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FROM - AID/W
E.O. 12065: GDS
SUBJECT - Workshop on Rural Electrification

REFERENCE -

Background:

Because of agreement among AID/W bureaus that there would be inter-bureau cooperation in the evaluation of rural electrification projects and because of Congressional interest in this subject, the Office of Evaluation held a workshop February 2, 1979, for 37 representatives of major parts of the Agency and other donors.

The Workshop heard a report on Congressional interest in the subject and briefly reviewed the extent of AID activity in the sub-sector. Major attention was given to a discussion paper prepared for A.I.D. by Dr. Judith Tendler on current studies and evaluations of AID's rural electrification activities. The workshop ended with a discussion on future evaluation steps needed. Attachment A summarizes the discussion; comments have been organized according to subject matter.

I. SUMMARY OF DR. TENDLER'S PAPER

The major points of Dr. Tendler's paper are listed below (the full text of Dr. Tendler's paper is being sent under separate cover):

- The current practice of justifying AID rural electrification projects as compatible with the New

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DRAFTED BY: G. Wm Anderson OFFICE: PPC/E/PDESX PHONE NO.: 291044 DATE: 4/6/79 APPROVED BY: Robert Berg
G. WM. ANDERSON: rac AAA/PPC/E: Robert Berg

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED
SER/MP: FDAllen (Phone) Info: Directors, AID Project Offices
Bureau Evaluation Officers
Workshop Attendees

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Directions mandate by emphasizing household uses of electricity does not use the most effective arguments.

- The argument that electricity is more economic and environmentally sound than alternative energy sources is questionable because of incomplete cost estimation of increased fossil fuel consumption for generation of electricity and continued consumption of firewood in spite of electrification.

- The argument that central generation of electricity is more efficient than autogeneration is questionable because the larger central grid systems often suffer more from inadequate maintenance; deficient organization and management; outages; and transmission losses.

- More attention should be paid to utilizing the potential of rural electrification to increase employment and production of the poor or so-called forward linkages. Actions that could be taken include (1) including credit and technical assistance in RE projects for labor-using rural industries, (2) providing for increased health and educational services through RE projects, and (3) considering the host country's commitment to linking energy and employment as a major criterion for approving a rural electrification project.

- More attention should also be given to employment-creating local procurement in RE projects or so-called backward linkages. Actions that could be taken include (1) revising specifications for RE projects to qualify local suppliers, (2) removal by the host country of tariff exemptions for components and commodities that can be supplied locally, and (3) formation of an Office of Backward Linkage in AID to work out ways of using local suppliers more in AID infrastructure projects..

II. REQUEST FOR ADVICE FROM MISSIONS

Because a number of evaluative studies of rural electrification projects are planned, including a PPC/E cross-country ex-post evaluative study of rural electrification projects,

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PPC/E wishes to help assure that these evaluations address questions and produce findings of importance to AID Missions, technical offices, and policy makers. An inter-bureau working group is being formed to coordinate policy oriented evaluations on rural electrification. To assist the usefulness of this work, we request:

First, advice from Missions (and offices in AID/W) on what they need to know about AID experience in rural electrification projects. What questions do Missions need to have answered about what has worked, what hasn't worked, and what have been the impacts of AID rural electrification projects?

Second, suggestions on which recently completed rural electrification projects would be good cases for inter-country evaluative studies. Suggested cases can and perhaps should include projects considered either successful or unsuccessful, those for which baseline data was originally collected, and cases which offer opportunities of drawing lessons for future AID projects in rural electrification and related areas.

We would appreciate your response, particularly if received by May 31, 1979.

