standards should be subjected to the same treatment as mentioned above for 6 & 7 and the Bank should encourage borrowers to carry out systematic studies to optimize distribution standards to local conditions.

The Bank expressed general agreement with these propositions and, emphasizing again some of the technical difficulties involved, referred to planned research to be undertaken.

A useful note has been prepared, on the aspects that need to be examined by appraisal and other Bank technical missions, and most of the planned research has been carried out, but it has not been possible to extend that research yet, as envisaged, to the case of a sample city in a developing country.

The work so far done suggests that there may be considerable scope for saving on costs simply to reach presently ~~desired~~ intended standards in many developing countries. And there is considerable interest in this subject, even though it is not yet in ~~practice~~ operational work receiving ~~much decision~~ greater attention than in the past, nor have systematic studies been urged on borrowers. However it is envisaged that the consultants who have done the research may participate in selected operational missions and that some specific studies may be undertaken by Bank staff to seek scope for reducing the cost of distribution,

Consultant preparation of ~~A project~~ project ~~may materially~~ in Ghana is covering this aspect.

particularly a study of power development in East African countries, partly stimulated by concern about the possibility of distribution standards presently being excessive in Zaire. A useful step may be to require that (consultant) feasibility studies for distribution projects always present comparison of at least two alternative network layouts.

9. Urban Context

~~Const~~ Appraisal & sector reports could usefully consider power in its urban context and treat explicitly the question of balance between power and other services and facilities in terms of the quantity and quality of their supply. - - - - - & interrelations.

The Bank took the view that ~~these were not very serious questions and that~~ appraisal teams ~~anyway~~ had neither the opportunity nor the ability to make judgments about the adequacy and ~~ability~~ quality of other services compared with power. and that anyway they were not very serious questions, except possibly in very rare instances ~~cases~~ in which case they would be given special treatment. Normally these issues would be treated in the Bank's operations at the time of developing the country program and in discussions with Governments as to appropriate projects for Bank consideration.

Istanbul

Several cases of imbalance of urban services, with power being consistently more plentiful and better in quality than other services, have been encountered by the Ops Evaln Dept in its work on past Bank projects. It does seem that a problem has existed (a) at least in the past. If appraisal missions are not able to treat this matter, perhaps President's Reports should reflect the clear judgments of the Bank's program officers ~~that~~ regarding the extent to which the problem ~~exists~~ possibly ~~may~~ ~~is not likely to~~ recur in connection with the proposed project, (b) with support in the form of statistics on relative availability and coverage of different utility services in the principal urban areas to be ~~supported~~ supported.

10 Tariff Structures

The Bank should increase its attention to borrowers' electricity tariff structures. Its objective should be to analyze wherever possible the extent to which ..... reasonably reflect incremental costs of supply ..... Explicit justification of deviations.

The Bank accepted this point, planning research, case studies and production of appropriate guidelines, but it stressed the shortage of qualified people in the Bank and its borrowers to work on these problems.

The Bank has produced high-quality the research, case studies (Tunisia a Sudan) & guidelines envisaged. It has increasingly raised questions about major deviations between charges to particular consumer groups and the cost to supply them, and how questions may arise more as the new proposals for econ. analysis of power projects are systematically applied. The main limitation appears to have been shortage of staff trained to analyze cost structures and compare them with tariffs, but the matter is studied to a much greater extent than before in connection with project appraisals now.

specific The points raised seem now to be very generally accepted

Consultant Studies of other measures & come up w. more rational tariff required at operational

loan appraisal :- Algeria, Tunisia,

looked at Panama & Rio -

11. Strong Central Power Institutions

Encourage development of such .....

The Bank was in full agreement with this recommendation, very much in line with, ~~efforts~~ and indeed drawing on the successful experience of the Bank in earlier years in this field.

It has continued over the past year to assist the development of several ~~ones~~ new institutions of this

but not countries with many small power Cos. → Electrobras, Brazil.

type { NEPA in Nigeria / ZESCO of Zambia / PLN in Indonesia } more relevant

and to encourage their emergence in other countries (CEA in India, Togo in Togoland, SONEL in Cameroon, Morocco Study also being done at Bank request in Iceland

12. Unified Control of G, T & D in urban areas

The Bank agreed that this point was relevant in certain circumstances.

~~On the whole, in appropriate circumstances~~

While the Bank has made very useful contributions in this direction in earlier years the ~~appropriate circumstances~~ need for this emphasis is becoming rarer now with the rationalization accomplished in many ~~towns~~ cities & regions, and with the growth of national bulk supply agencies assuring G & T.

Istanbul

13. Efficiency Indicators

The Bank agreed that there large potential benefits in ~~the~~ more systematic use of technical and financial performance indicators though at that time it seemed to think of them more for broad comparison between countries, to understand ~~actual~~ existing situations, rather than as bases for targetting improvement. Guidance was to be given to the Regional Offices in their application.

Instructions regarding the systematic use of indicators in appraisal reports have been issued, but

they have not been followed except in a perfunctory way. An elaborate 'Plan of Action' was developed for the improvement of ~~the~~ one borrowing utility (in particular difficulties in Indonesia) and was presented in the appraisal report; in response to the Exec. Directors' request, during discussion of the project, a progress report ~~one year later~~ after one year was recently circulated to the Exec. Dr.

but it gave time targets with regard to completion of certain studies and steps, no values for the performance which was expected to be obtained (except overall operating ratio)

There appears to be unanimous agreement in principle that greater use of efficiency indicators and targets would be useful in Bank operations. ~~but~~ More technical advice may be required to operating staff to help prepare meaningful sets of targets to reflect the problem areas in a (specific) utility's operations and the amount of improvement that is agreed to be feasible over the following years. Perhaps CPS should have followed up with being an actual case, to show how it should be done (cf. argt about consultants staying to implement)

but still some variation of opinion about use and meaning

Interest in cf between countries.

