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FINAL EVALUATION REPORT

RADIO EDUCATION TEACHER TRAINING PROGRAM

A Joint Project of MOEC/SIU & USAID

AID Project No. 367-0123

Nepal

April 1983

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I. INTRODUCTION

This final evaluation has been undertaken to assess the accomplishments of The Radio Education Teacher Training (RETT) program as a prelude to planning for a follow-on project, RETT II.

The RETT project objective is to create the capacity "to provide in-service teacher training to at least 2,500 primary school teachers annually through radio broadcasts, brief residential instruction, and self-instructional textbooks at a per teacher cost well below the present cost."

The evaluation team interviewed project-related personnel in the Ministry of Education, the Institute of Education, and Radio Nepal and reviewed pertinent project documents, all research reports of the project, and some project-developed textbooks and radio scripts.

In addition, members of the team visited Kabre, Gorkha, and Dang Districts to interview selected teachers enrolled in the program and observe their in-class behavior. The latter two Districts were chosen because they were involved in the program from the pilot study phase and so offered the best opportunity to observe the success of the program. While the sample is small and non-representative, the teachers selected appear to represent the diversity of the program in terms of their education, experience, and year of enrollment in the program. There was a general consistency in their responses and behavior, which lead us to believe that the conclusions of the report have implications for the larger populaton.

These interviews and observations provide the basis for the conclusions and recommendations of this report. The two members of the team who conducted the teacher interviews and observed classes are Nepali speakers with considerable experience in primary teacher education in Nepal.

Our thanks to Dr. Prem Kasaju of The Center for Research in Innovation and Development for his comments and careful review of this report.

II. EXECUTIVE SUMMARY

A. Problem and Overview

His Majesty's Government (HMG) of Nepal has made a major commitment to providing free universal primary education. This has created a heavy demand for trained primary school teachers. In 1981, there were approximately 17,500 untrained primary teachers, 64% of the total. Of these, 6,000 were under SLC (School Leaving Certificate) pass. The Institute of Education (IOE) was providing training to a total of about 800-900 primary teachers per year. There was a need for a cost-effective approach for reaching a larger audience, especially in more remote areas where the educational level of the teachers and the cost of a residential training program limit access to training opportunities.

B. The Radio Education Teacher Training (RETT) Project

In 1978, USAID signed an agreement with HMG of Nepal (Project No. 367-0123) to develop and implement a program to train under SLC pass primary teachers through the medium of radio reinforced by written, self-instructional materials and periodic workshops. The project was designed as a practical and cost-effective approach to reaching a large number of untrained, under SLC pass primary teachers. Southern Illinois University (SIU) at Carbondale was selected to provide technical assistance. The Project also included the installation of a 100,000-watt shortwave transmitter and antenna and an administrative building equipped with a fully functional recording studio. USAID's contribution to the project, initially $3,235,850, was increased by $250,000 in August 1981. The Government of Nepal's contribution is about $523,000 or 16% of the total project budget.

C. Purpose of Evaluation

At the request of AID, Washington, this evaluation was undertaken as a prelude to planning for a follow-on project, RETT II. A team of three evaluators spent five weeks interviewing project-related officials in the Ministry of Education and Culture (MOEC) and at the Institute of Education (IOE), and talking extensively with project staff. We reviewed research documents of the project and some of the text and radio broadcasts produced by the project. Two members spent eleven days in two districts interviewing teachers enrolled in the program and observing their classes.

D. Conclusions

The evaluation team reports the following findings:

1. RETT was successful in reaching its quantitative goals. As of April 1983, the project has enrolled a total of about 3,000 teachers over two full years of implementation. The project has distributed 2,500 radios with two sets of batteries and 6,000 sets of self-instructional materials (SIMs) consisting of four textbooks each. It has developed and broadcast 165 hours of instruction to teachers enrolled in the program and is now producing 35 additional hours to upgrade the curriculum. A 100,000-watt transmitter and an administrative building with recording studio are now in place.

2. RETT is successfully reaching the target group of untrained rural primary teachers. For the most part, participating teachers report that their radios provide adequate service for regular listening and that the printed materials and radio programs are useful and understandable. Teachers should be motivated to study by the prospect of passing a certification exam and getting a salary increase at the end of the course.

3. RETT seems to be having some impact on teachers' knowledge of education and subject areas in the primary school curriculum. It seems to be having less of an impact on their teaching techinques. The certification exam scheduled for June 1983, will provide the first large scale indication of impact.

4. The impact of RETT was constrained by implementation problems and the lack of institutional support experienced by the project. As a result of initial staffing delays, radio scripts and SIM's had to be produced in a very short period of time without sufficient opportunities for field testing. Workshops for the in-service teachers, planned for in the project paper, were not implemented. These were to provide teacher support so essential to a distance learning program. The logistical problems of distributing materials to nearly all the districts in the country are enormous. There were difficulties in getting the SIMs to the teachers on time. The final exam for certification was postponed the first year. The exam is now scheduled to be given in June 1983. This delay also undermined plans to collect formal evaluative information on the impact of the project.

The project had five directors in a period of four years and has shifted its institutional affiliation or status three times. The curriculum was not finally approved until the second year of full implementation had begun. There were delays in assigning staff to the project initially and insufficient monetary incentives to assure a stable staff qualified and motivated to produce high quality materials. There appear to have been oversights in preparing the budget for the project. There were insufficient funds for field work and workshop implementation. The geographical scope and the time line for the implementation of the project stretched the capacities of the staff.

E. Project Design and Policy Implications

The goal of this project, to improve teachers' classroom performance, was ambitious; especially recognizing that training is only one of many elements that influence a teacher's behavior. Limited physical facilities and instructional materials, community attitudes, traditional role models, and the lack of incentives for teaching all combine to create a school culture often very resistant to change. The time line and geographical scope of the project were also ambitious given the problems of communication in Nepal.

There is not presently an appropriately trained cadre of locally available resource people to run workshops and provide teacher support. Recognizing these limitations, this evaluation team presents the following recommendations.

F. Recommendations

We feel that AID should continue to support radio education in Nepal. The purpose, however, should shift from a training focus to the delivery of content information which the medium of radio is better able to convey with minimal support services. An appropriate target audience would be the same as RETT I, under SLC pass in-service teachers, but with the purpose of providing upgrading in content areas, particularly Mathematics, Nepali, Science, and English. This is a need particularly recognized by the MOEC. In time, as the local educational infrastructure develops, radio may also be effective in conveying methods and other training related material.

Prior to the beginning of a follow-on project, the project must be assured of adequate institutional support to fully implement a program. Time must also be set aside to carefully design and pretest materials. The scope and pace of implementation must be realistic in light of the goals of the project which include curriculum and material development, and must recognize the capabilities of the existing communications network. We feel that if these conditions are met, RETT II can be effective and serve to stimulate the use of radio for development in Nepal.

III. BACKGROUND:

The Educational Setting

Primary education in Nepal has made great progress in the last ten years. Enrollment in primary school is one govenment planning objective that has exceeded expectations. Local communities are eager to establish primary schools, yet the conditions they can provide make teaching difficult. Often classes are overcrowded, especially the first grade, where students often spend two years. A blackboard and chalk tend to be standard fare but adequate benches, writing places, and other materials are a luxury. The government provides free textbooks for primary students, but few schools have received copies of the primary curriculum and teaching guides essential for interpreting the textbooks. Many students come to school erratically and often without a pen or copy, one source of frustration for teachers. Thick classroom walls, small interior space, and inadequate lighting often drive classes outside under a tree or in the direct sunlight. In many cases this is the only option available.

Teachers' instructional patterns are a function of the subject taught but within each subject show little variation from school to school. In nepali and social studies classes, teachers read paragraphs from the text explaining as they go along; students are generally expected to memorize the material. In math, teachers are less dependent on the text, making up problems of their own corresponding to the math lesson. The teaching patterns model the traditional mode of rote memorization that has been instilled in teachers as they passed through the system. A primary school must be heard; the sound of children chanting announces to the surrounding community that everyone is hard at work.

While the government's goal is to provide all schools with trained, SLC pass teachers, many have not passed the SLC, and more still have not received training.

PRIMARY TEACHER QUALIFICATIONS - 1981

(Educational Statistics of Nepal, 1981)

	Untrained	Trained	Total
Under SLC	6,004 (61%)	3,814	9,818
SLC pass	11,524 (66%)	5,925	17,449
Total	17,528 (64%)	9,739	27,267

In 1981, the MOEC returned more control to local Managing Committees. As a consequence, the government no longer requires training as a condition for obtaining a teaching job. Training also no longer assures teachers of permanent job status. To become a permanent employee now, teachers must pass an oral or written exam given by the District Teacher Selection Committee as well. A limited number of openings are advertised at infrequent intervals. While teachers desire training, often the cost of enrolling in a residential program is prohibitive.

Teachers' salaries increase with training but are still considered inadequate for what they are expected to do.

Primary Teacher Salaries: Per Month Paid on a 12-month Basis

Training/Education	Salary	Lunch Allowance	Training	Total
Under SLC	280 + 56[1]	50	-	336
Under SLC with Training	280 + 56	50	45	381
SLC	325 + 56	50	-	440
SLC with Training	325 + 65	50	45	485

Alternatives to Teaching: Other government positions often provide higher salaries for the same qualifications through the provision of additional allowances. There are also more opportunities for upward mobility once different educational levels (SLC, IA, BA, etc.) are passed. In areas where

[1]Extra allowance, a 20% increase (not considered a salary increase) received in 1982.

other government service options are available, teachers are likely to find few incentives to stay in teaching.

