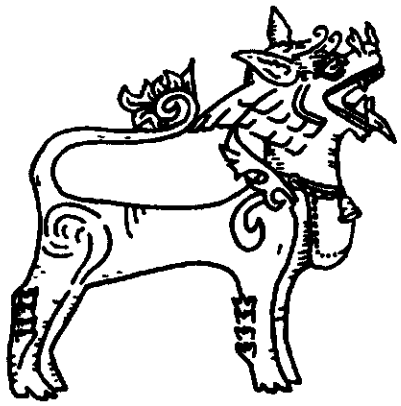
RADIO FOR SCHOOL BROADCASTING IN NEPAL

An Evaluation Study of School Broadcasting Programme



Submitted To: United Nations Children's Fund
Kathmandu, Nepal.

Submitted By: New ERA
Kathmandu, Nepal.

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PROJECT STAFF

New ERA is a private/non-profit research group in Kathmandu, Nepal. The following staff members contributed to this study:

1. Mr. Shri Krishna Baidya
2. Mr. Saroj Bhattarai
3. Mr. Dhruba Lall Gorkhali
4. Mr. Chandra Gopal Jha
5. Miss Minerva Shrestha
6. Mr. Shyam Lall Shrestha
7. Mr. Trailokya Man Singh Shrestha - Project Manager
8. Mr. Siddhartha Man Tuladhar

The project team received frequent support during various stages of the study from Dr. Gajendra Man Shrestha, Project Consultant; Mr. Kedar Mathema, Consultant; and Mr. Mahesh Adhikari, Technical Consultant. Editorial help in the report writing phase of this study was provided by Mr. Wilstein, the Editorial Consultant to this study.

I. SCHOOL BROADCASTING IN NEPAL

Radio broadcasting to schools in Nepal began in 1962 with the production of nine 15 minute general education programmes for students and the distribution of 200 radios to teachers through the College of Education. A 15 minute adult education programme was begun in 1963 and both series, which were broadcast weekly, continued until 1966.

Following W.R. Clark's report for UNESCO in 1970, His Majesty's Government (HMG) requested a school broadcasting adviser from the British Government under the Colombo Plan and asked UNICEF to provide studio equipment.

The Clark report, which may have led to the inclusion of school broadcasting in HMG's National Education System Plan of 1971, acknowledged the difficulties that would be faced:

> "...the training of teachers in the use and care of the school radio, the proper setting up of listening groups in the school, the many physical problems in ill-constructed, temporary or otherwise unsuitable premises, the adjustment of school timetables to accord with the times of the broadcasts, the carrying out of necessary supplementary and follow-up teaching and not least the obtaining of a reliable evaluation as to whether the best use has been made of the programmes and whether they are indeed suitable for classes."

Despite this list, the report endorsed radios as "a precious outlet through which enriched education may be brought to isolated communities."

Margaret Sheffield, the British adviser, arrived in Kathmandu in June, 1971 and began work at the Audio-Visual Division (A-V D) of the Janak Educational Materials Organization, which was assigned responsibility for the project by HMG. Soon afterwards, the Radio Unit of A-V D began producing a weekly

"Teacher's Programme" intended to prepare teachers for the planned school broadcasting series.

In her preliminary report upon arrival, the British adviser wrote "it is of utmost importance that a large effort is made to train the teachers in the use of school broadcasts before the transmissions to the schools begin."

However, in her report of May 1972, the adviser wrote:

> "School broadcasts are extremely easy for the teacher to make use of. There is hardly anything to be learnt about 'using' School Broadcasting. After all, they are only radio programmes. Naturally the teacher must switch the radio on at the right time, and switch it off after the programme is over, and naturally the class must be sitting close enough to the radio to hear the programme clearly. But this is about all that the teacher has to do. Anything else that he or she should do, such as ask a few questions to make sure that the programme was understood, will be mentioned by the announcer on the radio."