14. Planning Units' Functional Adequacy.

more attention in sector and appraisal missions

The Bank agreed, pointing out that ~~the adequacy of~~ the units needed to be examined for the adequacy of their techniques, their staff and their influence. Guidelines emphasizing these points were to be prepared.

This matter normally gets some attention from appraisal missions, but the difficulty is that problems are seldom subject to quick solution, mainly because good planners are difficult to recruit and train.

a few old borrowers are now effectively doing this on their own eg. EGAT in Thailand. VRA in Ghana

It would seem desirable to prepare the guideline envisaged, to underline the importance of this subject, and to seek even more thoroughly every opportunity for consultants preparing feasibility and system-planning studies, to include training in their

terms of ref. (but difficulty of absence/shortage of suitable trainees in some cases)

14. Training

Systematically consider need for trg. including the needs of the rest of the sector

The Bank fully agreed with this point.

A significant difference between current Bank-supported projects and earlier ones does seem to be that training receives much fuller & more frequent attention.

Two ~~projects~~ loans approved in the last year have included particularly major Bk contributions to training —

Papua & N. Guinea

Indonesia

Training in planning and accounting appear to need particularly close attention

15. Accounting System Weaknesses

More systematic diagnosis

The Bank emphasized the time required to install effectively improvements in accounting systems and financial planning techniques and ~~confirmed~~ suggested that the problem might be less in diagnosis than in follow-up on improvements proposed or agreed. To facilitate work it encouraged the preparation of Standard Financial Annexes for appraisal reports and more supervision effort in this field.

Formats

There have been no & notable developments in this field and the Standard Fin Annexes have not in fact yet been agreed. But syst. has continued to receive emphasis. More could probably

Cases where there are problems continue to receive special emphasis in appraisal – eg. loan recently

be done, as is now being suggested and as the IDB has illustrated, by greater Bank work with the authorities

particularly important aspect is cash-flow planning: Spain can help – or more use of a reporting requirement including revised cash flow plans every 6 months.

16. Specialized Consultant Firms to Check Cost Estimates

The Bank agreed with this recommendation for appropriate circumstances.

There is now wide awareness in the Bank of the advantage in some cases of having detailed revisions of cost estimates by specialized consultants. This fairly expensive technique appears to have actually been applied only to one project approved over the last year – the Kafue project in Zambia, for which at present it appears as though the original estimates ~~as worth as~~ and those of the specialist consultants (which were actually lower) were about equally close to the final bids. It is not clear that greater use should have been made

a specialist individual consultant retained to study cost in part of Ethiopia

17. Use of Shadow Prices

The Bank agreed that ideally shadow prices should be used in benefit-cost analysis, project selection, design, and construction and setting tariffs, although in practice at the time of use was largely confined to a few cases of project selection and to the calculations of internal economic rates of return (based on adjusted financial data).

The use of shadow prices has become ~~more~~ more widespread for verifying selection among alternative projects and

for calculations of economic returns in country situations that make them appropriate. But their use in assessment of tariffs, where they could be more important in the power sector, appears still to be the exception rather than the rule. And source and application somewhat haphazard — eg. in "economic analysis" tariffs of course excluded but shadow price sometimes still considered to be same as official price

More attention to use in connection w. tariffs, and fiscal help from country specialists: probably need to supply them in consultant terms of reference so that they can influence the basic design of the system

have they ever been included in basic documentation for consultants?

18. Fiscal Aspects

The Bank, ~~agreed that it would be useful~~ stressing that all flows between Government and power company as well as internal cash generation substituting for Government capital contributions should and would quite easily be considered, planned to ~~be~~ prepare instructions on this subject.

The ~~draft~~ planned instructions have not been prepared due to shortage of staff and appraisal reports for power projects have not yet included the proposed presentation. However the Bank has continued to intervene on this matter, sometimes suggesting ~~that~~ that a utility begin to pay dividends to Government, as in Ethiopia, or ~~that~~ accepting or promoting as a means of improving a borrower's ~~profitability~~ a reliance that it should be relieved of taxation, as in Philippines. More general draft instructions, of more elaborate nature, have recently been prepared for all projects, not only those in power. And some research in connection with public utilities is being begun in collaboration with IMF.

There seems to be general agreement that this would merit more attention and be fairly easy

It is probably still true that a good starting point, not difficult, would be a simple presentation in appraisal reports of the various aggregate flows between Government and power company, perhaps with some comparative figures from other countries. This in itself would raise the most important questions.

19. ~~Institution-Building~~ Lending Delays for Institution-Building Purposes

They should be judged on an ad hoc basis but some evidence of Bank having been too restrictive in the past.

Very few delays in the past year
— Sudan: institutional problems
Turkey, Ethiopia: tariffs staffing TEK (not lived up to commitments on earlier loans)

perhaps not enough between costs of delay and what Sudan might actually get out of it. Treating all "conditions" sine qua non

20. Sales of Participation in Bank Loans

The circumstances of the last year have not been very relevant to this point insofar as the Bank has not had difficulty in raising funds. It was considered in regard to Kafue project — Italians could become useful as means for oil-exporting countries to participate in IBRD loans

21. World Trends in Power Financing

~~Not considered an im~~

The Bank agreed with this suggestion in principle but pointed out that staff constraints would not permit the amount of work that would be needed.

The Bank has in fact ~~done~~ found it necessary to do some ~~very~~ work on this at the global level in connection with assessing the impact of the energy crisis on its member countries. It is considering carrying the work to a more detailed level now insofar as capital requirements for electric power, which have long accounted for a remarkably large part of ~~international~~ loan financing between countries and internationally, may now become even more important.

22. Follow-up Evaluation Studies

no time, but still worth considering

how Volta project v. worthwhile long ; doubts remain about aspects questioned : evals — the buy-form low fixed price contract (we have been only tentatively renegotiated) with VALCO, the resettlement problems (still unsolved) and the negative ecological ~~effects~~ effects

INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT
ASSOCIATION

INTERNATIONAL FINANCE
CORPORATION

OFFICE OF THE PRESIDENT

Loan 479

Chile 5th Rowa Project

Distribution: 10% of project or
approx. US $20 mil,
of which FX US$ 2 mil.