The rewards of being a primary teacher and the incentives to remain are small. Improved teaching conditions and employment benefits may be important conditions for greater teacher dedication and effort.

Teacher Training: The Context for RETT

Normal training for primary teachers began in 1956 with residential training at sites that moved around the country. Initially only three months, training grew to six and then ten months in length, reaching students in all parts of the country. An eighth grade pass was required to receive training but even these standards were difficult to achieve. During the mid-1960s between 500 and 800 teachers were trained each year.

In 1971, the National Education System Plan (NESP) established the Institute of Education (IOE), bringing teacher training under the auspices of Tribhuvan University. At that time, the government made a commitment to provide all primary schools with trained teachers, creating tremendous pressure to train teachers in quantity. At the request of the MOEC, the IOE responded by offering on campus programs of ten months' duration for both under SLC and SLC pass pre-service and in-service teachers; remote area training; a Women's Access to Education Program; and on-the-spot training programs which allowed teachers to receive training in the mornings or evenings but teach at their own schools during the day. From about 1975-79, a distance teaching program provided teachers with programmed instructional materials reinforced during a two-month intensive residential training program . These programs in total trained between 800 and 900 primary teachers per year. For SLC pass teachers, these programs earned credit toward higher degrees as well as the training allowance.

RETT

In 1981, there were 18,549 (64%) untrained primary teachers in the country. Training teachers via radio offered a solution for reaching large numbers of teachers, especially for those who were unable financially to leave

their homes for training and for those who were teaching in one or two teacher schools who were not able to be released for training. The cost would be far less than other modes of training. A target was set to train 1,000 and then 2,500 under SLC pass teachers per year for the next two years. RETT began development in 1979. It implemented its first full year in 1981-82 with 1,100 teachers enrolled in the program.

Several developments in 1980 altered the context of teacher training. The University and hence the IOE was to be responsible for degree granting programs only; most primary teacher training programs did not meet this standard. This diminished staff interest in training primary teachers. At the request of the Ministry of Education, only the Women's Access to Education Program continued for under SLC pass, pre-service or in-service teachers. At about the same time, when training was dropped as a preconditon for receiving a teaching job, total enrollment on the Institute's campuses dropped from over 7,000 to under 4,000 students.

Current Programs

The MOEC wanted shorter training programs in order to reach more primary teachers more quickly. In 1980, a 5- to 6-month package program was developed, for in-service SLC pass teachers only, to be offered at the different campuses of the Institute scattered around the country. This training program focuses primarily on educational methods and does not count as credit toward a further degree. The District Education Office (DEO) is allotted quotas and assigns teachers to attend training. These programs may be operating well below their target quotas if enrollment at the Gorkha Campus is any indication (17 of 40 places are filled). SLC pass teachers may enroll in the two-year IOE program as well. All under SLC pass training, except for the women's program, is now conducted through RETT.

Future Plans

Ministry officials are discussing plans for a 5-month package program not only for in-service primary teachers but for teachers at higher levels as well. A Royal Commission on Higher Education is currently reviewing the role

of the University and is expected to make recommendations as to the University's responsibility with respect to teacher training programs and programs for under SLC pass students. Their report is due shortly.

IV. PROJECT HISTORY

In 1974, at the request of His Majesty's Government (HMG) of Nepal, AID arranged with UNESCO, UNICEF, and the British Council to do a feasibility study concerning the utilization of radio for educational purposes. This multi-donor study concluded that radio could be a powerful educational tool for Nepal for both in-school and out-of-school populations. It recommended that one or more projects be undertaken to test the feasibility, effectiveness, and cost of educational radio in a carefully controlled research and development environment. Specifically, the study suggested that a radio-based teacher training project be the first component of a long-term effort to develop educational radio services. Subsequent activities would provide such services as classroom broadcasts and adult non-formal education programs in a variety of development-related areas.

In 1975, the Radio Education Teacher Training project (RETT) was reviewed and approved by AID/Washington. While teacher training was isolated as a discrete activity for project planning and implementation purposes, the notion that teacher training was a feasibility test which could lead to more ambitious educational broadcasting activities was retained. The Project Paper (p. 4) states, "If the validity of teacher training through radio can be demonstrated, and a mechanism can be developed for planning, programming, production, distribution, and evaluation, a significant breakthrough will be accomplished which will provide the means for extending multi-disciplinary education and training programs to remote rural areas in conjunction with future AID supported rural development activities."

The Project Paper was completed in March 1977, and a Grant Agreement was signed with the Ministry of Education (MOE) of His Majesty's Government of Nepal (HMG) on September 30, 1977. The Grant Agreement provided AID funding of $3,285,850 for a four-year project, with a Project Assistance Completion Date of September 30, 1981. The HMG contribution to the project was to be $523,000, about 16% of the total project budget of $3,808,850.

On March 1, 1978, a Request for Technical Proposals for technical assistance and training services was issued to 19 educational institutions.

proposals were received, and an HMG/AID team visited both institutions. In May, Southern Illinois University (SIU) was selected as the contractor. The contract was signed in September 1978, and the SIU field office was opened, equipped, and staffed in October. Initially, the project was established within the Institute of Education (IOE), a division of Tribhuvan University that was responsible for developing and implementing teacher training programs.

During 1979, the SIU long-term technical assistance field team began work. The team consisted of specialists in radio production, evaluation research, self-instructional materials (SIMs), and a team leader. Seven Nepali participants departed for training tours in Asia, and testing of radios and solar-powered battery chargers took place. During 1979, initial training and production activities were delayed because staff were not recruited and assigned to the project in a timely fashion.

Early in 1980, the Project Assistance Completion Date was extended one year, to September 30, 1982, to compensate for the procurement delays of 1978 and slow initial implementation in 1979. In April 1980, responsibility for project implementation was shifted from the Institute of Education to the Ministry of Education, and the Joint Secretary of Education in charge of administration became project director. An SIU radio engineer spent eleven months in Nepal, providing training in radio maintenance for Radio Nepal technicians and village electricians. Development and testing of initial radio scripts, SIMs, and manuals began. In August 1980, 117 teachers in five pilot sites were selected and given orientation for their participation in the first experimental year of instructional activities. On August 20, the inaugural program was broadcast on Radio Nepal. On August 29, regular instructional broadcasts began. Initially, programs were produced in a studio operated by a Nepali family planning program because the project's own building and production studio were not ready. Programs were broadcast once a week, on Friday between 1:30 and 2:30. By the end of 1980, 40 scripts in Nepali language, mathematics, and education had been developed, field tested, and recorded.

Also during 1980, a critical audit report touched off an intensive project review period in which project objectives, assumptions, and implementation plans were re-examined to determine whether the project should be carried to completion. An AID/Washington evaluation team concluded that obstacles were being overcome, and HMG agreed to accelerate and increase its contributions to the project which had appeared deficient to the audit team.

In 1981, production volume increased dramatically. By April, 88 scripts and accompanying SIMs were done; by July, 176 lessons were done; on October 8, the full curriculum of 300 had been produced. The new project building with its radio studio was completed in November. The pilot group of 117 teachers completed its experimental year, and in August 1981, 1,000 teachers were enrolled for the first fully operational radio teacher training academic year. Three weekly broadcasts, at 5:30 to 6:30 in the afternoon, were expanded to four in December. The SIU radio production and instructional materials advisors completed their tours in Nepal, and short-term training of Nepali staff at the SIU campus began. The project was formally institutionalized in the CSDTC in November, with the Senior Curriculum Specialist of the CTSDC as the Project Director. The Specialist left in February and was replaced by an Acting Director. In August 1981, AID extended the Project Assistance Completion Date (PACD) to March 31, 1983, and additional funding of $250,000 was provided. In February 1983 a final PACD was set for March 31, 1984.

In June 1982, the first full class of teachers completed its study program. Because of a delay in reviewing the revised curriculum, the first class of teachers did not take a final exam. As a result, these 1,000 teachers will be tested in June 1983, along with the second class of 1,900. This will be the first full-scale indication of the academic achievement of participants. In May 1982, the new shortwave transmitter and antenna were installed.

At the time of this evaluation study in March 1983, writing and printing of the final examination has been completed. Most production work has been finished and 11 instructional materials for the following academic year have been printed and delivered to the Regional Education Offices. The project staff has been cut back, and only one SIU advisor remains in Nepal.

V. PROJECT OBJECTIVES AND ACCOMPLISHMENTS

The use of radio for educational and developmental purposes has been expanding in recent years, but this project (RETT) represents the first intensive effort to reach a specific target audience with information and skills to improve on-the-job performance. As a ground-breaking project, it has taken on perhaps one of the most difficult challenges in education in Nepal, that of improving the skills and teaching methods of primary teachers as they perform daily in their own classrooms. The culture of primary schools is strongly traditional and reflects local community values and the limited educational experience of many of those who are teachers. It is constrained by minimal physical facilities and infrequent contact with outside forces for change in education.

This section reviews the project outputs and inputs, identifies relevant objectives as described in the project paper, presents the actual accomplishments, discusses the problems attendant to reaching the identified objective, and draws conclusions based on the information available and the collective judgment of the evaluation team members. Recommendations are contained in the final chapter of this report.