Attachment: Attachment A, Report of ~~TO BE RUN (MIXED) WITH AIRGRAM~~ RE Workshop

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Report of the WorkshopI. CONGRESSIONAL INTEREST IN RURAL ELECTRIFICATION

The workshop chairman (Robert Berg, PPC/E) introduced the drafter as a new member of the Office of Evaluation who had just joined the Agency after six years as legislative assistant and Appropriations Associate Staff member for Congressman Clarence Long. Mr. Anderson was asked to describe Congressional interest in A.I.D.'s rural electrification programs. He stated that Congressional interest should be seen in the context of interest in the general energy problems of LDC's and what solutions are best for these problems. The authorizing committees in both the House and the Senate inserted language into the FY 1978 and FY 1979 development assistance authorization bills calling for "cooperative programs with developing countries in energy production and conservation." This legislation placed emphasis on "small-scale, decentralized, renewable energy sources for rural areas" which "require minimum capital investment" and which "are simple and inexpensive to use and maintain. . . ." (Sec. 119, Foreign Assistance Act)

The House Appropriations Committee, in its FY 1979 Committee Report on the foreign aid appropriations bill, emphasized the importance of a strong AID evaluation program, noted the sizable investment AID had made in rural electrification programs, and recommended that "AID's evaluation office undertake an assessment of rural electrification efforts to determine their effect on the poor" (House Report 95-1250, pg. 17). In FY 1978, Rep. Clarence D. Long, Chairman of the House Foreign Operations Appropriations Subcommittee, and Rep. Silvio Conte, the recently named ranking Minority Member of the House Appropriations Committee, asked several questions concerning total funding, degree of subsidy, and appropriateness of AID rural electrification programs.

II. SURVEY OF AID ACTIVITIES IN RURAL ELECTRIFICATION

Two contracted efforts to survey RE activities were briefly described. Practical Concepts, Inc. (PCI), under contract to DS/RAD, carried out a computerized search of information systems which identified 32 past, current, and planned A.I.D. rural electrification projects. Its report identifies only centrally stored planning and evaluation documents.

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Robert R. Nathan Associates (RRNA), under contract to PPC/E to identify patterns in A.I.D.'s evaluations of rural electrification projects, reported that through computer and file search they had identified 45 projects. According to Brian Goodhart of PCI, both PCI and RRNA missed some projects that the other picked up so that the total number of projects identified was 58.* The Nathan report is one of the few efforts A.I.D. has made to systematically learn from its evaluations.

III. DISCUSSION OF PAPER BY DR. JUDITH TENDLER

In organizing its approaches to the evaluation of A.I.D.'s rural electrification projects, PPC/E contracted with Dr. Judith Tendler, an economist with wide experience in AID and other donors, to write a discussion paper on the sub-sector. The paper was written after Dr. Tendler held extensive discussions among AID and other donor experts. It will be available shortly to field missions.

A. Summary of Dr. Tendler's paper

In introducing her paper, Dr. Tendler sketched her main concerns:

1. How is AID dealing with the seeming misfit of rural electrification projects with the New Directions of foreign aid because of the feeling that capital projects do not have a direct impact on the poor and do not improve income distribution?

2. How can AID decide whether or when rural electrification, potable water, rural health projects or other rural development projects are more likely to help a given group of the rural poor?

3. If AID carries out rural electrification projects, how can the impact on the rural poor be increased? The existing evidence from A.I.D. projects is that rural electrification serves the better off in rural areas.

* Workshop attendees agreed that these numbers reflected the continued need to better develop AID's "memory".

4. One of Tendler's tentative conclusions is that it is hard to justify rural electrification projects on the basis of household use--mainly for lighting. Demonstrating impact of electricity on production and employment would provide a more powerful justification.

5. A second tentative conclusion by Tendler is that arguments often used by AID that rural electrification through central grids is economically and environmentally preferable to alternative energy sources are questionable.

B. Highlights of the Discussion of Dr. Tendler's Paper

1. Productive versus Household Uses of Electricity

Throughout the discussion on household uses vs. productive uses there seemed to be agreement that we need evidence about the impact of RE projects on production and on employment. The need to see the real impacts of RE was stressed since most often RE is not providing a new service, but a substitution for existing fuel and light sources. Concern was also expressed that impacts on householders was not really known since householders tend to use RE for lighting and not for production. However, the data is thin, particularly on behavioral changes resulting from RE. A number of views were expressed on the general topic.

--Edward Lijewski (PPC/PDPR) stated his opinion that AID has gone a long way in designing rural electrification projects for production impacts, especially in Latin America. He asked why Dr. Tendler had not seen this concern for production in the project documents she had looked at. Dr. Tendler responded that she had seen these production concerns in some project papers but that even those project papers had seemed to emphasize household uses for electricity over productive uses.