8/6/74

"Distribution"

(all amounts in US $ mil.)

	FY 70		FY 71		FY 72		FY 73		FY 74	
	#	AMT.	#	AMT.	#	AMT.	#	AMT.	#	AMT.
1) Total Projects Approved	15	1512.1	16	816.1	14	2425.5	10	883.1	14	2991.3
2) Total Loans/Credits Approved	15	556.0	16	500.9	14	520.6	10	321.5	14	769.2
3) Distribution Part of Project	7	386.9	6	138.1	6	482.6	5	294.2	2	12.8
4) Loan Funds for Distribution	6	108.5	6	93.6	6	104.9	5	44.8	2	7.4
5) 2 as % of 1 (%)	~~39~~	~~25~~	~~61~~	~~18~~	~~21~~	~~19~~	~~36~~	~~30~~	~~26~~	~~0.5~~
6) 4 as % of 2 (%)	20		19		20		14		1	

NOTE: all figures excluding interest during construction

FY 70

Loans

Country	Project	Approval Date	② Principal Amt (US $ mil)	Loan/Credit #	① Total Project Cost (US $ mil)	③ Distri Part of Project (US $ mil)	④ Loan/Credit Funds for Distri (US $ mil)
Argentina	3rd Buenos Aires Power	11/14/69	60.0	644	247.4	206.0 ‖	51.0 ‖
Brazil	Marimbondo Hydro.	5/25/70	80.0	677	286.7	—	—
Sri Lanka	Mahaweli Ganga Develpmt (agriculture and power)	1/30/70	14.5	653	47.0	—	—
Sri Lanka	4th Power	7/28/69	21.0	636	31.49	—	—
China	2nd Power	5/16/70	44.5	671	71.2	—	—
Colombia	Chivor Hydro.	6/4/70	52.3	681	114.2	—	—
Costa Rica	3rd Power	7/10/69	12.0	631	25.7	1.8 ‖	1.0 ‖
Cyprus	3rd Power	12/24/69	5.0	649	6.2	—	—
Honduras	4th Power	6/24/70	5.5	692	14.8	—	—
Liberia	Power Expansion	6/4/70	7.4	684	9.7	.1	.08
Mexico	3rd Power Distri Program	2/20/70	125.0	659	491.4	151.6	38.9
Panama	2nd Power	3/16/70	42.0	661	58.3	4.5	2.7
Thailand	1st EGAT Power	2/10/70	46.5	655	74.8	—	—

Credits

Sri Lanka	Mahaweli Ganga dev't	11/30/70	14.5	174			
Honduras	4th Power	6/24/70	5.5	201			
Indonesia	Electri. Distri.	10/29/69	15.0	165	20.8	20.8	15.0
Malawi	Malawi Power	2/11/70	5.25	178	12.4	2.1	—
	15 projects		555.95		1512.09	386.90	108.48

JOINT

JOINT

$\frac{②}{①} = 37\%$

$\frac{④}{②} = 20\%$

Predom Distri 2
Incl. Distri 5
7
All projects 15

‖ Because distribution costs were categorized together with transmission costs, DISTRIBUTION = DISTRIBUTION AND TRANSMISSION (best estimate)
2

FY 71

Loans

Country	Project	Approval date	② Principal Amt (US$ mil)	Loan/Credit #	① Total Project Cost (US$ mil)	③ Distri Part of Project (US$ mil)	④ Loan/Credit Funds for Distri (US$ mil)
Australia	Upper Ramu Hydro	5/26/71	23.2	737	33.87	—	—
Brazil	Salto Osorio Hydro	4/5/71	70.0	728	152.3	—	—
China	3rd Power	6/11/71	55.0	749	73.2	2.3	1.6
Iran	Tehran Power Distri.	12/18/70	60.0	716	93.0	74.72 ✓	47.73
Ireland	2nd Power	3/3/71	20.0	726	28.06	—	—
Kenya	Kamburu Hydro.	6/7/71	23.0	745	37.47	—	—
Malaysia	5th Power	7/16/70	20.0	700	58.91	—	—
Tanzania	Kidatu Hydro	12/14/70	30.0	715	59.08	—	—
Turkey	4th Cukurova Power	6/30/71	7.0	775	8.14	—	—
Turkey	Power Transmission	6/22/71	24.0	763	65.1	10.98	4.0
Uruguay	Power Generation and Distri.	11/25/70	18.0	712	22.58	6.09	3.65
Zambia	Kariba North	7/29/70	40.0	701	47.7	—	—

Credits

El Salvador	5th Power	1/13/71	5.6	227	6.96	—	—
Ghana	2nd Power Distri.	6/21/71	7.1	256	14.45	14.45 ✓	7.1
India	2nd Power Trans.	5/3/71	75.0	242	75.0	29.56	29.56
Pakistan	WAPDA Power	8/4/70	23.0	213	39.7	—	—
	16 projects		500.90		816.12	138.10	93.64

$\frac{②}{①} = 61\%$

$\frac{④}{③} = 19\%$

Kariba North 2
Part " 4
6
16

FY 72

Loans

Country	Project	Approval Date	② Principal Amt (US$ mil)	Loan/Credit #	① Total Project Cost (US$ mil)	③ Distri Part of Project (US$ mil)	④ Loan/Credit Funds for Distri (US$ mil)
Brazil	3rd São Simão Hydro.	5/16/72	60.0	829	395.8	—	—
Costa Rica	4th Power	2/15/72	6.5	800	8.3	—	—
Cyprus	4th Power	6/13/72	9.0	831	11.92	4.15	2.58
Honduras	5th Power	6/27/72	12.3	841	16.0	—	—
Ireland	3rd Power	2/22/72	15.0	804	40.52	—	—
Mexico	4th Power Sector Program	6/20/72	125.0	834	1368.0	340.74	20.75
Nicaragua	8th Power	6/27/72	24.0	840	34.7	—	—
Nigeria	4th Power	6/29/72	76.0	847	126.04	73.04 ✓	38.64
Philippines	5th Power	3/21/72	22.0	809	46.0	—	—
Thailand	L. Bhumibol Power Unit #4	10/26/71	27.0	790	43.1	—	—
Tunisia	Power	4/4/72	12.0	815	16.66	1.72	1.21
Yugoslavia	Power Transmission	6/13/72	25.0	836	225.0	—	—