Goal and Purpose

The Radio Education Teacher Training Project seeks to increase the access of children in rural and remote areas to relevant, quality education by improving the skills of in-service teachers through teacher training. Training is delivered via regular radio broadcasts supported by self-instructional materials.

Traditionally, Nepal trains about eight hundred primary teachers per year through a combination of campus-based and outreach programs. In 1980, there were an estimated 6,000 untrained under SLC pass teachers in the primary schools. The goal of RETT is to dramatically expand access to training by enrolling up to 2,500 teachers per year, thus creating the capacity to train quantities of teachers at a per teacher cost far below the cost of alternative approaches.

Project Outputs

1. Enrollment in the Program

a. Objective: The project paper (PP) calls for an enrollment of 1,000 teachers the first year, and then 2,500 teachers per year until the need for qualified under SLC pass teachers is met.

b. Accomplishments: Approximately 1,100 teachers were enrolled in the first year, 1,900 in the second year in 69 of the 75 districts.

c. Discussion: The participants receive notices of their enrollment in the RETT program from the District Education Office and are requested to appear at a certain place and time for orientation. The number of teachers deciding to attend the orientation workshop is close to target goals, indicating that teachers genuinely value this opportunity. The incentives are high: teachers can study and still continue to live at home and teach in their schools, they receive the use of a radio for a year, a commodity they do not necessarily have access to, and they are eligible for 45 Rs/month training allowance if they pass the final exam. Their appreciation is expressed in letters sent to the RETT office and in our interviews.

The number of teachers enrolled in the second full year (1982-83) of RETT is only approximate since teacher background questionnaires have been received from only 34 of 69 districts participating in the program. How many teachers have sustained their interest in the program will be indicated by the number who decide to register to take the final exam to be given to both groups (1981-82 and 1982-83) in June 1983. The number of teachers actually recognized by the government as trained will depend on the pass rate of this exam.

The RETT curriculum underwent a review in the summer of 1982. The review committee recommended that additional material be added to the curriculum, which caused a delay in meeting the deadline for testing for the first group of RETT enrollees . As a consequence it was decided to test both groups together at the end of the second year, using an externally developed and

administered exam. Many variables will influence performance on the exam, making it difficult to predict the pass rate. A number of these variables will be discussed in later sections.

d. Conclusions: The enrollments have approached the targeted numbers of 3,500 for the first two years. Given the number of teachers trained prior to RETT (approximately 800-900 per year), these enrollment figures represent a major accomplishment, especially since their numbers are distributed across 69 of the 75 districts.

2. Radio Scripts and Self-Instructional Materials (SIMs)

a. Objective: The project paper calls for the production of 150 or more daily program packages accompanied by supporting text materials (2,500 copies).

b. Accomplishments: By October 1981, 300 radio scripts had been written. Between April and October 1981, 210 scripts and the accompanying SIMs had been written. The first parts of the SIMs were printed to be available for the first group of trainees in August 1981. The complete set was printed in December 1981; copies sufficient for the 1982-83 and 1983-84 teachers were produced. The SIMs were delivered to all the Regional Education Offices in the winter of 1982. Nonetheless, some Districts still have not received their eight months into the second year of the program. Radios with two sets of batteries were provided to teachers in most districts on time. There were some exceptions in the west and far west. There are six broadcasts each week from 5:30 to 6:30 p.m.; two are review program or reruns when requested by the teachers. Broadcasts, originally early in the afternoon, were switched to the later prime-time hour as a result of recommendations from teachers in the field and with the cooperation of Radio Nepal. Currently the required additional content material is also being broadcast. About 70% of the teachers interviewed indicated some problem with either the quality of the reception or the working of their radios. Earlier project research reports indicated a much lower rate related primarily to the need for additional batteries.

The RETT curriculum is based on the existing primary school curriculum and under SLC primary teaching training curriculum. It presents content relevant to what teachers must teach to children and methods that build on

the traditional instructional pattern of lecture, rote memorization, and choral student response. The radio broadcast presents two 20-minute instructional lessons separated by a magazine section covering other development-related topics, general interest information, and responses to teachers' questions. Nepali language, mathematics, and education are the basic subjects covered, but sections on social studies, physical education, health, art, and rural development are presented as well.

The SIMs, packaged in four separate books, are organized into lessons that complement the material presented in the radio broadcasts. Cartoons are frequently used to demonstrate how teachers are to use different methods in the classroom, and pictures to be used as flash cards are often included at the end of the lesson. The SIMs are designed to be used by teachers as guides in the classroom.

c. Discussion: Teachers indicated they genuinely enjoyed listening to the radio programs. Many said they had written questions to the RETT staff and had heard their answers aired on the radio. Unfortunately, there is no distribution tracing mechanism to indicate when the SIMs in each district were delivered to the teachers. In Gorkha, year 1 and 2 teachers received their SIMs on time. In Dang, on the other hand, the first group (1981-82) never received the second half of their SIMs, and the second group (1982-83) received their full set five to six months late. Since the final exam is based on the content of the SIMs, delayed or non-delivery may seriously affect a teacher's interest in the program and performance on the exam.

d. Conclusions: The quantitative outputs of the project have clearly been met. This represents a major commitment of time and effort on the part of the RETT staff. More than the proposed number of radio broadcasts were produced and all were broadcast on time. Corresponding lessons in the SIM's were written and printed in sufficient quantity for the next two groups of teachers.

The distribution mechanism for the SIMs appears to have been inadequate to guarantee that the teachers receive the materials on time. In the absence of a method for tracing the distribution process, it is difficult to assess the extent of this problem. The logistical problems of delivering

radios, batteries, and SIMs--first to 27 in 1981, and then 69 districts in 1982--are considerable. Many district offices are not accessible by either road or air; delivering materials requires the coordinated efforts of the project staff, the MOEC, and the Regional Education Offices. Given the effort and logistical support required, we question whether the implementation plan to expand to the whole country in the second year of the project was not overly ambitious.

3. Workshops

a. Objective: The project paper calls for a two-week orientation workshop, bimonthly, two-day workshops throughout the year, and a larger residence session to "intensify and complete the substantive instruction provided during the previous ten months." The residence sessions will conclude with a certification examination.

b. Accomplishments: Workshops were conducted during the pilot phase of the program. There was a two-week orientation workshop followed by four 2-day workshops at regular intervals. These were an important source of teacher input for improving the quality of the program. For the full implementation years the orientation workshop was conducted for these 3,000 teachers, nor does there appear to be a curriculum outline or plan for these workshops.

c. Discussion: The original project paper recognized the limitations of radio to convey all the skills appropriate to primary teaching by incorporating workshop sessions as an integral part of the program. One reason why these may not have been implemented is budgetary; funds had not been allocated for running these workshops. While the workshop concept may be essential to the success of the program, there is the question of the feasibility of providing the trained manpower to run these workshops in nearly all the districts of the country. To be effective, workshop leaders should be able to demonstrate the different techniques presented in the program, critique teachers in practice sessions, and lead discussions to clarify information presented in the radio broadcasts and self-instructional materials. This would involve extensive training of leaders unless the workshops were conducted by the project staff,

yet their numbers are too small to offer the workshops as widely as envisioned in the project paper.

d. Conclusions: The project does not appear to have seriously planned for workshops or looked for ways to overcome the manpower and budgetary constraints to running the workshops. Since contact sessions were viewed in the project paper as important, the impact of the program may be significantly affected by the non-implementation of this component.

4. Teacher Learning

a. Objective: By inference, the project paper assumes that through the training provided, teachers will have mastered the material covered in the RETT program.

b. Accomplishments: The final exam, as discussed in the enrollment section, may be an indication of the degree to which teachers have mastered the content of the RETT curriculum. This will be a function of the validity of the test and the conditions under which the exam is administered. The results should be available by August 1983. There are serious implications for the next group of teachers and future projects should a large number of these teachers fail.

c. Discussion: Systematic evaluative information on teacher learning after the pilot year of the program has not been collected. Consequently, the interviews conducted by two of the evaluation team members will have to serve as the basis for the following discussion. Thirty-four teachers in three districts were interviewed. (See Appendix A for a summary of the interview results.)

(1) Learning

Content: The teachers appear to be learning the content presented in the RETT materials to a limited extent. On average, responses to content-related questions were correct 30 percent of the time. An effort was made to ask simple questions taken directly from the materials.

Methods: Method-related questions were more difficult for teachers to answer correctly. Teachers were given objectives of different

lessons, shown pictures and flash-card materials contained in the SIMs and asked how they would use them to teach a lesson. They were also given a lesson objective from a SIM and asked how they would teach the class and what materials they would use. On average they were able to answer these types of questions correctly only about 15 percent of the time. Teachers appear to have difficulty understanding the content material (equal and unequal sets, place value on an abacus, for example), interpreting the pictures, and describing how they would teach in other than the traditional way.

Conclusion: Based on the teacher interviews, the evaluation team feels that teachers are learning limited content and have a minimal understanding and retention of the methods taught in RETT. Without this learning teachers cannot be expected to perform differently in the classroom. The following paragraphs present some hypotheses relevant to this conclusion.

Hypothesis 1: Teachers are not listening to the radio broadcasts regularly, or when they do, they are not attending carefully. Likewise, they do not study the SIMs carefully.