The teacher programmes produced by the adviser and A-V D in 1971 were therefore designed with the purpose of "popularizing" the planned student broadcasts rather than with training the teachers in how to effectively use the radios in the classrooms.

With the improved studio facilities provided by UNICEF at a cost of about $13,000 in November, 1972, the Radio Unit prepared demonstration school programmes in grade 4 social studies. An experimental phase of Sunday afternoon broadcasts began on April 22, 1973. Eighteen schools in Kaski, Chitwan and Kavre districts were given radios in this first stage in return for a signed promise to listen to the broadcasts and fill in the evaluation forms.

In her final report in December, 1974, the adviser included the results of the evaluation forms after the first 41 broadcasts.

Asked whether the programmes were suitable for the students, 95.7% of the teachers said yes. Asked whether the subject matter was clear, 94.3% said yes. Asked how helpful the broadcasts were, 91% said helpful or very helpful. Asked how much the broadcasts helped the children "understand what they didn't understand in class," 93.5% replied "somewhat" or "very much." And 100% of the teachers responded that they found each of the 41 programmes "useful" or "very useful" as opposed to "not useful."

(One of the teachers who participated in that test six years ago recently told New ERA: "I answered yes and said everything was very good because we wanted to keep the radios. If I said it was no good, I thought they might take it back. I didn't want to be the person to deprive other schools of the radio.")

In January, 1975, weekly programmes for grade 4 English and grade 5 social studies were introduced.

Some 500 portable radios (Philips, model no. 90 RL 315) supplied by UNICEF at a cost of $11,538 were then distributed over the next two years by the Ministry of Education (MOE) through district education offices to headmasters of all schools with grades 1-5 in 17 districts. (According to the 1975-76 Directory of Educational Institutions, there were about 2,000 schools with grades 1-5 in 75 districts around the country. UNICEF pledged an additional 1,500 radios for the project but so far has failed to provide them).

The distribution of the original 500 radios apparently was thorough and no schools with grades 1-5 in the areas New ERA surveyed were found which didn't receive them. Exceptions were new schools and former primary schools (grades 1-3) which were expanded since 1975 to include the lower secondary grades.

No instructions were given to headmasters or teachers at the time of distribution and no committments were made by them to use the radios in the classrooms. Indeed, many headmasters and teachers New ERA interviewed thought the radios were an extra benefit of their job.

By 1976, the Radio Unit of A-V D had produced 108 programmes for classroom use:

Subject	Programme No.
Grade 1 Nepali	10
Grade 2 Nepali	10
Grade 3 Nepali	10
Grade 4 Social studies	26
Grade 4 English	26
Grade 5 Social studies	26

The series were broadcast over Radio Nepal on Sunday (grade 4 social studies), Monday (grade 4 English), Tuesday (grade 5 social studies) and Wednesday (grades 1-3 Nepali). The programmes were broadcast at 2 p.m. for 30 minutes.

All lessons were transmitted on a cyclical basis. Grades 4 and 5 programmes were broadcast from 1-26 throughout the school year, except for the Desain holiday, and the same programmes were repeated at the conclusion of the cycle. For primary grade students (1-3), 10 lessons were transmitted for grade 1, followed by 10 for grade 2 and then 10 for grade 3. The same programmes were repeated each year for new grade 1, 2 and 3 students.

Some programmes were modified but no new series were produced in 1977 or 1978 because of a lack of additional "air" time on Radio Nepal, according to the head of A-V D. A-V D became part of the Textbook, Curriculum and Supervision Development

Centre in October 1978 and in 1979 a grade 4 science series was begun and broadcast on Thursdays.

The objective of all the school radio programmes, the head of A-V D told New ERA in an interview, is "to supplement the teachers in the class" and "to teach any lesson from the text-book so that it will be understood very well by the students."

Lacking trained teachers

increasing skills of teachers?