Credits

Ecuador	3rd Power	2/1/72	6.8	286	18.70	4.75	1.72
Indonesia	2nd Elect. Distri.	6/22/72	40.0	334	74.77	58.24 ✓	40.0
Philippines	5th Power	3/21/72	10.0	296			
	14 projects		520.60		2425.51	482.64	104.90

JOINT

$\frac{②}{①} = 21\%$

$\frac{④}{②} = 20\%$

Section Divi 2

Part II 4

6

Total 14

FY 73

Loans

Country	Project	Approval date	② Principal Amt (US$ mil)	Loan/Credit #	① Total Project Cost (US$ mil)	③ Distri Part of Project (US$ mil)	④ Loan/Credit Funds for Distri (US$ mil)
Brazil	Rowa Transmission and Subtransmission Guatape II Hydro.	4/10/73	20.0	887	382.6	232.3 ✓	20.0
Colombia		1/4/73	56.0	874	98.2	14.4	6.6
El Salvador	Light Power	4/26/73	27.3	889	91.09	—	—
Guyana	Power	1/9/73	6.0	875	21.95	.76	.41
Iran	Power Transmission	7/6/72	51.0	856	75.0	—	—
Turkey	Istanbul Rowa Distri.	4/24/73	14.0	892	40.22	40.22 ✓	14.00

Credits

India	3rd Rowa Transmission	3/29/73	85.0	377	85.0	—	—
Indonesia	West Java Thermal Rowa	5/29/73	46.0	399	54.6	—	—
Jordan	Hussein Thermal Rowa	5/22/73	10.2	386	24.68	—	—
Sri Lanka	5th Rowa	4/3/73	6.0	372	9.78	6.52	3.83
	10 projects		371.50		883.12	294.20	44.84

$\frac{②}{①} = 36\%$

$\frac{④}{②} = 14\%$

Factors Forth. 2
Pow. 3
5
10

FY 74

Loans

Country	Project	Approval Date	② Principal Amt (US$ mil)	Loan/Credit #	① Total Project Cost (US$ mil)	③ Distri Part of Project (US$ mil)	④ Loan/Credit Funds for Distri (US$ mil)
Papua New Guinea	Ord Power		10.8		17.3	5.7	2.3
Zambia	Kafue Hydro.		115.0		137.7	—	—
Brazil	2 Itumbiara Hydro. Power		125.0		593.2	—	—
Morocco	1st Power		25.0		39.4	—	—
Panama	3rd Power		30.0		38.5	7.1	5.1
Iceland	Sigalda Hydro.		10.0		56.4	—	—
Thailand	Ban Chao Nan Hydro.		75.0		158.7	—	—
Syria	Mehardeh Thermal Power		25.0		62.6	—	—
Iran	Trans. and Gas Turbine		58.0		112.4	—	—
Algeria	Power (SONELGAZ)		38.5		64.3	—	—
Brazil	Paulo Afonso III Hydro. Power		81.0		692.6	—	—
Turkey	Elbistan (TEK & TKI)		148.0 (123 for TEK, 25 for TKI)		963.4	—	—
Tanzania	AMENDMENT to Kidatu Hydro.		5.0		30.6 1/	—	—
Liberia	AMENDMENT to 1st & 2nd Power		2.7		2.7	—	—
Chile	AMENDMENT to 5th Power		6.7				

Credits

Malawi	2nd Power	7.5	14.3	—	—
Bolivia	3rd Power	6.0	7.2	—	—
	14 projects	769.20	2991.30	12.80	7.40
	(excluding 3 amendments to previous loans)	14.40	33.30		
		754.80	2958.00		

② / ① = 26%

④ / ② = 1%

Predom Distrib 0
Int Distrib 2
Total 2
14

1/ Revised total project costs – Original total project cost.

Yves Rovani.

file Electric Power
Follow Up Report
July 1974

Electrification — method same for both marginal & rural.
distribution approached from urban end.

E Africa country — thermal power being proposed — what about distribn re said, pre-appraisal.

British project study of distribution.

Anderson method: technique to be applied in connection w. of mission — our participation.
interim report of Anderson — seminar a year ago.

what projects actually done?

Guatape
Quito (research element)
Bolivia AID financing

We asked – shd not be power in rural dev projects? said no,
Mexico may be first one to have some.

India – REC project – no problem of econ justificn — they used financial, but had data to enable econ to be done.
Oman a loan also being considered.

$350 p.a. annual family income

Have found threshold levels of Y in rural areas.
Urban Poverty Task Force – Gulhati
econ. indicators
response of people — productive & domestic users.

Response & tolerance on willingness to pay

Econ – of revenues.
surplus benefits. Electrificn Issues paper has guides
REA studies – financial – found better than expected.

Surplus :— (i) resource savings
(ii) quality improvement
(iii) value of extra output, use induced by higher quality / lower price the der. Δ.

Easier to get it in production uses than for domestic.

Guidelines now.

Look at REC White Cover — they have done it — a also gave a talk to Schumacher.

Tariff policy paper talk about fixed costs, etc well.

Shadow Prices

being used for least cost solns :—
Elbistan inpt: they were ignoring taxes on fuel oil, & fx it had to fight against shadow prices ∵ fx not too short.
We delayed Elbistan for a long time ∵ econ doubts.
No finance plan another problem.
risk analysis — oil price question.
worked on mean expected performance: much better results than conservative one.