Discussion: Teachers estimated they missed an average of about ten lessons during the course of the program, although only half of the group currently enrolled had listened to the most recent broadcast. They claimed to be diligent in their listening habits, carrying their radios with them when they knew they were not going to be home at the broadcast hour. The teachers are not generally required to read their SIMs at the same time as the broadcast. At the end of a long day, a typical routine might be to listen to the program while relaxing, preparing a meal, or doing other chores around the house. Teachers may be listening to the programs but not attending to them very closely. After an hour broadcast it takes considerable effort to then study the SIMs. In addition, the SIMs, as mentioned earlier, were not received on time in some districts. When this happened in Dang, there was no evidence to indicate that teachers had read those lessons that had been broadcast previously.

Teachers are also uncertain about whether the final exam is really to be given since it was canceled last year, and whether they will ultimately receive the full training allowance for their effort. These conditions do not encourage regular attention to the program.

Hypothesis 2: The RETT curriculum, broadcasts, and materials are difficult for teachers to understand or are not perceived as useful to them in their present situation.

Teachers' responses to interview questions indicated they had difficulty understanding the logic of the lessons presented and describing how they would incorporate RETT methods in their teaching. A number of teachers said that given the conditions in their schools, they could not use what was being presented. Some lesson plans in the SIMs are appropriate for a single day of teaching; others extend over many days, possibly making their use confusing to the teachers. The math SIM follows the content of the student textbook but suggests frequent grouping of students and the use of flash cards, both difficult for teachers to accomplish in current classroom conditions. Most teachers admitted to being confused by the "Radio Samagri", a regular feature of the math SIM. The Nepali SIM describes how to teach simple language skills (vocabulary development, reading and writing simple words, etc.) These skills are not presented as such in the student's Nepali language book, and teachers are not told how to teach them using this textbook, their basic guide when they are in class. Many of the lessons seem simple for the intended grade level. The practice method is the basis for most of the lessons presented in Nepali. SIM teachers could not explain nor follow a specific lesson plan structured on this method in their classes.

The majority of these self-instructional materials were developed in a very short period of time. The first 80 lessons were field-tested with a group of ten Kathmandu teachers. Reports indicate that the remainder (200 lessons) were based on these prototype but received no field testing. We question whether quality and creativity can be sustained when production is so rapid and there is such limited feedback from the field.

The team listened to the radio broadcasts and reviewed several radio scripts, but we are not able to asses adequately the quality of these

broadcasts and their relationship to the SIMs. We have assumed that the SIMs represent the scope and depth of the RETT curriculum.

This team is concerned that teachers have difficulty understanding the methods and some of the content of the SIMs. The reasons may lie in the level and language of the presentation or the scope and organization of the curriculum itself.

Hypothesis 3: Even though RETT is a distance learning system, there is insufficient teacher support and face-to-face contact sessions for adequate learning to occur.

Discussion: Once teachers receive their radios and SIMs, the responsibility for study and learning is completely theirs. District Education Officers and Supervisors have received a minimal 4- to 5-hour orientation to the program. They are not issued radios or materials and feel they have no authority in the program. A short, intensive residential period of study, originally planned for the project, has not come to fruition. This would have provided the opportunity to observe new methods in action and to practice them in a supervised situation. There were no plans for other forms of distance correspondence to encourage teachers to keep up with their studies or give them feedback on their progress.

d. Summary: The evaluation team feels that each of these hypotheses, to some extent, contributes to the limited learning achieved by the teachers interviewed.

5. Teacher Classroom Performance

a. Objective: The RETT program will improve the teaching skills of in-service primary teachers.

b. Accomplishments: To date, there have been no systematic observations of teacher classroom behavior, although a series of classroom observation forms were published in a research report in October 1982.

c. Discussion: The evaluation team observed the classes of 19 teachers in Kabre, Gorkha, and Dang Districts. A discussion of the observation procedure and a summary of each class observed is included in Appendix B. Assessing the impact of the program on teaching behavior at this point is both

inappropriate and premature. As mentioned earlier, the culture of the primary school limits the potential of teacher training alone to influence what happens in the classroom. When some of the problems identified in the earlier sections with respect to distribution, teacher support, and material development are solved and fully implemented, then will be the time to cautiously assess the impact on teacher behavior.

The classroom observations were useful, though, in pinpointing areas in which teachers were having difficulty understanding the material.

d. Conclusion: Classroom observations can provide useful feedback in the development of radio scripts and written materials. It is inappropriate at this time to use classroom observations in a summative evaluation process to assess the impact of the program.

Project Inputs

1. Commodities and Radio Equipment

a. Objectives. The project paper provides for radio receivers and solar charging equipment for 2,750 sites, a shortwave transmitter and antenna, printing supplies, vehicles, and a project building with radio production studio.

b. Accomplishments. Most of the commodities were eventually supplied, although there were substantial delays in procurement of some of the equipment. Solar charging installations were tried and found too complicated and confining for rural listeners. Various receivers were tested; one produced under a UNICEF contract was found to provide good performance at a delivered price in Kathmandu of just over US $25. The radio has a standard medium wave AM band and two shortwave bands. It is powered by six standard "D-size" batteries. With normal use, only two sets of batteries are needed to power the radio for the 300 hours of broadcast time in the full RETT program, with additional power left over.

The project building and radio studio were not completed until late in 1981, after most production activities had been completed. The studio is

now being soundproofed and air-conditioned. Radio Nepal permitted the use of its facilities to produce broadcast tapes when other facilities were not available.

The transmitter and antenna were installed and operating by May 1982, three years behind schedule. Procurement complications, disagreements about where to locate the facility, and delays in obtaining land for the antenna all contributed to the late installation.

c. Discussion and Conclusions. The radio receivers apparently provide good reliability. Teachers reported adequate reception most of the time on the 60-meter band, which is the only frequency on which RETT programs are broadcast. The two sets of batteries supplied seem to be sufficient. Whether the radios are durable enough to survive multiple courses over several years remains to be seen. Some of the radios of the teachers interviewed have apparently developed loose wires that make reception erratic. Many teachers would like the option to buy a good radio through the project on some sort of an installment plan. This opportunity might both encourage teachers to take good care of their radios and be tied to some performance incentives.

The administration building and recording studio, despite the problems mentioned above, are adequate. Radio Nepal reports that the technical quality of the RETT programs is good. Programs seemed to us to be clear and professional-sounding.

The new transmitter is now functioning well after some initial failures. Due to some old equipment at Radio Nepal, it is difficult for Radio Nepal to broadcast two different programs simultaneously on different frequencies, even with the new transmitter in operation. When transmitting two programs, there is sometimes spillover so that both programs are heard together on a single frequency. Sometimes the program is accidentally broadcast on the wrong frequency, and sometimes transmissions break off intermittently. Presently the only time during the day when there are two different simultaneous transmissions is when the RETT program is on the air. Radio Nepal informed us that these problems will not be difficult or costly to fix and a proposal will be submitted explaining what is required. If the cost is not excessive, it would be a good idea to help Radio Nepal make the necessary

improvements. This would improve quality of the RETT transmissions and make it possible for Radio Nepal to effectively double its broadcast schedule by transmitting two simultaneous channes all day long.

2. Staff

a. Objective: The project paper assumes that the RETT will have the necessary staff and budget to properly implement the program.

b. Accomplishments: The project was initially located in the Institute of Education under the directorship of the Dean. In April 1980, responsibility for the project shifted to the Ministry of Education and Culture and was finally institutionalized there within the Curriculum Supervision Developmenmt Training Center (CSDTC).

c. Discussion and conclusions: Between 1979 and the end of 1982, the project had five different directors. For four of these directors, RETT was only one of many responsibilities. The project often experienced delays in receiving an adequate number of staff. Most of the staff deputed to the project were in junior posts (the equivalent of lecturer as below) in either the IOE or MOEC. There were delays in receiving HMG budget approval and actual funds for expenditures on field work and research.

While there were periods when the project received needed support in recruiting staff and in program implementation, we feel that overall the project lacked had the institutional stability and authority to implement the qualitative and quantitative goals of the project. The scope of this project demanded a larger cadre of highly educated Nepalese experienced in primary teacher training and curriculum development than were deputed to it. It suffered from unclear budgetary provisions and lacked clear authority to assure that materials were delivered to the field on time. If a project of this complexity is to succeed, the full commitment of the supporting administrative agencies is essential.

3. Training

a. Objectives: The Logical Framework specifies that 179 person-months of formal training would be provided to create a Nepali professional staff capable of carrying on the teacher training program.

b. Accomplishments: As the project progressed, the training component was strengthened. This training budget increased from $132,400 to $233,500, or 10% of the total AID budget. A total of 140 Nepalis received training services of one kind or another. Almost all training was short-term. Training activities were as follows:

	Activity	Number of Participants	Time (Person-Months)
a.	1-month study tours for HMG officials to Asian countries, Kenya, and the U.S. to visit related projects and institutions	10	10
b.	3-month training tours to the Asian Institute for the Development of Broadcasting (AIDB) to study development of materials and equipment maintenance for educational broadcasting	7	21
c.	3-month training tours in the U.S., at the SIU campus for RETT scriptwriters, producers, and educators	17	51
d.	Long-term U.S. participant training, consisting of one 12-month study program in language education and three 18-month Master's programs in radio engineering at SIU	4	66
e.	In-country, 8-week workshop in scriptwriting and production for RETT staff	5	10
f.	Radio maintenance workshops, in-country:		
	(1) Radio Nepal (3 workshops x 2 months x 16 participants);	48	96
	(2) Field maintenance of radio receivers, 5 workshops for village electricians and shopkeepers	46	12
g.	Evaluation training (in-country), informal on-the-job training in research methodologies (estimated time: 1/3 of evaluation advisor's 18-month tour = 6 months x 3 participants = 18 total P.M.)	3	18
	Total Participants	140	
	Total Months of Training		284

Estimates of on-the-job training are imprecise. Much of the staff training provided by the evaluation advisor, the radio production advisor, and the SIM advisor used a hands-on, learning-by-doing approach. The proportion of advisors' total time devoted to this kind of training is difficult to tabulate separately from their technical assistance responsibilities. A conservative estimate based on conversations with project staff is that about 90 person-months of informal, on-the-job instruction, in addition to the training summarized in the above table, were provided. If this is the case, a total of about 374 person-months, or 31 person-years, of formal and informal training were provided.

c. Discussion and Conclusions

(1) One-Month Study Tours: Few of the HMG officials who participated in the study tours at the beginning of the project are still directly involved in the project, but most occupy influential positions in related areas. The study tours appear to have generated support, understanding, and participation in the project among key government officials.