Visual aids and time Tables

II. OBJECTIVES AND METHODOLOGY

New ERA research teams visited 36 radio schools and 17 non-radio schools in eight districts representing the hill, valley and terai (plains) regions of Nepal. Two other districts were to have been surveyed but weather and travel problems made them inaccessible.

The eight districts visited were Kavre Palanchok, Bhojpur, Surkhet, and Tanahu in the hills, Kathmandu and Bhaktapur in the valley and Dhanusha and Rupendehi in the terai.

In each district, we selected five to eight schools, or about 15 per cent of all schools provided with UNICEF radios. For every two radio schools, a similar school without radio about three hours walk from both schools was selected as a control. In one case, no comparable control school was available.

We interviewed a total of 53 headmasters, 97 teachers, 8 district education officers, 16 supervisors, 24 local leaders and 243 students. We also conducted interviews with officials and staff members at Audio-Visual Division of the Textbook, Curriculum and Supervision Development Centre.

New ERA designed and administered written achievement tests for grade 2 Nepali, grade 4 English and grade 5 social studies.

In schools with radios, programmes from actual broadcasts were played under normal classroom conditions using portable tape recorders. Each cassette was played only once and was followed by a half-hour test based on information contained in that programme. At non-radio schools, the same tests were administered without playing the tapes. In all cases, the tests referred to textbook information previously covered in the classrooms.

The objectives of this study, commissioned by UNICEF, were:

1. To describe the status of the school broadcasting project and evaluate its effectiveness.

2. To identify problems and make recommendations regarding a proposed expansion of the project. improve quality?

3. To identify problems in the use of radio receivers in schools and recommend improvements for their maintenance and repair.

4. To evaluate the current feedback process from the schools to A-V D and to suggest improvements.

5. To assess the language comprehensibility of the present school programmes and the relevance of the programmes to curricula.

6. To measure student achievement in programme subjects and compare the results of radio schools with non-radio schools.

III. PROGRAMME PRODUCTION

1. Current Status: The Radio Unit of the Audio-Visual Division produces the school broadcasts in addition to other programmes for the Ministry of Education. The unit has good studio facilities and a staff of 11 trained producers, writers and technicians, each with at least seven years of experience.

The process of programme development begins with an agreement by the Ministry of Education, A-V D, the Textbook, Curriculum and Supervision Development Centre and Radio Nepal to produce a new series and allot it a half-hour of "air" time each week. After the subject and grade level of a series is decided, the head of A-V D assigns a teacher to write the "subject matter" for a script based on the textbook for that grade.

A script writer then writes the first draft, supplementing the textbook material with his own experience, research and imagination. Sound effects and dialogue between characters are used to dramatize the programmes. Musical interludes are sometimes played to give the students and teachers time to discuss what they've just heard.

The first draft of the script is reviewed by the producer, the second draft by the editor. Once the second draft is approved, it is submitted to the head of A-V D for final approval and/or comments.

The producer is in charge of all technical aspects of studio production, although the head of A-V D supervises that stage as well. With the completion of rehearsals, which normally require about one week, the programme is tape-recorded.

According to the head of A-V D, when the programme is complete, the producer is supposed to take the tape to two or three schools in the Kathmandu valley for pre-testing. The sites and number of

pre-tests are determined by the availability of funds for transportation. The editor and producer are supposed to review the results of the pre-tests and pass them on to the head of A-V D. The programmes are then to be revised and pre-tested again in two to three different schools, also in the Kathmandu valley. After the programmes are modified once more, they are ~~to be~~ considered ready for broadcasting.

According to other A-V D staff members, however, the programmes are rarely pre-tested, even in Kathmandu. Said once producer: "Pre-testing is not necessary. We are familiar with what the students and teachers can understand and need. Pre-testing is only important for people coming from abroad."

Teachers in radio schools evaluate each new series on printed forms distributed through the district education offices. The forms are returned to A-V D for analysis.