Cement out of gas-pipeline loan a few years ago — had EDI help [illegible] & costa asked for our advice (Oct 72)

transition most problems serious

In Tunisia Tariff Study we did take shadow prices — suggested

We are saying forget surplus benefits & get m.c. pricing — so rate of return on revenues.

Tariff structure.

I wd highlight different items for departure — don't disagree w. points.

Cannot justify (c) ∴ price distortions.

add complications of metering.

transition to new structure

In many instances ~~doing~~ promoting tariff studies.

Malaysia - asked them to revise tariffs — Electrowatt done poor study

Tried to create consciousness about problem by papers but lack of expertise + of consultants. Only British + French.

A lot of room for fiddling on IER — but we try to check it.

We wd like to have tariff advising missions but there is much need for other things - rural elect'n, sector work — & so not clear we can do much.

But we wd like further util course in EDI to help w. this. No 1 problem is interesting utils themselves

Distribution Standards

evolved from determining optimum standards to getting same standards cheaper

British Andes — European. Distribution network pkg

We will associate them to one or 2 appraisals.

REA study supposed to look for lower costs.

Expect to see in appn at least 2 alternative network layouts.

Clear demonstration of least cost in rural electrificn we ask for.

Reliability standards - good statement in front by Turvey

Try to state criterion

give cost, but not always.

At some point we ought to have our own check list of points when we review Appraisals. We have fairly good check list of things to be taken in appraisals.

What is view of Regions on reliability alternative presentation. ?

Fiscal aspects.

Both accustomed to see

Telecoms as source of Revenue.

You can't do everything at same point.

Warford studied joint research project with IMF on fiscal contribution of utils.

Some utility people have participated in recent fiscal studies - Kitchenmaster in Thailand + someone in Sudan.

promised papers not done. We hope to raise perception of the problem by presenting it in appraisals. We did raise the subject in appraisals.

Frame the basic data.

In Ethiopia they did eventually introduce transfer of cash surpluses to Govt - Dividends & borrowing.

IBTE & EELPA

Monitoring

Indonesia good programme of targets now trying to tighten it.

Financial Recovery/Pg.

Rydd made standard form of audit report, given to Kaijen.

Standard fin annexes, has been a standard paper & tabled for time being: analysis not v. keen.

PROPKIT System used more: comes to same thing.

A paper about standard fin covenants is in draft. (Kipman)

Fin Pg has had attention — seminar not a success, consultant not v. good. But this needs attention before finalising covenants.

next work prog. shd emphasise sector work, especially - water, further promoting village electrification, util pricing, energy sector work, & more attn to financial issues, not papers on financial Pg & fiscal aspects.

Strengthening of power-engineering bases - particularly Latin America. Wbs ch reject power; we try to make qualitative improvements. Especially L. America - eg. Colombia & Turkey need a filler: any power projects brought back at last moment. Cannot have innovative feature w/o lead-time.

Power now needs more money & nuclear & hydro more attractive. So we need to do balance of alternative

sources of money.

Long-run pg of power more difficult ?! building program unstable.

July 26 '74
Charlie Morse

System extensions.

enquired into, but not much impact. local auth'y sensitive.
Blantyre has disconnected houses where wiring in but not used,
& low connection fee.

Tanzania, Malawi, Zambia asked & reassured. In Zaire not
done system ext'n ∵ lose money, so subsid'n.
Zaire E study trying to identify program w. 30 towns to be electrified.
S'ld have some power loans coming.

Sudan: Africans - not high value on house connections.
We have not evaluated rural elect'n program, but are concerned,
tho' think it reasonable.

Reliability standards

not really given much attn to this — only standard rules of
thumb. Some effort in Sudan, ∵ outage problems — outages.

Distribution mode: lowering cost of making connection — in
Zaire tried — burying all cable.

Trying to select more reasonable & cheaper

Reserves look in Malawi. | Overcapacity in Ethiopia. |

not in the terms of ref of consultants, I think. Tends a bit
on staff.
Chandram, Indian, is the system planner here.
We s'ld press consultants more.

Regional Power Study

Interconnection in S. Africa — Kenya/Tanzania.
Zaire/Zambia/Botswana.
& as part of this, cheapen what we are doing — distrib'n.
in first instance staff

Urban Context.

WHO study of water done in Zaire.

loan to REGIDESO envisaged – for power – but also elements for water too.

CEWC in Sudan: like to do water too, but not BH/IDA funds.

Tariff Structures

enthusiastic. Turkey – in Sudan

looking fairly seriously on having looked at

UK Elec Co. to propose new tariff structure for Sudan as a study of it was condition of Malawi loan.

In Malawi we felt it was wrong: consultant report will be reviewed by BH

Peak charges in Sudan – not reflected.

Need for off-peak pumping in Malawi –

but a high subsidy in Sudan.

Central Instr.

ZESCO – did we have a role.

Others all have nat. integrated bodies.

all but Zaire have central instr.

Efficiency Indicators

a v. good idea, I think, but difficult to sell.

not traditional in appraisal: a learning process.

Sar charts have no milestones.

Skill – problem.

Tng.

TANESCO poor pg — poor staff.

they have a tng program of their own wh will solve problem.

Sudan we are pushing it w. Elect. Council of Sudan & they don't see need for plg. in practical impt way we think.

In Sudan & Tanesco consultants doing plg — plg not always v. good, one-shot & not doing tng.

not really a tng emphasis in tng consultants' tr of ref — shortage of recipients for tng. Elect. Council is to help a tng capability in Sudan for planning.

All coys have fairly good tng programs in general & appl missions look.

Useful Delays

Sudan — conditions for appr & now for approval. Inst. problems. Appraised less quickly waiting for problems to be solved.

Improve reliability & use of gas turbines will follow with project.

Reduce risk — improve things for the Sudan — hope for next month soln — but what about costs of delays. not too much trouble

Sine qua non — there are some. I wonder we wd not make a loan — they wd not give in.

Financial Recording / Plg.

still not enough attn to cash flow / budgeting : normally budget for next yr & not v. sophisticated.

budgeting techniques poor, I think.