(2) Three-Month SIU Study Tours: The three-month study trips to Carbondale were generally appreciated by participants, but they contributed little to the objective of creating a Nepali professional staff capable of carrying on the teacher training program. There are several reasons. First, the period of training was too short. In specialized areas such as health education, curriculum design, research design, and statistics, three months' formal study is sufficient only for a superficial introduction to the material. Participants simply audited a few courses. All of those we interviewed reported that they had trouble understanding their classes at first, further reducing the period of effective instruction. Language difficulties reduced their ability to accomplish reading assignments and interact with students and teachers. All felt that six to twelve months of study would have been needed to provide them with an adequate background to assume significant project-related responsibilities.

Second, the timing of the SIU training was out of sequence. Most of the participants went to SIU after the period of most intensive development and production of materials and radio programs, rather than before.

A project update amends the purpose of the study tours to serve as incentives for reaching program targets. There has been little opportunity to apply what they learned since they returned.

Third, the individuals appointed to the project staff and sent for training were not in all cases well-suited for the kind of training and work responsibilities that were required by the project. Assignment of more educationally-qualified and motivated individuals to the project would have increased the payoff of the training component of the project.

Fourth, attrition led to the loss of some trained staff. Apparently the participants were of the impression that they were going to receive salary increases as a consequence of their training. Staff records indicate that two became disenchanted and left the project very soon after returning to Nepal. Five of 17 individuals trained are currently working on the project, others having returned to their permanent posts. These can be re-deputed to the project if new materials are to be produced. The question remains as to whether there are adequate monetary or other incentives to generate the level of sustained effort required.

Four of the five participants we talked to felt they had learned something of value at SIU. They felt that they were treated well and that their programs, as far as they went, were fairly well-suited to their responsibilities on the project. The SIU faculty members they dealt with were regarded as considerate, helpful, and knowledgeable. Guidance, counseling, and support services were good.

(3) Radio Maintenance Training: The SIU maintenance trainer reported the results of a student survey administered at the end of his course for technicians at Radio Nepal. Those surveyed reported that the courses were interesting and useful. The trainer reported good attendance, participation, and progress on the part of students.

Several participants of Radio Nepal, on the other hand, were critical of the courses, believing that they were too elemental and slow-moving. They felt that technical training provided by the Asian Institute for the Development of Broadcasting was better suited to their technical needs.

(4) On-the-Job Training: The RETT staff we interviewed were generally favorable in their comments about the guidance and informal training given by SIU advisors. All were regarded as knowledgeable. The staff found the on-the-job training practical, goal-oriented, and useful.

4. Research

a. Objectives: The Project Paper outlines an ambitious plan of evaluation research. The evaluation plan includes two kinds of research studies: (1) formative evaluation studies to enable the project team to adjust and improve its offerings to meet the needs and preferences of enrolled teachers, and (2) summative or "overall" evaluation studies to actually measure the impact of the program and compare its cost/effectiveness with traditional forms of instruction. The PP discussion states that a specific set of goals for knowledge gain and behavior change would be developed to measure the impact of the program on teachers. An experimental group of radio-trained teachers would be rated using these instruments and compared to a group of campus-trained teachers to give an empirical indication of the relative effectiveness of the two instructional methods.

b. Accomplishments

(1) Formative Evaluation: In order to pretest and improve programs and materials before they were put in final form, a panel of ten teachers from the Kathmandu area was organized. Each Friday afternoon during the initial material development phase, the panel would meet to listen to newly-taped programs and read instructional materials in draft. The panel was usually tested on the material before and after each lesson, and asked to critique the content and format of each lesson. Based on this information, the lesson would be revised and put into final form. This panel functioned for over a year reviewing approximately 80 of the total 300 scripts and lessons developed.

Formative evaluation activities also included surveys of the opinions and attitudes of teachers in the pilot year of the program and super-

visors in five districts. These included questions about the quality and speed of the broadcaster's voice, the usefulness and difficulty of the information, and the degree to which the programs had influenced their teaching.

(2) Summative Evaluation

(a) A refined summative evaluation plan was developed in July 1982 in accordance with the Project Paper outline. In 1981, a pretest of 111 multiple choice test items was developed to test mastery of the content areas in the curriculum. The test was not administered to the first full group of teachers who began the program in August 1981, because only half of the broadcast and written materials were available at that time. The test, along with the total curriculum, was completed in early 1982, and was given to a sample of 183 teachers at four sites in March 1982, six months after the course began. A research report indicates that the students scored very well on the test and suggested that this was because some of the material had been covered in the program and that some of the questions were perhaps too easy. An achievement test in basic math, nepali, and social studies showed that the general ability of the teachers, comparable to approximately 8th grade level, was quite similar across the country.

The plan called for the pre-post test to be administered again in June 1982 at the completion of the program. This test was to serve as the final certification test as well as provide summative feedback information to the project. Prior to the testing date, it was decided that additional material needed to be added to the curriculum and that the certification exam should be externally developed and administered. It was decided not to continue with the RETT post test in part because there was no longer an incentive for the teachers to take the exam. The "pre-post" test was not administered to any of the 1,900 teachers at the beginning of the second full year of implementation, 1982-83. The certification test is to be administered in June 1983. The evaluation plans also call for the re administration of the achievement test to provide information on teacher knowledge gains in the basic subject areas.

In the summer of 1982, a series of classroom observation forms were written. They identify specific behaviors expected of the teachers based on the content of the RETT curriculum. These still await field testing and implementation.

(3) Research Papers. The project produced 60 research papers between 1979 and March 1983. These are categorized as follows:

Category	Number of Reports
Reports on workshops	12
Radio reception and equipment	10
Results of opinion surveys and pretests	14
Training summaries	4
Descriptive and demographic analyses	8
Discussions of research methodologies	7
Concept papers	5

c. Discussion and Conclusions

The evaluation team feels that a commendable effort was made early in the project to use formative evaluation techniques to improve the quality of instructional materials and radio programming while they were under development. Both the review panel (10 teachers) and the pilot year (117 teachers) apparently provided feedback information that was utilized in subsequent production. The attitude surveys, asking teachers how useful the program was and the degree to which it had changed their teaching, were uniformly favorable.

The evaluation of the impact of the program appears to rest to date on (1) attitude surveys of the pilot year and selected first year teachers, 15 supervisors and District Education officers from several eastern districts,

and (2) letters written to the project by teachers in the field. Teachers uniformly expressed their appreciation, especially for the magazine section, and thanks to the different personalities involved. A few were from teachers not enrolled in the program seeking information on how they could participate. The research reports describe the project as having the desired impact on teachers.

There appear to be many reasons that a comprehensive evaluation has not occurred. The timing of the SIU evaluation expert's tour was not in phase with the evaluation needs of this project. In addition, the staff assigned to project evaluation had minimal experience in this area and found it difficult to sustain evaluation activities in the absence of technical support. The Project Grant Agreement assigned responsibility for development of the evaluation design, but AID neglected to assign responsibility for the implementation of the design. Funds were not available to send researchers into the field to collect data after the pilot year of the project. We also question whether complete summative evaluation should be expected when the project is still dealing with the problems of implementation.

We are not sure, however, that these difficulties entirely excuse the project for not having asked more forcefully the question of what was happening in the field. We feel that answers to this question should have been sought in a variety of ways—through field visits, interviews with teachers, visits to the classroom—throughout the life of the project. Even small non-representative samples would have been useful in the absence of any other information. Formative evaluation stopped before the majority of the materials were developed. The RETT staff needed to know how carefully the project was being implemented: when did materials actually reach the teachers; were teachers reading the SIMs; what parts could they understand, what parts were problematic; could teachers demonstrate the use of different methods and instructional materials; could they evaluate what students had learned; could they explain and then could they translate their words into action? We feel that, in the push to produce the target number of broadcasts and textbooks and enroll the target number of teachers, the project failed to keep asking the questions so essential to assuring that the quantity produced

was having the desired impact. In this sense we feel there was insufficient attention directed both to developing and implementing a realistic, useful, ongoing evaluation program.

The certification exam is to be administered in June 1983. We feel there are crtain caveats in interpreting the results of this exam as a measure of the impact of the program. The extent to which the questions are a valid reflection of the curriculum needs to be reviewed. The administrative process needs to be monitored for fairness and the scoring of the exam for consistency. Since there is no pre-test information, actual student gains over the course of the program cannot be measured. Even if pre- and post-tests can be administered, they provide information about what learning has taken place. Serious attention needs to be given to assessing the degree to which teachers can translate knowledge into action.