--Frank Kenefick (ASIA/PD) explained that there is little discussion of productive uses for RE in project papers because some drafters fear that Congress doesn't approve of productive uses for RE and prefers household uses of electricity.* Mr. Kenefick stated that if electricity has gotten to households, then productive users will already have been served.

*Note by drafter: PPC/E is unaware of such Congressional views. There is some Congressional criticism of RE projects in general but PPC/E could not verify any criticism of RE projects for emphasizing productive uses of electricity over household uses.

- Steve Klein (AA/PPC) challenged the implicit assumption that electricity leads to production and argued that we must be careful before encouraging LDC's to commit themselves to a grid system.
- Karl Kindel of the Census Bureau (which has done work on A.I.D.'s Philippines RE program) said that there has been substantial interest in the Philippines to look at the effect of rural electrification on production and employment but that no money has been allocated for that purpose. He urged tracing of employment generation and tracing such possible spin-offs as the spread of small-scale powered irrigation.
- Phylcia Fauntleroy of Robert R. Nathan Associates (RRNA) commented that one of RRNA's major conclusions in the pattern analysis of A.I.D.'s RE evaluations is that RE is an input and only one of many inputs into a broader system. Causal linkages are hard to trace; therefore, use of studies tracing impacts of groups of factors was urged. Ms. Fauntleroy noted that there are few impact studies of RE projects as well as few A.I.D. evaluations of RE projects. Most existing A.I.D. documents do not treat the issues raised by Dr. Tandler.
- Walter Furst (PPC/E) commented that it seemed that most people were aware of the issue and that most seemed to agree that production-oriented uses of RE were more important than household uses. But there was no agreement on which orientation was favored by AID financed projects in actual practice. It was generally agreed that there is a need to establish what the facts are concerning the impact of RE projects.
- Mr. Kenefick stated that the questions of what is evaluated and when are basic questions that need answers.
- Lawrence Posner of Practical Concepts, Inc. (PCI) cautioned that a household survey is the best way to measure impacts of RE projects. Mr. Posner then commented that there is a plausible rationale for focusing on residential use in RE projects: more certainty in targeting projects on the poor. He also advised working for community and employment effects. It was noted that the desires of the poor in their own development was quite important, and one participant felt that RE was not a priority desire of the poor.

2. Rationale for Rural Electrification Projects

Mr. Berg raised two general questions: why has AID funded rural electrification projects and how do we tell that an LDC's particular stage of development calls for rural electrification?

Frank Kenefick responded that basic infrastructure projects are essential for development; RE projects are more visible than education or health projects; and no LDC has developed to any great extent without electricity, which enables increases in productivity.

Mr. Kenefick mentioned the case of a province in Guatemala near the capital city whose development had stagnated although other provinces around it were progressing satisfactorily. The difference, he stated, was that the former province did not have electricity and the latter provinces did.

Dr. Tendler pointed out that the World Bank's 1978 World Development Report indicated that the Philippines, which had benefitted from a large AID RE program, showed up badly on quality of life indices as compared with Korea and Taiwan-- countries which also had substantial rural electrification programs. Dr. Tendler argued that RE is not a prerequisite for development and that when electric power is needed in an LDC, pressure for it will come from productive users. The argument used to be made that railroads were prerequisites for development of the western U.S., but economic historians have shown that the railroad construction occurred because of the demands of groups who wanted the railroads.

Mr. Jose Salaverry of the Inter-American Development Bank's (IDB) Group of Controllers responded that because leaders and well-educated persons have migrated to cities from Latin America's rural areas, there can be no effective articulation of demand for rural electricity. Power companies in Latin America focus on providing power to urban areas, but no one is worrying about how to provide 40-50 KW power plants to serve rural areas.

Mr. Berg stated that the question wasn't if RE should or should not be part of development, but when to provide it. Len Rosenberg, NE/PD, added the well-taken point that measures of trade-offs between various types of development activities were particularly lacking. Dr. Tendler urged development of "more rustic" measures, e.g., % of poor to be benefited.