2. Problems: Limited "air" time on Radio Nepal and the absence of a separate education channel on Radio Nepal has inhibited the growth of the school broadcasting series, which was originally planned to cover a wide variety of subjects in many grades.

The grade 4 science series currently being produced is the first new series since 1976. Other series which were planned but not implemented include: Nepali for grades 4 and 8, social studies for grades 6 and 8, science for grades 6, 8 and 10, English for grade 8, pre-vocational instruction for grade 6 and 10, agriculture for grade 8, home science for grade 8, foreign language for grade 10, and weekly general programmes for grades 1-3.

The Radio Unit has many responsibilities aside from the school broadcasting project and there has been discontent among the staff recently concerning workload, salaries, and job security.

All our school visits were made on broadcast days but the radios were actually present in only 11 of the 36 radios schools. At the other 25 schools, the radios were brought in from private homes at our request or because of our presence. Private use of the radios by school officials and other adults was reportedly very common. (The reasons why school radios were used privately and the effect of this on the project are discussed more fully in Section VI).

At only two schools, both in Bhaktapur in the Kathmandu valley, were the radios used regularly in the classrooms, according to a consensus of the headmasters, teachers and students there. At these schools, the English programmes were used every week when classes were in session. Grade 4 and 5 social studies and primary grade Nepali programmes were used somewhat less frequently.

All school series now begin around December 15, the second day of Poush on the Nepali calendar.

Grade 4 and 5 programmes, which are supposed to cover one year's curricula in line with the textbooks, are broadcast in order weekly from 1-26. The same series are then repeated. The Nepali series for primary grade students on Wednesdays begins with 10 weekly broadcasts for grade 1, followed by 10 for grade 2 and 10 for grade 3. When grade 3 is completed, grade 1 begins again. Even if the repeat series are not completed by December 15, they are stopped and the cycle begins all over for the next year.

Schools in the Kathmandu valley and parts of the hills miss the first two months of broadcasts because they begin their school year around February 15, after a winter vacation. Schools in the populous terai and other parts of the hills begin December 15, but miss the broadcasts during their summer vacation June 15 - August 15. The terai schools also miss

IV. CLASSROOM USE OF RADIOS

Three major findings emerged from our observation of classes and interviews with headmasters, teachers, students, district education officers and local leaders.

First, only two of the 36 radio schools visited listened to the broadcasts regularly in the classrooms.

Second, nearly all the radios distributed for students in classrooms were used instead privately by headmasters, teachers and other adults.

Third, because of scheduling differences, it is impossible for most students to listen to the school broadcasts regularly at the same pace as their classroom curricula.

1. Current Status: Conflicting reports were received regarding the actual use of radios in the classrooms.

None of the eight district education officers said the radios were always used in the classrooms. Four said they were sometimes used, two said never and two didn't know.

Among the supervisers, two said the radios were always used, eight said sometimes, three said never and three didn't know. One-third of the teachers claimed they used the radios regularly in class and 26 per cent of the headmasters said the radios were used frequently.

Only 30 of the 243 students interviewed, however, said their teachers had ever used the radio in the classroom in the last year. Of these, seven said they'd listened fewer than five times, seven said between 6-20 times, eight said 21-40 times, five said over 40 and three didn't know. We found no significant difference among the responses of students in any of the grades.

UNICEF should prepare a pre-testing manual specifically for school radio programming and continue to conduct pre-testing seminars to train employees of A-V D.

In order to involve teachers in the process of programme development and get a better sense of classroom conditions, new programme evaluation forms should be designed with yes/no and multiple choice questions that will be simple for teachers to answer and more informative to programme personnel. An independent research group should be contracted to collate and analyze these forms.

To facilitate coordination and communication between A-V D and village schools, educational specialists, government agencies, libraries and other sources of information, UNICEF should consider providing A-V D with an adequate number of vehicles. These vehicles should be restricted to use only in connection with school broadcasting and teacher programmes.