A final comment on the evaluation research component of the project should be noted. SIU has written, through the use of advisers and Nepali staff, a total of 60 "research reports" and a comprehensive report of the total project. While these reports offer interesting project documentation, they generally fall under the classification of field notes, not research in the sense of making comparisons or testing hypotheses. A project of this magnitude deserves more serious studies which are useful in assessing the potential impact of the program.

5. Technical Assistance

a. Objectives: The Project Paper provides for 129 months of U.S. technical assistance. With the exception of the team leader and the evaluation specialist, all technical assistance was to be directed primarily toward intensive training of Nepalese staff and not toward actual project activities.

b. Accomplishments: Technical assistance was provided in a timely fashion by the contractor. Long-term technical assistance levels were increased somewhat in the course of the project; short-term technical assistance was reduced. The following technical assistance services were delivered:

	Long-Term	Person-Months	
1.	Team Leader/Teacher Education	52	
2.	Radio Production Specialist	21	
3.	Self-Instructional Material Specialist	32	
4.	Evaluation Specialist	18	
	Total Long-Term	123	123

	Short-Term	Person-Months	
1.	Junior Technical Assistants (Radio Nepal)	9	
2.	Rural Radio Maintenance	2	
3.	Supervisory Training	2	
4.	Language Curriculum	2	
5.	Transmitter/Antenna bidding	1	
6.	Studio maintenance	2	
7.	Self-instruction	1	
8.	Project cost survey	1	
9.	Administrative support	1	
10.	Evaluation training	3	
11.	Curriculum	2	
12.	Transmitter/Antenna	1	
	Total Short-Term	27	27
	TOTAL TECHNICAL ASSISTANCE		150

c. Conclusions: The evaluation team was able to interview only one representative of the technical assistance contractor. Most reports from Nepali counterpart staff indicated that the advisors were conscientious individuals. Our specific technical comments on the materials and radio programming produced with the guidance of the SIU advisors are contained in other sections of this paper. The advisors apparently achieved the mix of training and technical assistance envisioned in the Project Paper.

We observed that many of the Nepali project staff do not communicate easily in English. Given the intensive schedule of work and training required by the project, we feel that it would have probably been advantageous if more speakers fluent in both English and Nepali had been available to the project.

Cost Analysis

This section presents cost figures for RETT teacher training and on-campus teacher training. Only the ongoing, yearly costs of training are used here for comparison. No development costs are included for either program. This is both a complex process and beyond the need of this study. The purpose of this analysis is to provide an approximate comparison of the actual ongoing training costs.

A. Campus Based Training -

HMG Inputs	1980 Costs1/
- Salary of teacher in training	1860
- Salary of substitute teacher	1550
- Instructors of IOE	775
- Other costs	388
	4573
Individual Inputs	
- Travel	75
- Added living expenses	1400
- Others	200
	1675
Total/student	RS. 6473
Total 1982/83 assuming 10% inflation	Rs. 7832

1/ Source: Dr. Jack Graham's up-date of the original project paper.

B. RETT Training

HMG Inputs	1982-83 Budget2/
Salaries & Allowances	377,000
TADA & service	160,000
Office supplies & magazines	43,000
Maintenance	15,000
Fuel	20,000
Other material, furniture, machines	45,000
Prizes	30,000
Miscellaneous	10,000
Radio Nepal Broadcasts (approx. 1000Rs/hour)	300,000
	1,000,000
Per student expenditure-1900 students enrolled	526 Rs.

Additional Individual Student-Costs		
- Textbooks (printed before 82-83)	29	
- Radio (1/3 cost, assume 3 year life)	120	
- Batteries	42	
- Registration for the final examination	45	
	236	
Per student cost for 1982/83		762

1/ Source RETT Project Budget (2039-40)

These figures indicate that campus based training for 1982-83 is roughly 10 times more expensive than the training provided via radio. It should also be pointed out that, the Campus based programs trained approximately one third the number of teachers that were trained via radio.

VI. GENERAL CONCLUSIONS

The Radio Education Teacher Training Project (RETT) has provided training for over 2,800 primary teachers in the last two years. This training has included 165 hours of radio broadcasts accompanied by four textbooks (Self-Instructonal Materials--SIMs); 2,500 radios and batteries were distributed. These activities were supported by a newly installed 100,000-watt shortwave transmitter and antenna and an administrative building complete with a recording studio. These quantitative accomplishments are impressive.

The objectives of the project were ambitious given the logistical problems of reaching teachers throughout the country especially in areas not accessible by plane or road. The project is even more ambitious in its qualitative objective of improving the classroom performance of primary teachers most of whom have only about an eighth grade education. Teaching performance is constrained by traditional values, a teacher's own schooling experience, the physical facilities of the school, and the rewards of being a primary teacher. Changing a teacher's daily behavior in the classroom will depend on many forces combining to create a more supportive environment for teachers. Teacher training is but one element in the process. It is also recognized that teachers change their behavior when they see new behaviors modeled by others and then have a chance to practice and repractice them in a supervised situation. The evaluation team feels that these issues should be kept in mind when considering both the outcome of RETT and plans for future programs.

Despite the quantitative accomplishments, this evaluation team has found that logistical constraints, equipment delays, staffing problems, and unrealistic deadlines diminished the impact of the RETT program. We are concerned, therefore, that the RETT teachers have not had sufficient opportunity to learn the content and methods-related information that are prerequisite to implementing new behaviors in the classroom.

We feel that RETT I, because of the problems of implementation, is not a full test of the potential for the educational use of radio in Nepal. Therefore, our recommendations suggest both a slightly different focus for a follow-on project as well as specific aspects of program design that are essential if a project is to succeed.

VII. RECOMMENDATIONS

1. RETT I and RETT II

Our interviews with teachers in the program suggest that content information may be conveyed more effectively via radio than methods-related material. With carefully tailored supporting technical material and some additional communication opportunities, learning subject material in nepali, math, science, english, and social studies, may prove to be a relatively effective use of the radio. We feel that learning new teaching methods involves not only understanding but also application. Teachers need to see techniques in action and have the opportunity to practice these themselves. In this case, radio can be one piece of a program that provides greater teacher support both at a distance and through workshop sessions.

We understand that the Ministry of Education and Culture is currently considering how to address two important needs: the training of the inservice SLC pass primary teachers and the upgrading of in-service below SLC teachers, particularly in the remote regions, who may have the equivalent of an eighth grade education or less. We would like to suggest that as a next step, RETT II continue to work with these under SLC teachers, building on the experience it has already gained in RETT I, by providing upgrading courses, particularly in math, science, and english to help these teachers. This focus can make use of the highly developed technology for writing programmed instructional materials, and can take advantage of the existing SLC infrastructure for examining the teachers and providing incentives for enrollment in the program. A training program for SLC pass teachers would require more workshop, feedback sessions and its own examination administered on a nationwide basis. This type of project may be more appropriately undertaken when there are better developed, locally available personnel and resources to support these activities. The concept of resource schools with their satel lite primary schools may, in time, provide the needed infrastructure.

The following specific recommendations address general project needs regardless of the target audience as well as more specific project activities.

1. Augmenting the Delivery System

The RETT radio-based approach has proven that it is able to deliver information at low cost to the target audience of teachers. However, the evaluation team has observed that the information is often received passively by listeners. There is no sense of urgency on the part of teachers to remember, understand, or apply the information they hear and read. They are not required to answer questions, discuss, or practice. As a result, we suspect that listening to the program at the end of the day is approached more as a chance to relax than as an intellectual or professional challenge.

We believe that some additional activities might increase learning and application of material learned. Some possible complementary interventions are:

a. A programmed text which would have to be completed and submitted at the end as a course requirement, including sections that would have to be filled in as the teacher listened carefully to the radio broadcast.

b. A correspondence and feedback mechanism by which teachers would be required to submit written exercises or quizzes periodically. These would be checked by project staff or supervisors, recorded, and returned to the student. The use of aerograms may prove more reliable than regular letters.

c. Periodic workshops at which participating teachers from one locality would meet to view demonstration classes, to practice-teach and critique each other, to discuss lessons, and to ask and answer questions. The Education for Rural Development Project in the Seti Zone run by HMG with the cooperation of UNDP, UNESCO, and UNICEF may provide a mechanism for implementing teacher contact sessions through resource schools. This project and its time line for expansion deserve consideration as RETT II is developed.

d. Written materials in the form of a teacher's guide. Since few schools now have teachers' guides, modifying existing or developing new guides might be feasible. The guides would correspond to each lesson in the student's text with the radio explicating and elaborating key elements.

e. Model teachers who would visit participating teachers in their schools periodically to demonstrate the teaching techniques discussed in the radio lessons and observe and critique participating teachers' classroom performance.

f. In-class radio broadcasts for primary students but designed to improve the teaching skills of the teacher. Radio directed instruction can model different teaching behaviors and initiate situations that the teacher can then follow through with after the broadcast.

These are illustrative of the sorts of activities that we feel would enhance the impact of the radio lessons by stimulating greater use of new teaching techniques by teachers in their classrooms. They would, of course, also increase the cost of the program in varying amounts.