3. Costs and Subsidies in Rural Electrification Programs

A number of participants commented on costs, subsidies, and rate structure in RE projects. David Erbe (LAC/DP) stated that the New Directions concern is really one of cost. How many people are being helped? At what cost? Later, Mr. Erbe stated that cost is the important consideration that should determine whether a national electric grid or alternative, decentralized energy sources are utilized. In his view, the question of household vs. productive uses of electricity was a subsidiary question.

Dr. Tendler noted that it is ironic that many regard RE projects as "hard" projects--as opposed to "soft" projects like health and education that are government financed--when rural electric utilities usually must receive subsidies for 20 years or more before they become self-supporting. According to Dr. Tendler, parts of India's rural electric system have transmission losses of 20-35% and load factors of 1-14%. She also noted that high costs of connecting to systems had a further effect of limiting the proportion of the poor involved in RE systems.

Ms. Fauntleroy of RRNA mentioned that two studies of AID rural electrification projects show that farms served by the projects had other electric generators for production and were using RE only for household uses. Dr. Tendler commented that cost calculations justifying RE projects often depend on assumptions of no outages, competent management, reliable delivery of spare parts and ability/willingness to connect. If, as in many LDC rural electric systems, there are substantial transmission losses, outages, inadequate management, and if (as is frequent) customers maintain standby generators, then it is much harder to justify RE projects through cost-benefit analysis. One participant stated that there is great transmission loss in SE Asia and some indication that large farmers are the main beneficiaries of electrification programs.

Frank Kenefick argued (1) that the fact that companies and other users have standby generators is simply testimony

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to the need for energy and reliable supply, and (2) that after five years of reliable electric service one sees a breakthrough in productive uses for electricity.

Steve Klein remarked that Indian decision-makers are concerned that because of costs and financial limitations they will not be able to provide power to the 2/3rds of their 600,000 villages that do not now have power. In the Indian rural electrification program, although the majority of connections are for households, the major emphasis is on irrigation.

One clear issue to emerge from the discussion is "who really benefits from RE?" Some felt the better off farmers do. Others noted that RE is an aftermath to systems which already service the most steady and efficient users; hence, these large users tend to be subsidized by RE customers.

4. Autogeneration vs. Central Grid and Use of Local Suppliers

At this point in the discussion, Mr. Berg raised two issues on how best to carry out an electrification program:

(a) whether autogeneration or a central grid is preferable and

(b) how to make aggressive use of local suppliers.

Mr. Salaverry noted that although the IDB has spent \$1 billion on rural electrification, most rural towns in Latin America are still not electrified. In Andean countries, sufficient hydropower potential for many micro-hydro projects is available. Mr. Salaverry called for strong efforts to supply electricity to small towns over the next 10-15 years. He felt RE was part of the solution to increasing the quality of rural life to redress the urban-rural imbalance. But he pointed out that while decentralized systems are needed, engineers and other authorities don't push for them; rather they push for less realistic, bigger systems. He said IDB's over 90 projects are mainly expansions and inter-connections. He called for an approach to take advantage of "tremendous opportunities" to serve isolated areas through autonomous projects. He noted some national power authorities have special sections just for smaller systems and that these groups needed support.

Mr. Klein added that autogeneration does not mean that only small amounts of power will be provided to rural areas.

He stated that the Chinese reportedly have a huge number of decentralized, small-scale generating stations. Further, the Pakistanis are reportedly experimenting with building energy technologies in villages.

Mr. Berg turned to the question of local procurement and asked whether AID, as a deliberate aspect of project design, can attempt to maximize employment through use of local suppliers of commodities and components for rural electrification projects. He mentioned the example of the Chinese, who in their aid programs make deliberate efforts to maximize local procurement. A participant from the Asia Bureau said that an intent of the Pakistan rural electrification project is to use local suppliers. Mr. Berg asked whether AID had ever tried the tactic of breaking apart its procurement packages specifically to encourage local procurement. No one could say that AID has ever tried this.

In view of time constraints the discussion had to shift from Dr. Tendler's paper to other areas.