UNICEF should also help A-V D to start its own library of sound effects tapes as well as books and magazines in the fields of radio production, programme development and educational broadcasting.

Review boards consisting of local teachers, school supervisors and educational specialists in each of the four zones around Nepal should be formed to meet annually and discuss the effectiveness of radio programming and recommend improvements. The written recommendations of these review boards should be submitted to A-V D, the Planning Division of MOE and UNICEF.

A-V D lacks a good sound effects library and books and magazines to help it stay abreast of modern techniques in radio production.

A-V D feels it is handicapped by a lack of vehicles which prevents frequent visits to rural areas. Without readily available transportation, A-V D says it is unable to adequately pre-test its programmes in schools outside the Kathmandu valley or to meet regularly with teachers, educational specialists and students.

About one-third of the teachers interviewed felt the programmes contained too much information to be absorbed by the students in one sitting. Some scripts, they said, went on and on, changing lesson "stress areas" without warning.

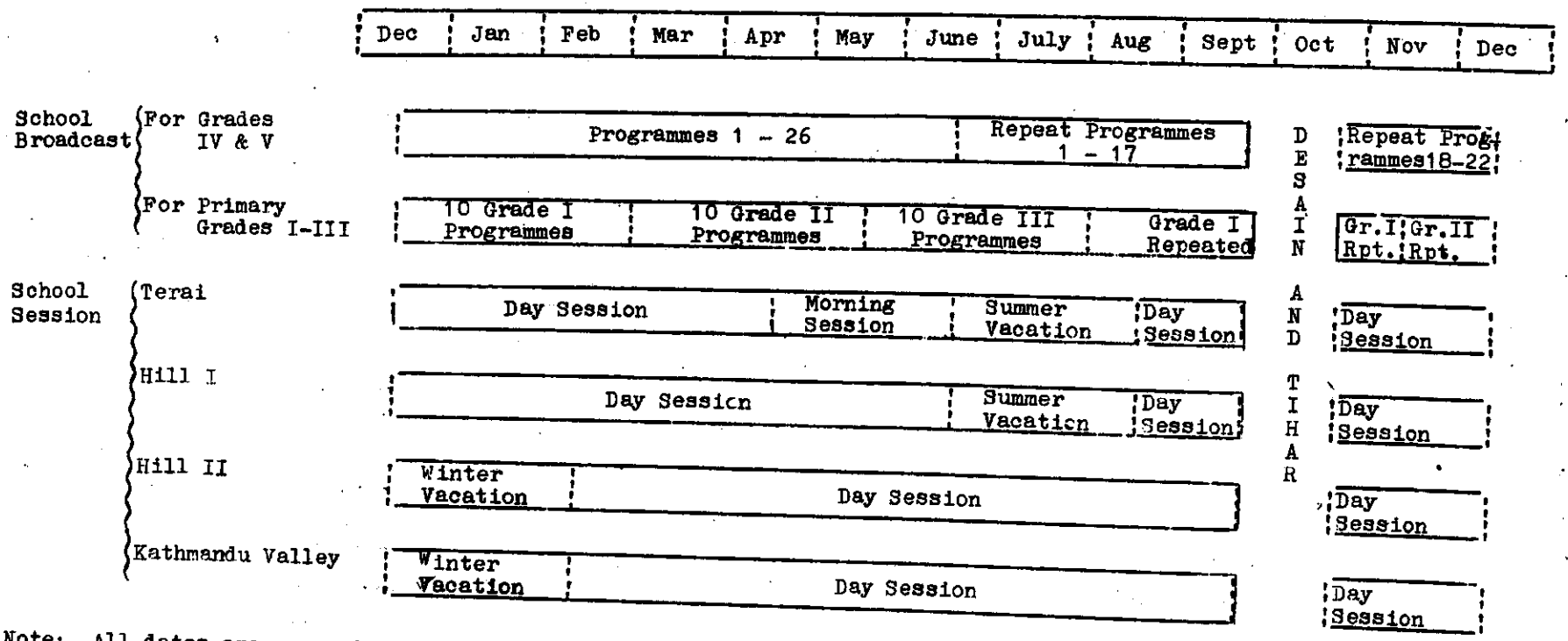
Sixty percent of all teachers interviewed said they needed more training in using the radio in class.