We suggest that RETT II begin with a careful and systematic exploration of these and other possible techniques designed to make the radio-based delivery system more forceful. First, each possible mechanism should be elaborated conceptually, with analyses of cost and implementation implications if developed on a national scale. Next, a series of small-scale pilot tests of the different possible mechanisms, at differing degrees of intensity, should be performed to see how well they work and how much additional impact is achieved for the additional expenditure. The ongoing RETT I broadcasts and their participating teachers may serve as a ready laboratory for some of these studies. Careful attention to the learning of teachers currently enrolled may provide important information for future years.

Based on the results of the tests and cost projections, an optimal model of radio broadcasts and supplementary intervention can be derived. We estimate that this additional R&D work might take a year to complete, but we believe that the time and expense would probably be justified in the long run. This development phase should specify a realistic timetable for implementation both in terms of number and geographical distribution of teachers enrolled. This timetable will need to take into account the personnel support and communication infrastructure required by the project.

2. Curriculum Development for Primary Teacher Training

The teacher training curriculum undergoes periodic change as training targets and populations vary. Before a new project is undertaken, we recommend that a series of decisions be made to standardize and stabilize the training process so that:

a. The content across programs is consistent and relevant to primary teachers;

b. The process by which teachers pass the course and receive appropriate recognition is defined;

c. The rewards of the training are clearly defined with respect to the training allowance and the opportunity for credit toward a further degree.

With these decisions, a standard core curriculum can be developed and then adapted to different delivery systems--"on the spot" training, distance learning, or radio teacher training, for example.

The goal of this curriculum development process should be to provide high quality and continuity across programs.

3. Implementation

Based on the experience of the RETT I project, several implementation approaches can be suggested that would improve the chances of success of RETT II.

a. Staff: A mechanism needs to be found for staffing the project to assure that local personnel are recruited for the project team based on their interest and educational qualifications. There must be financial incentives and contractual obligations to assure that trained staff remain with the project. Perhaps some technical assistance by Nepalese experts can be recruited to the project on a contractual basis. The position of project director should be filled by an experienced individual who is given the authority to coordinate and direct all project activities. The director should be full-time on the project.

b. Training: After the staff has been assembled, a training plan should be designed to provide intensive technical training only in specialized skill areas where the staff is deficient. Training should be tailored to meet the

specific requirements of individual trainees. Trainees should be sent to whatever institutions offer the best training in their particular areas and should be contractually obligated to remain with the project upon return.

c. Technical Assistance: All advisors should be hired on the basis of technical skills needed in the project. All advisors, American or Nepali, should be experienced, recognized experts in their particular fields.

d. Evaluation: A careful evaluation methodology should be developed by the project staff as the project materials and delivery system take shape. Project funds should be available for both planning and implementation. The responsibilities of the different parties to participate in the evaluation and produce the final evaluation studies should be specified. The evaluation plan should take into account the logistical problems of doing research in Nepal.

e. Delivery of Materials: A process to assure on-time delivery of radios and textbooks needs to be established and adequately funded and responsibilities of local district education officers and supervisors clearly defined.

We feel that with careful attention to these recommendations, RETT II can be a valuable educational tool for Nepal.

2. Beyond RETT II

The radio-based teacher training project has given a glimpse of the potential of broadcast radio to perform development-related jobs in Nepal. Radio is evolving quickly in Nepal and offers an intriguing challenge to international and national development agencies. Policy decisions made over the next few years can determine whether broadcast radio will become a more powerful and effective tool for development or whether it will be a bland entertainment and news medium.

Radio Nepal has several unique characteristics that enhance its potential as a development tool. First, Radio Nepal does not have to compete for listeners with commercial broadcasters who attract the mass listening audience with popular music and soap operas.

Second, it seems to have effective national coverage. The broadcasting systems of many developing countries consist largely of U.S. style AM and FM transmission facilities which provide effective coverage of urban population centers but do not reliably reach remote rural areas. Radio Nepal's shortwave transmission capability apparently gives reasonably full, reliable, and effective coverage to all rural areas. Few other centralized government broadcast systems have such capability.

Finally, Radio Nepal is at a crossroads where it has an important opportunity to re-examine its resources and policies and to more clearly define its role as a national institution. The ultra-modern new production facility provided by the Government of Japan has removed a major physical constraint to Radio Nepal's ability to produce more and better programming. New transmission facilities provided by U.S. and Japanese foreign assistance will make it possible for Radio Nepal to double its programming from 14 to 28 hours a day by transmitting different programs simultaneously on two different frequencies. Medium-wave AM coverage is also being expanded, and it appears that the radio listening audience is growing at an accelerating pace.

Radio Nepal presently has six old studios, partially financed by AID in 1966. These will be supplemented by five large, modern, new Japanese studios within the next three months.

Medium-wave AM broadcasts presently reach the Kathmandu valley, through a 10-kilowatt transmitter located in Kathmandu. This capacity is now being upgraded wtih two new 100 kilowatt Japanese transmitters, one in Kathmandu and one in Pokhara, which will effectively reach 55% of the population with medium-wave coverage. Radio Nepal has asked for two additional Japanese medium-wave transmitters to extend medium-wave coverage to most of the rest of the country and hopes to receive this equipment within the next 3 to 5 years.

Three 100-kilowatt shortwave transmitters and two 5-kilowatt standby transmitters provide adequate shortwave coverage of the entire country on several different shortwave bands. Normally, two of the 100 kilowatt transmitters are operated on two different frequencies, and the third is kept on standby. Except for the one-hour daily RETT program, all medium-wave and shortwave frequencies carry exactly the same programming throughout the year.

The Chief Engineer of Radio Nepal indicated that he will need up to 150 more engineers and technicians to adequately operate and maintain all his equipment. The Japanese did not provide training along with their equipment, so technical staff at Radio Nepal is going to be stretched thin by the new facilities.

Radio Nepal is going to have to decide what to do with its growing production and transmission capacity and its expanding audience. Since staff development is not keeping pace with expanding facilities, Radio Nepal may have to generate large amounts of easy-to-produce music and entertainment programming simply to fill the new time and frequencies. This would be a waste of a potentially powerful educational medium.

Radio Nepal has been willing to transmit programs of limited duration produced by development agencies, but it has not usually had the facilities or staff to help with production. As a result, small production facilities have proliferated. The Ministry of Agriculture, the Curriculum, Supervision, Traning Development Center, the Family Planning Program, and the Radio Education Teacher Training project, all have their own small, minimally-

equipped and staffed production facilities. A local bank is now equipping a new private production studio just to produce one weekly ten-minute program.

The fragmented and uncoordinated condition of development broadcasting clearly diminishes its effectivenesss. If a "critical mass" of professional production staff, modern equipment and facilities, and effective evaluation, planning, and management capabilities could somehow be assembled in Radio Nepal to serve all the different development organizations, radio broadcasting might become a powerful force for constructive change. Radio Nepal management reported substantial requests from HMG ministries and private volunteer organizations for more production and transmission of development related, public service broadcasting. To date it has been able to respond to only a fraction of the demand.

New educational radio services should be considered as follow-on projects building on the experience and capability developed by the teacher training projects. One especially promising possibility is expanding the direct use of radio broadcasts in the country's rural schools to teach difficult subjects like Nepali and English. Presently, UNICEF is supporting a project in this area. Experience in other projects has shown that classroom broadcasting can be highly cost-effective. Second, mechanisms should be explored for increasing the quality and quantity of instructional broadcasting for adults in the areas of health, basic education, agriculture, nutrition, and population. Third, AID should examine the possibility of supporting production of a low-cost radio receiver produced by the local private sector, since the high cost of radios constrains radio ownership by rural families.

APPENDIX A

Teacher Interviews

Thirty-four teachers in Gorkha (13), Dang (19), and Kabre (20) participated in interviews lasting from 45 minutes to an hour. The interview questions were field tested in Kabre before the team went to Gorkha and then Dang.

The questions sample content and methods covered in RETT in Math, Nepali, Social Studies, Health and Education. Questions explored teachers' ability to understand and use flash cards material and pictures in the SIMs. The information sampled had been broadcast at different periods of time ranging from the beginning of the program to just a few weeks ago. The questions were developed in consultation with one acting in charge of the project, the pre-test questionnaire, and the project research reports.

In Dang, we encountered three days of holiday for Holi instead of the expected one. This limited the number of classes observed, but we were able to interview a number of teachers in their homes and at the District Education Offices as they came to register for the final exam. In Gorkha, three teachers were interviewed at the DEO's office.

The table on the following page summarizes the interview results. The questions evolved throughout the interview process as we searched for more effective ways of tapping teachers' understanding. Consequently, the number of respondent varies and some questions were asked only in Dang District.

Comments: There was little or no difference between the response of the first and second year teachers. Gorkha teachers were slightly more familiar with the content of the program.