IV. CURRENT STUDIES AND EVALUATIONS ON RURAL ELECTRIFICATION PROJECTS

A. ASIA Bureau--Inter-Country RE Study

Mr. Berg noted that Asia Bureau plans an inter-country study on on-going RE projects.

B. PCI's Study for DS/RAD on Rural Electrification

Mr. Posner of PCI described PCI's work for DS/RAD on rural electrification. PCI is developing a methods paper for data-gathering and analysis to support project design, execution, and evaluation. PCI has carried out consultancies for AID Missions in Honduras, Upper Volta, and Senegal on evaluation planning and design for rural electrification and energy projects. PCI is also working through DS/RAD on a 3-5 year area approach to evaluation of RE projects which was proposed to be tried out in Bangladesh. Mr. Posner mentioned that the evaluation system proposed for the Honduras Aguan Valley RE project was designed to get at many of the issues raised in this discussion. The proposal calls for a 1980 pre-survey and an ex-post evaluation in 1985.

C. PCI's Sectoral Inventory

(noted in II, above)

D. Robert R. Nathan Associates (RRNA) Pattern Analysis for PPC/E

Ms. Fauntleroy of RRNA discussed RRNA's on-going

analysis for PPC/E of existing evaluations of AID RE projects. Ms. Fauntleroy indicated that there needs to be an assessment of alternative types of evaluation and that the only options are not necessarily expensive ones. The purpose of the RRNA pattern analysis is to identify the strengths and weaknesses of AID's routine evaluations, to make suggestions on how to improve routine evaluations, and to explore the desirability of ex-post evaluations of RE projects. The RRNA analysis, together with the Tendler paper, should help to identify important evaluative questions that need to be asked. Mr. Berg noted that a separate session would be held once the RRNA report was submitted.

E. LAC Bureau's Bolivia RE Evaluation and Country Studies

Bernice Goldstein (LAC/DP) reported that the scheduled evaluation of the Bolivian RE project was expected in mid-February and will hopefully have used the socio-economic impact system that was designed for the project. Henry Miles (LAC/DP) mentioned LAC's plans to carry out longitudinal studies of 35 year's of U.S. aid in all Latin American countries over the next four years. Bolivia is thought to be the first country to be studied. Of the over 150 projects in Bolivia to be considered, two are RE projects.

F. Census Bureau's Continuing Work on Philippines RE Project and in Indonesia

Karl Kindel of the Census Bureau said that the survey on the Philippines RE program (that many at the meeting had seen) was only the first part of the intended work. The second phase of work, intended to cover many of the impact issues raised in the present workshop, was originally scheduled for 1979 and has now been pushed back to 1980. Mr. Kindel mentioned that a principal goal of the first study was the institutionalization of a data collection and analysis capability in the Philippines' National Electrification Administration in addition to conclusions on the impact of the RE program. Mr. Kindel indicated that he was now setting up the organizational aspects of an evaluation of the Indonesia RE program.

G. Review of AID Support to Cooperative Organizations

Jack Schaeffer stated that he was carrying out a review for Tony Babb (DAA/DS/FN) on whether AID should continue to provide core support to various cooperative organizations, including NRECA. He mentioned that on the basis of the Club of Rome's second report, we should be paying more attention to alternative energy sources. His study is to be finished in two years.

IV. CONCLUSIONS AND SUGGESTIONS FOR FUTURE WORK

Mr. Berg stated that it was his conclusion that coverage of the issues in rural electrification projects seems to be much more spotty than in the area of rural roads (discussed in a similar workshop a few days earlier). We need to ask ourselves how we got into RE programs and whether the past rationale is still satisfactory. A basic question that needs to be examined further is the priority of RE projects relative to other types of rural development projects. More work is needed on the question of forward linkages of RE and development and backward linkages to make more use of local suppliers.

Mr. Berg stated that per previous agreement those interested in the evaluation of rural electrification projects would coordinate their work on the substance of such studies, on responses to Congressional interest, and on the timing of evaluative work. He indicated that PPC/E would coordinate with the Bureaus to assure appropriate project and substantive coverage in AID's upcoming evaluation work. The drafter will be PPC/E's contact person in this work.

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