Ex Yls shd be better. But not a top-priority matter.

Cameron Cat Env.

Kafue — had double check & found original SUECO higher, & we took this.

One about as good as other.

not done originally for Kariba North

Shadow Prices.

Survey shd have looked at shadow prices aspects for tarification.

Fiscal Aspects

none of our cos have been making net fiscal contribution —

Tarkwa pays dividends but receive more in contributions, but others just get contributions, pay no Y tax & dividends.

In Malawi wondered whether we shd ask for ESCOM to pay taxes

In Ethiopia I don't know whether effective or not.

import duties: I think none pay, but Sudan does — quite big.

Participation.

Kariba II — Zimbabwe Govt keen for participation. We approached them for financing & they said can't to do this way.

CDC participated in Tedzani II. & in Kariba supplemental — c. £13 million. Loan to Zambia Govt.

We are looking for add'l financing for Kenya Power Gatara Kopa to get Arab money °° they are supposed to be interested.

CPS — at first too much paper — but now may help W. Nairobi Review & appraisals helpful & led change appr sometimes as a result.

EMENA – Mr Russell

Yugoslavia hoping, on basis of Energy Sector Survey, to participate. Mission envisaged — Kosovo Power project.

Egypt, Algeria, Romania – Econ Missions

Work on CDSs, Appraisals, Sector Work

Sector Brief

Cyprus – rehab. – particularly Turkish areas – Turkish village electrification.

Elbistan – benefits of priced lignite for households.

preappr. → appraisal as economist.

a energy Sctr. – none contracted

possibly some pumped storage later

Coal from W. Germany, US, S. Africa, Poland, Russia.

1990s unclear.

Mtrs preoccupied w. big units

load is c. 200 MW.

System Extensions

justification is problem. PV come up w Anderson work. We are studying it. No projects yet – only a component of others. In Algeria we discussed need for rural electrification prog: they are now preparing & expanding.

First village electrification as such – Iran. They had consultants to prepare feasibility – doubts whether we can justify. Some doubt whether Anderson's covering up work in early years is possible.

Anderson paper takes a more pragmatic approach than earlier studies, looking at projects, but what we want is block he wd come w. appr. team for first one. Demonstration of how to apply it.

& got it for this FY.

We are allowed to have another economist & looking for one.

No this engr & fin anal. got to do it, so need to learn.

In Cyprus could not go to Turkish villages, but we collected what data possible on what has been done.

Reliability Standards

Reserve margins: more recipient borrowers not had excessive margins, but shortages. Margins below spare cap – eg. Turkey, Yugoslavia. Trying to ~~[illegible]~~ persuade to develop more adequate reserves.

Distribn standards – higher than need be – in general, if anything on low side.

[In Tunisia, as condition of loan just before reorg, one study required was to improve system stability]

Ettori – in general, except for Iceland, shortage of capacity.

But what is your recommended target for reserves? There are rules of thumb, but no standardization.

Cooper says 20% in Yugoslavia: cf US pooling arrangement. In Yugoslavia central org, Super Grid, but basically ea. republic sector. In Iran Bk said 15% where they thought of 20%: on degree of integration.

Public confidence in system has to be built up – to discourage self-generation.

No problem in having explicit statement of reserve margin & justification, reasons for it.

No explicit guidelines on distribn nor we have been asked to consider.

No black cos. solar presentation. Feas. does look at this, but complex to do in appr.

Urban Context –

Istanbul project is main one where urban balance has to be looked at.

problem getting studies underway.

Env Reports – EIPs vary main sector & show more or less national balance.

new connection policies: no

distribution: no

no of new consumers: no

Tariff Structure

Some loans incorporated specific provisions, to try to come up w/ more rational tariff structure – Algeria, Tunisia.

No tariff exports.

& no economists to apply EIS guidelines

In Cyprus we had PCR yl on tariffs.

Inst. Structure

Morocco action – EdF to study sector org.

In Jordan we talked about need for study.

In Iceland also said they needed study. Several entities even two several corps: they have undertaken to do study. They argue local sentiment for autonomy v strong.

1st power loan to Yugo was to provide 380 kv super Grid — Yugel – we tried to strengthen it, but v. difficult lately.

Great difficulty choosing the project.

List of Indicators were done, but none of our last reports have had them.

You did try to relate performance of some entities for some standards.

It sounds as tho misunderstanding about use of indicators as targets for Plan of Action

Planning Units

how stony. No particular emphasis to this.

Org consultant studies yes. we are trying hard to have Tyrol be a nat. ply authority.

Cyprus has PCR's since 20 yrs. interested now in trying to project own load better: Inst Research E.

Does explicit check-list for revising consultant ts. of reg include ply to trg. of local ply. units. Not clear

Delays

TEK - Elbistan specially tariffs.

staffing of TEK.

had failed to meet requirements under previous loan.

Fin. Recording / Ply. - Iran in particular given attn.

discussed in Syria & to some extent Tunisia.

Common Cost. Est. Double checking costs etc — this & other aspects for Turkey org side done by indep consultants - Reisbach, Australian.

Shadow prices not really considered unless one have economist go on project. Eg. Iceland

we looked at, for labor, but decided we shd use the rate as it was.

Elsewhere we looked at it shadow price of labor. Country economist said no justification for anything except official rate.

Agreed to select 3 countries in each region – 5 projects in each – over next 2 yrs to apply van der Tak paper

Still difficult to get shadow prices from the country economists.

Must clear consultants and take them into acct in their studies.

Fiscal Contribution

We said Iceland power coy. shd not have to pay rural electrification tax ∴ have good tax system & the power coy was in financial shortage.

no provision in arrangements Govt – Alum Co – Power Co (Master Agreement) for revising power tariff except escalation clause for op cost with one minor element. There was quite a lot of comp between for aluminium plants. But for new power to be provided, they wd have to bargain on a higher price & also probably have a general ~~escalation~~ provision for adjustment.