The programme evaluation forms filled out by teachers yielded largely positive general comments, but the head of A-V D has expressed reservations about the veracity and significance of these reports. The forms did not encourage specific suggestions or invite teacher participation in programme development.

3. Recommendations: A national educational radio channel should be established to accomodate new school series, teacher programmes and other educational broadcasts and to allow more flexibility for scheduling programmes to suit classes in different areas.

All programmes should be thoroughly pre-tested jointly by A-V D and an independent research group in classrooms in several districts in the terai, valley and hill regions.

SCHOOL CALENDAR AND RADIO PROGRAMME SCHEDULE



Note: All dates are approximate due to differences between Nepali and English calendars. Individual holidays have not been listed.

two months of broadcasts just before their vacation when they switch to early morning sessions. The broadcasts are all at 2 p.m.

The only series students in the terai are able to listen to completely and in line with their classroom curricula is Nepali for grade 1. Grade 2 Nepali is interrupted midway when the students switch to mornings and grade 3 is broadcast when all terai schools are on vacation. The grade 4 and 5 students can hear approximately the first 17 programmes at the beginning of the year but then have to wait six months to hear 18-22. They never hear 23-26 in the classroom.

The only series students in the Kathmandu valley and some hill schools can listen to completely and somewhat in line with their classroom curricula are grades 2 and 3 Nepali. Grade I Nepali is broadcast during their winter vacations and repeated at the end of the term. The grade 4 and 5 programmes also begin during winter vacations, two months before the school year starts, so the students would hear, say, 9-26 to be followed by 1-8.

Only about half the hill schools, of all the schools in Nepal, are able to listen to the entire series in grade 1, 2, 4 and 5 in line with their curricula. Most of the grade 3 programmes are broadcast during the summer vacations of these schools and are not repeated.

2. Problems: The distribution of radios under the supervision of district education offices did not take into account such factors as the school calendars, local resources to pay the cost of batteries, school facilities, the number of classes in each grade and the training of teachers. All these, however, influence the actual use of radios in classrooms. (See also sections VI and VIII).

Teachers were faced with the pressure of daily class routines and the need to complete course curricula within a fixed time period. They had a choice of either conducting lessons to conform with the radio programme or continuing their own instruction without the radios. Since the programmes frequently were either behind or ahead of the lessons being taught, and the teachers in most cases didn't know how to integrate the programmes, they tended to simply ignore them.

There was no indication from DEO's school supervisers or headmasters that teachers were actively encouraged to incorporate radio instruction into their daily routines. It was easy, therefore, for teachers to avoid the use of radios.

NESP regulations required schools to submit monthly progress reports covering, among other things, enrollment data, teacher attendance records and the number of classes conducted. No questions were asked concerning the frequency of radio use.

The distribution of radios, one to a school, did not take into account the size of student enrollment. Seven of the 36 radio schools we visited had two sections in grade 1, one had three sections in grade 1, one school had two sections in grade 2, two had two sections in grade 3, eight had two sections in grade 4 and five had two sections in grade 5. Problems regarding space and maintaining discipline in large classes were other considerations which discouraged teachers from using the radios in the classrooms.

Recommendations: School broadcasts should be transmitted on a separate national educational radio channel or on regional channels and should be scheduled to conform to the school calendars.

A-V D, the Ministry of Education and UNICEF should immediately organize short term workshops and seminars at the district

headquarters to train teachers in all radio schools in the use of radios in the classrooms.

Training in classroom radio instruction as well as care and maintenance of radios should be a required course for all students at the Institute of Education.