TABLE 1

SUMMARY OF TEACHER INTERVIEWS

Questions		Responses
Indicated problems hearing the broadcast due to general reception or radio malfunction problems		23 (72%) (N=32)
Approximate numer of lessons missed per year	Average range	10 0-40 (N=32)
Listened to most recent program--current group only	Yes	6 (50%)
Could remember what was covered in program	Yes	4 (N=12)
Listens to program occasionally--first group		6 (30%)
Can describe how to test student's eyesight or hearing	Yes Partially No	6 (19%) 11 15 (N=32)
Can make a temporary abacus as shown in the Math SIM	Yes Partially No	11 (34%) 1 20 (N=32)
Can show and explain a three-digit number on the abacus	Yes Partially No	4 (28%) 6 5 (N=15)
Can order the language skills--listening, speaking, reading and writing, when given a list of these skills	Yes No	21 (66%) 11 5 (N=32)
Can explain the "radio shikshan" on page 93 of Math SIM (circling numbers totaling 14)	Yes Partially No	5 (16%) 2 24 (N=32)
After reading the lesson objective, can explain how to use pictures on page 104 (math SIM) to teach subtraction through unequal groups.	Yes Partially No	5 (16%) 6 20 (N=31)
After reading the objective, can use the picture on page 181 or 189 (Nepali SIM) to develop sentences to teach the concepts of gender.	Yes Partially No	4 (12%) 9 18 (N=32)

APPENDIX B

Summaries of Classroom Observations

Methodology: Teachers were asked to teach their regular lesson as usual, to teach it as best they could, to choose a lesson from a selected list, or to teach a specific but fairly simple lesson as outlined in the SIM. This variety reflects an effort to give teachers every opportunity to use the methods learned from the RETT program. Teachers were given the SIM and time to read and prepare their lessons when asked to teach a specific lesson.

In the structured lessons, we asked teachers to teach Nepali language classes because the methodology presented in RETT is straightforward, repeated in virtually every lesson and builds on their standard pattern of lecture and rote, choral, single word student responses. It is also the subject that appears to be relatively difficult for teachers to teach and therefore an important focus for teacher training efforts. The specific lessons were either recommended by The Project Head or identified in an observation form in Research Report No. 54.

The RETT approach, the practice method, asks teachers to present new material usually in a visual, concrete form and then drill the students carefully but chorally on this material. Drill is followed by a testing phase in which many individual students are asked questions to assess the extent of learning in a lesson. Evaluation asks students to apply the new material in a slightly different context both through choral drill and individual answers. If students have not learned the material, reteaching is suggested. As we observed classes, we looked specifically for these behaviors.

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Findings:

We observed teachers using students, books, pens and pictures on the board to present the content of their lesson which was usually overly simple for the students. There was no choral drill in which students responded using whole sentences; testing when it occurred was limited to three or four individuals giving single word answers, and no evaluation occurred. Student participation was limited to the traditional single word, choral answer. The exception occurred when students were called to the front of the room to serve as examples in comparative and superlative sentences presented by the teacher. Teachers usually jumped quickly from one sentence or word to another and then returned randomly to them later on in the lesson. Teachers' presentations were peppered throughout with "yes-no" responses from the students. There was no evidence that teachers used the flash card materials provided in the SIMs. They may be reluctant to tear out pages that have text written on the backside.

The first group of teachers (1981-82) included six teachers who were involved in the pilot year as well. We detected no difference betwen the performance of these and the other teachers. We also found no relationship between the ability to answer interview questions correctly and in-class performance. The teacher who taught the best lesson performed poorly in the interview.

The following are brief descriptions of each class observed, the conditions under which they were taught, and the year in which the teacher enrolled in the program. These are summaries of running descriptions, often several pages long, of teacher and student activities observed during each class.

Summaries of Classroom Observations

(Unless otherwise indicated, assume choral, single word responses by the students.)

1. Kavre-Kopasi (1982, asked to teach a math or Nepali class as best he could). Second grade math. Students practice writing numbers from 1 to 100 while he corrects copies. At the end of class, gives an example of a two-digit addition, trying to use an abacus.

2. Kavre-Kopasi (1981, asked to teach best class.) Third grade Nepali. Presents a clay image of a god and goddess not related to the story. Reads a story from the Nepali language textbook, paragraph by paragraph, explaining as he goes along. Asks two to three factual questions at the end.

3. Gorkha (1980, 1981 from a list of options, chose to teach this lesson.) Second grade. Teaches borrowing in subtraction. Puts problem on board explaining as he goes, solves problems for students.

45	=	4 tens	+	5 ones
26	=	2 tens	+	6 ones

Tries to use abacus but the beads don't stay in place, also uanble to use abacus to show borrowing. After a second example, students asked to fill in chorally as he writes on board. Calls on two individual students. Students seem to have problems with simple subtraction. Class too crowded for teacher to move.

4. Gorkha (1981, given lesson on comaparatives, page 221, to teach). Uses students standing at seats to make up sentences using comparative (old, tall, fat). Compares chalk and pencils. Two students make up their own sentences. Draws pictures of boys on board. Writes sentences using comparatives on board, students copy. Draws pictures of orange, mango, making sentences. Writes sentence, students copy from board. Tone of voice--gentle. This was the best class observed. This teacher was a recent SLC pass who took primary education as his vocational subject.

5. Gorkha (1982, asked to teach lesson on comparison, page 221). Draws pictures from book on board making up sentences. Calls six students to front in pairs and makes sentences about them. Calls on four students for individual single word answers. Does not use "bhanda subhanda", instead, "which is big 3 or 2." Repeated sentences in random order. Refers frequently to book, uncertain what to do.

6. Gorkha (1981, asked to teach his regular class). Second grade Nepali. Opens book to page 37. Reads and rereads first paragraph, explaining words. Asks yes, no, one word answer questions. Stops here. Will teach one page like this over two periods.

7. Gorkha (1980, 1981, asked to teach comparatives, page 221). Second grade. Draws pictures from book on board making up sentence. Draws three boys on board asking students to name smallest, biggest, thinnest. Writes sentence, Gopal is bigger than Shyam. Wants students to write their own sentence using comparatives. Students cannot do. Reviews several times, still unable to do. Students are able only to copy sentence from board.

8. Gorkha (1980, 1981, asked to teach comparatives, page 221). Third grade. In introduction, says that we can compare things in lots of ways, lists eight or ten adjectives. Draws pictures from board, making up sentences in fairly random order. Writes seven sentences on board from book. Students spend most of class copying these sentences. He corrects copies. This teacher was the most knowledgeable in the interview.

9. Gorkha (1981, asked to teach comparatives, page 221). Second grade. Draws picture of fruits on board making up sentences. Compares students on exam scores. Brings four or five students to front and compares them. Draws picture of three birds to make sentences. Asks students to draw things that are three different sizes—birds, flowers, etg. Students spend most of class drawing. Teacher checks students' drawings.

10. Gorkha (1981, teaches regular class). Health. Third grade. Teacher lectures about clean hands and cutting fingernails. Asks single word choral answer questions.

11. Dang (1980, 1981, asked to teach class on Vocabulary Development, Nepali SIM, page 24). Third grade. Shows scissors, scissors cut cloth, paper, spends class time asking yes-no questions about what are and are not scissors and what they do. Asks three or four students to respond individually using single words.

12. Dang (1980, 1981, asked to teach class in Vocabulary Development, page 24). Second grade. Shows pen, writes word on board, shows paper, writes on paper with pen. Fingernail--watch—these words written on board. Makes sentences describing how they are used and which object is in which hand. Tells the color of each. Asks about five students to give single word answers individually.

13. Dang (1981, asked to teach regular class as well as she could.) Second grade math. Puts addition on board, following page 25 in book:

$$\begin{array}{r} 29 \\ +\ \underline{47} \end{array}$$

Uses abacus but only to count, not for carrying. Explains problem. Puts another on board for students to do. They come to front. She marked copy wrong or right, explains problem to class, puts another on board.

14. Dang (1980, 1981, asked to teach Vocabulary Development, page 24). First grade. She was not teaching at her own school. Shows a pen, chalk, table, fingernail. Has students hold up the items they have. Explains why nails should be kept short. Asks two students individual questions. Introduces in front and behind standing by table. Introduces hat, when we wear, and draws on board. Reviews all items. Asks where she is standing relative to the blackboard. Ask children what slates are for.

Appendix C

INTERVIEWES

Mr. Bhogendra Shah	- Director, Radio Nepal, HMG
Mr. Bhola Prasad Lohani	- Acting Director, CTSDC, Ministry of Education and Culture, HMG
Dr. Birendra Kumar Mallik	- Dean, Institute of Education, Tribhuvan University
Mrs. Chandra Kala Kiran	- Former Chief, CTSDC Ministry of Education and Culture, HMG
Mr. Chandra Raman Parajuli	- Chief, Distance Learning, Ministry of Education, Tribhuvan University
Mr. Haribol Khanal	- Language Specialist, Radio Education Teacher Training
Mr. Hem Chandra Shrestha	- Assistant Secretary, Training Section, Ministry of Education, HMG
Mr. Jack W. Graham	- SIU Evaluation Specialist, Radio Education Teacher Training
Dr. Kedar Nath Shrestha	- Former Dean, Institute of Education and Director of Radio Education Teacher Training
Mr. Krishna Bahadur Khatri	- Chief Engineer, Radio Nepal, Department of Broadcasting, Ministry of Communication and Transportation, HMG
Mr. Mahendra Bahadur Thapa	- Former Associate Director, Radio Education Teacher Training
Mr. Mana Prasad Wagley	- Chief, Radio Education Teacher Training
Mr. Narayan Prasad Rajbhandari	- Joint Secretary, General Administration Division, Ministry of Education and Culture, HMG

Dr. Narshingha Naryan Singha	- Secretary, Ministry of Education and Culture, HMG
Dr. Panna Lal Pradhan	- Chief, Planning Division, Trubuhuvan University
Mr. Shradha Man Sakya	- Research Officer, Radio Education Teacher Training
Dr. Suresh Raj Sharma	- Member Secretary, National Education Committee

Appendix D

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