Personally I agree with this, but have not applied it at all. In some cases taxes are being levied – e.g. Turkey for rural electrification.

In Romania do not do least cost ∴ alternatives not available or not forthcoming.

LAC - John Sheehan.

System Extensions:

Trying to get State Cos. in NE Brazil to come up with some rational method

Bariloche - Argentina - was main effort on barrio-electrification. Really boiled down to who pay back grinders. only conscious effort.

A Peru project being considered.

Ecuador - Mazan hydro - added in rural electrification.

Rio Light - making just shopping list of equipt for their distribn program.

No economist: looking for one, but cannot find. Will take.

Margot
Russell
Bates
Bolte.

Sylvia - still remaining below agreed fin covenants, but has to come up.

Brazil - Itumbiara - covenant for study of whole expn program by Dec. '74. Electrobras doing it.

Sofrelec study shows different reliability levels - for CFE. will have effect for 77-78.

Electrobras might do as for Brazil.
Chandran did a sector study for Brazil, makes regnl indications on this subject. Ofg still poor in Brazil, like it was in Mexico but will be OK if go like Mexico w. Sofrelec.

Efficacy indicators will be useful - eg. # E. of people - We have only paid lip-service so far
Last one we threw indicators in.
Can't do more ?! Had so many people (& data) - projects.

Spn suffering: some projects in difficulties - Panama Egypt. contractor Guyana.

Asia - Mr Beach

11.45

Thailand Nam Chao Mae

Philippines - hydro Pantabangan - putting gen into hydro plant.

Papua NG - tng + distribn + cost overrun.

NEB Malaysia transm. w. Tenangore (Jap. aid)

× Indonesia - Thermal at Muara Karang. Cr. 399 2 × 100 MW PLN.

165 } IND - Distribution Jakarta
334 }

distribution - shortages

Sofrelec + 2 spn missions f.a. are helping them to improve, & I think will beat targets.

India - REC we wd appr. them a tng wd appr. subprojects. But purchases of transformers etc wd be on ICB. R/i raised & so tariffs will have to be increased.

appr. Aug 73 & reappr. December

- Power Trans IV - 3 states in E - Eastern Region
- - - - W - Western Region

load despatch centers

In III we made clear CEA shd be activated, & this has become condition of negs for IV.

Mrs Pant, Min of Irrign & Power.

Mr wanted CEA to be chief plg agency & hold power studys & decide on projects, irrespective of State boundaries.

Now proposal to separate Gen & Tr. from Distrib functions of St. Elect. Bds.

Also pushing for revisions to financial arrangements under act. to make Bds more commercial entity.

242-IN: full ICB for everything - i.e. except generation in wh Bay do not feel competitive.

Difficulty in getting specs, general conditions squared up.

Every state now on same General Conditi of Contract.

no downpayments.

65-70% procurement in India & rest in a dozen countries.

SEBs interested ∴ get it cheaper & quicker

Pakistan - Tarbela-Lyallpur 2nd 500 kv line.
(& Tarbela 7 & 8)

Nepal – small hydro. 32 MW.

Malaysia ?? – need extn to Rai, on timing grounds

[Korea – sector mission.

[Burma – just had & report – we are looking at hydro sites

Singapore we are definitely out of power.

Ceylon – something in next 2/3 years.

Bangladesh – no power for now, but may be E-W interconnector.

Efficiency Indicators.

Program of Action ? why not possible – Indonesia may be no base data of just too complex set of systems.

In general wise to do efficiency indicators – w. well established entity.

Systems Extension

Making two REC in India – tried to do economic validation. In India finding it hard – in India = 70% unmet energy. SEBs are responsible & being made bankrupt as a result. Govts have agreed to subsidize in 6 states. Farmers dominate legislatures & won't ~~take~~ offshore tariff increases. 3% when required in 15 yrs. now may break even in 7 yrs instead of 5 – Hyderabad College showed it was opt. period. Only eligible states are where Govts agree to subsidize.

Reliability

Very little.

REC has produced standards for an integrated India. They have tried to lay down standards to avoid over I in Orissa.

Asia contd.

India: we found installed = nameplate.

Bhakra-Nangal.

Not v. well done.

Not given thought to the subject in Asia.

Term of ref for fear studies ought to be studied from this pt of view.

Did Sofrelec show what they cost the different levels of reliability.

Consultants have time & capacity to do it: I think only ½ normally undertake it, but they cd get advice

Many be scope in urban distribn in India to lower it

new connection pols not looked at much.

In Andhra attempt to do self-help in RE: worked quite well — making poles etc.

Lending Context
Balance — mostly now at national level & also involve as project proposed by country, it is their choice

Tariff Structures.

normally limit attn to levels & degree of cross-subsidization.

Mining in Sector Review of Burma has commented on this at some length.

not always possible to deal w it :. Appn :. lack proper.

Central Power Instn

PLN in Indonesia, CEB in Ceylon & also India.

We wd have to tackle this in Nepal, :. central elect corpn only responsible for part of country.

Training — Indonesia
P & M6

India practically nothing.

Bank played part in developing P&M6 project — pay the expats out of loan instead of out of revenues.

Trg in System Plg: Indonesia, yes.
in India we would like to do it.

In India [they] need more trg of thermal plant operators.

In Malaysia now move to do more own plg — MEB taking over some functions of PCK — but more on [engg] than plg. [construction spvn.]

EGAT does now its own plg: spvn construction thermal stns by consultants.

WRSA more & less with own now.

Trg more & more built into consultant's job.
[Borrowers] must more & more consultants hire some of their own staff.

Borrowers part. good perspective when consultants can veto.

1969 — Suspended disbursements in Orissa, Mysore — dates for obtaining certain returns & rain tariffs.

Mr Ribi, W. Africa

FY 75 – Liberia loan, but probably will be postponed.
Sierra Leone

Nigeria wants power loan, but Board is considered not to want that. 30th June 72 Bd approved loan — v. vague, nobody knew what it and include. One of the first things I did in W. Af was spn/reappraisal of this. Delays in actually making merger
Dec 73 new spn & finally did reappraisal; & it came out we did a good job. Ghana also taken atta.
no new power op in past 1½ yrs.