In order to overcome current neglect of the radios, MOE should direct all radio schools to schedule programme lessons into their daily routines and to include the use of radios in their monthly progress reports.

A-V D and UNICEF should publish properly pre-tested pamphlets and posters to be distributed to schools to popularize and encourage greater use of radios in the classrooms. These should include the times, dates and brief summaries of broadcasts for each school year.

Multiple section schools should be provided with additional radios or extension speakers that are both compatible with the current radios and appropriate for the size of the classrooms.

V. LANGUAGE

1. Current Status: Nepal is a country with a great diversity of ethnic groups and languages. Some 26 languages are spoken among the 13 million people in this land of mountains, valleys and plains bordered on the north by China and the South by India.

In the 53 schools and villages visited by New ERA during this study, the following languages were heard: Nepali, Newari, Bhojpuri, Maithali, Hindi, Tamang, Gurung, Awadhi, Magar, Rai, Tharu and Limbu.

All the school radio programmes are taught in Nepali, the national language, and all teachers are required to know it. The background information and instructions for English language programmes were also in Nepali. Some teachers, however, conduct classes in the local languages. The textbooks are in Nepali, except the English text, but the teachers explain them in the local languages, sometimes the only languages their children hear until they attend primary school.

Although languages vary from village to village, rather than by district, it may be said generally that Nepali was the most widely understood language in five of the eight districts we visited.

In the two terai districts, Bhojpuri was the dominant language in Rupandehi while Maithali was most popular in Dhanusha. In Bhaktapur, in the Kathmandu valley, Newari was most commonly spoken.

However, even in three districts where other languages were dominant, Nepali was widely understood. It was not unusual for people to understand two, three or even four languages to

varying degrees. In the terai, for example, many people spoke their local language but also understood some Nepali and Hindi.

2. Problems: The vocabulary levels of teachers were not always equal to that of the school programmes, even though all teachers were required to be able to read, write and speak Nepali.

Of the 97 radio school teachers interviewed, 78 said they "easily understood" the language of the school programmes. Only one said he did not. Eighteen had no response or did not know. However, our researchers reported that some of the teachers, especially in the terai, who said they understood, may not have. These teachers had difficulty understanding other questions and simple conversations in Nepali.

In villages where Nepali was rarely spoken except in the schools, the children appeared to have very low vocabulary levels in Nepali, although we did not conduct specific tests to measure them.

Radio classes were observed in 11 schools and in five of them the teacher left the room and let the students listen on their own. Thus, the person who best understood Nepali was not present during the broadcasts.

In addition to using a language which was not easily understood by all students and a vocabulary level which may have been too high for those who did understand basic Nepali, the programmes were also criticized by some teachers and local leaders for aiming more at an urban audience rather than a rural one.

More than half the teachers felt the programmes should be more colloquialized and less "sanskritized" or scholarly. Some teachers said the English lessons in grade 4 were helpful to them in learning correct pronounciation and conversational

styles but these programmes were not easily understood by a majority of teachers and students.

3. Recommendations: Vocabulary lists for each grade from 1-5 should be prepared by the Textbook, Curriculum and Supervision Development Centre and be distributed to A-V D and all schools.

Each radio programme should attempt to adhere as closely as possible to the vocabulary list of the grade for which it is directed.

Teachers should be required to listen to the programmes along with the students and to discuss with them any questions they have afterwards.

The programmes should be balanced for urban and rural audiences and should be as colloquialized as possible.

Programmes in English should be spoken slowly and distinctly with many phrases repeated for emphasis.

We do not recommend translating the broadcasts into local languages. Nepali is by far the most widely understood language and continued broadcasts in Nepali will help more people learn the language, an implicit objective of school education.

VI. COST OF RADIO USE TO SCHOOLS

Data for this section was provided by the district education officers, school headmasters and teachers. New ERA researchers supplemented this information with visits to local markets.