Rural electrifn = small towns, people working most in agric. but almost w/o ind. V. backward.

Generally does not make sense to give into costs of most Costs to have own system, so we are trying hard to get them to gather on power §. – to pool especially hydro ~~sites~~ sites. Liberia has no good hydro projects; only 5 months op recently on the one built but S. Leone has a lot of hydro possibilities.

Ivory Coast: big project built, but not been able to fill reservoir.

W. Akosombo Ghana exhausted c 60-70% of hydro possibilities.

Nigeria has a problem of peaking: Nigeria of energy. So they shd heavily interconnect.

Canadian-financed Line Ghana-Togo-Dahomey has been made, but cannot be 132 kv prolonged to Nigeria. They have a lot of hydro resources & also gas & oil — so the future shd be much interconnexions.

Warnings about Volta problems — ecological — had been given in studies done earlier. Resettlement still not solved.

Cut. to main northward line in country.

they have increased tariff provisionally. from 2.875 to 2.125

System Extensions.

Towns are considered seriously, it is on purely financial basis — except qualitatively, saying town is agro-ind. a something taken on net fixed assets after 5 yrs.

Good work in CIB on RE.

Trying to check it, using our approach.

In Nigerian loan, for instance, some v. Rays electrifica. we tried to find a posteriori justifica. "Township + Rural Electrifica" c. $30 mln.

Ghana will look more at distribn.

making Connection w. grid.

quick high tariffs: uniform

Francophone countries better supply but in old-style. Mostly Frenchmen, delegated from EdF who came in 40s/50s. So use concepts of reliability of that time — absolute reliability. (e.g. in Ivory Coast — Cameroon & Gabon). to some extent also Senegal, but not Mali.

a Ghanaian main consumer generation not keen to it.

9.30 am.

Reliability Standards — Francophone high stds. for everything.

In W. Cameroon, British-part, standards are v. v. low.

SONEL

Cameroon, they have formed nat. coy. Sector Study will be done — by consultant, w. Bk playing supervisory role, assisting Govt upon. Meyer-Columbus.

Govt weak vis-à-vis Coy

not a sector study in depth: many conceptual issues on wh Govt has to decide. Lacking together E & W Cameroon Govt had no personnel to execute its ownership of the Coys.

9 delegates asked not more than 12 man-months of work.

Reliability not really explicitly covered.

W. Afr. contd.

Nigeria - struggling to catch up w. demand. ∝ far from catching up. V. poor reliability. V. poor distribution: not recovered from war.

ECG now becoming aware of problem of reliability: until now had good tariffs + no problems, but now see squeeze — Lahmeyer study of distribn expansion apparently addresses study to how to limit reliability — this is for a project for Bk. presumably include village electrifn. Govt decide who they will connect.

S Leone a Liberia low reliability — quality of personnel v. low.

El Salvador v. developed std ∝ N. Nigeria.

Conclusion not directly applicable: have to do different things — eg. household

Rural dr projects: electricity not considered, ∝ probably right — below threshold but need to know better need a study of crucial parameters

Ivory Coast does have RE program: in Cameroon purely commercial basis, in Ghana entirely ~~politics~~ controlled by Govt: in Nigeria decision on financial basis, but pol. implications less

Urban Context: N. Nigeria towns — had just a plan for water supply. Often water supply induces electrifn.

Water - new Ghana loan mainly for distribn + Bk will accept no project which does not cover distribn. ADB a ~~Bank~~ lending tertiary distribn.

Ghana Sewerage - mains in, but not connections, on earlier projects.

Tariff structure: not tried to do anything - study tariff structures.

VALCO - VRA + main issue.

In Nigeria v. superficial analysis of tariffs + and carrying too much of burden. but made some changes in right direction.

Bank Sector Review of Cam done by 2 ppl — will do one for Ivory Coast - energy $ - for econ mission. He did Nigerian tariff study, essentially financial where costs cd be obtained (c. 1.5 yrs ago)

need for discussion of how social & efficiency criteria for priorities between economic & engrs; & how they come together.

Central bureaucracy:

NEPA will be a big success. Nigeria: NEPA was v. good, but we had neglected ECN all this made some loans.

They are studying joint ECG-VRA amalgamation, but I am not sure really necy: the 2 work reasonably well, & only argt is really saving in mgt personnel.

We told Cameroon govt need to create a nat. coy: but no effective response.

Efficiency indicators.

absolutely right & we shd do something — simpler tools to have, if possible, where ch w. other countries — & some targets.

Pty

NEPA: we imposed on them mgt assistance contract & finally they made it for 5 yrs: mgt & trg. 26 people from Ontario Hydro 3-4 in line position. All the rest are trainers/teachers — admin matters, generation, transm. mtce & ops, Distrib O&M

not much trg in pty: Chief Pty Officer I mean from Ontario: All trg pty done by consultants: they do not have personnel.

Trg may be less satis. in this.

Program based in ~~Hex~~ Argent.

By transferring the engrs are doing Ontario pty — gen & t. is always done for all of them while W. Aft. Except Ghana — all done at home, except VRA pty for large generation.

Trg: In Fr. speaking countries they often emphasize trg Liberia, S.L. — rather poor trg at lower level but elsewhere OK at this level — not so much professionals.

previous loan had anything for trg.

Financing Pkg. Difficulties to put the Concession system into our form of a/c.

NEPA have strengthened a/cs — PWaterhouse did a proposal, & they followed it.

Shadow Prices Even just in Nigeria tried to do something. For ex a labor we tend to suggest.

Fiscal conditions

how Ghana to get its fair share is an important problem. We are trying to get to reduce Govt's contribution needed, but taken unsuccessful —

Ghana is only case of corp. paying div. on equity. The companies do not generally pay import duties & consumers not pay excise taxes, but maybe in Ghana.