1. Current Status: The two main expenses to schools regarding radio use are battery replacements and repair costs.

The transistor radios distributed by UNICEF each required four 1.5 volt, size "D" batteries. All of the schools which received radios during distribution in 1974-75 were located relatively close (within a day's walk) to markets where batteries were sold. As a result, no schools reported difficulty in finding replacement batteries. Only two schools (one each in Rupandehi and Dhanusha districts in the terai) reported adapting the radios to electricity.

The price of a set of four size "D" batteries currently ranges from Rs. 12 in the Kathmandu valley and other commercial centres to Rs. 15 in outlying districts. (At the present official rate of exchange, Rs. 11.90 is equal to US $1).

It is difficult to determine exactly how long each set of batteries is capable of performing satisfactorily under different circumstances. In some commercial centres, fresher batteries may be more readily available while those sold in rural districts may be somewhat exhausted (because of warm weather, poor storage and longer shelf life) even before purchase.

It was estimated by a majority of school officials, however, that one set of batteries generally lasted for 15-20 broadcasts or about one month's total of programmes. Each school would need 8-10 sets of batteries to listen to all the programmes throughout the year, if the officials' estimate is true. The cost for this number of batteries would therefore range from Rs. 96 to Rs. 120

in commercial centres and from Rs. 120 to Rs. 150 in rural areas.

In actual practice, however, all the radios were used outside the classrooms by school officials and other adults. Given this, it was not surprising that officials claimed that about 20 sets of batteries were really needed for each radio over the course of a year. This would raise the cost to Rs. 240 in commercial centres and Rs. 300 in rural districts.

Another expense to schools regarding radios was for repairs. As shown in section VII, this was relatively minor, varying from Rs. 25 (in most cases) to Rs. 100 (in two cases) per year. These costs were paid in the same manner as the batteries.

2. Problems: Since battery and repair costs were frequently paid by individuals, the radios were virtually taken over for private use. This practice severely curtailed the use of radios in the classrooms.

Similarly, individual purchases of batteries tended to develop a feeling among other teachers that the radios should not be used without the permission of the person who brought the batteries.

Since schools could not readily afford to replace weak batteries, radios were often used with exhausted, sometimes leaking batteries that made listening difficult and could lead to serious radio damage.

None of the schools surveyed maintained specific records of the number of batteries purchased or the costs. Funds for batteries were taken either from the miscellaneous part of the budgets or from individual teachers and other local residents who paid for them privately in return for use of the radios when they weren't needed for the school broadcasts.

The district education offices never made specific contributions towards the purchase of batteries but schools were free to use the quarterly miscellaneous contributions for batteries and maintenance. There was no difference between the miscellaneous allocations to radio and non-radio schools.

Other sources of income for batteries were donations from teachers, contributions from the local communities and income from land owned by the schools.

Only half of the 36 schools surveyed reported that they could afford to use their miscellaneous funds for batteries. Of these, seven indicated they spent between Rs. 100 and Rs. 125 per year. Eleven schools said they spent less than Rs. 40 for batteries. The remaining 18 schools said they could not afford to allocate money from their miscellaneous funds and batteries were purchased through arrangements with various individuals.

3. Recommendations: Batteries for all school radios should be considered by the Ministry of Education as basic classroom necessities similar to other education materials such as chalk and chemicals for science. Miscellaneous allocations for radio schools should take into account battery and repair costs and be higher than those to non-radio schools.

Each radio school should be allocated funds to purchase at least 20 sets of batteries a year in order that the radios may be used for classroom lessons and teacher programmes. Schools should be encouraged to quickly replace weak batteries.

All radios and batteries should be considered school property for use primarily in the classrooms and for teacher programmes. DEO's and headmasters should discourage any private use of them by non-school officials.

Adapters should be provided where electricity is available and alternative energy sources, especially solar energy, should be tested to replace batteries.

VII. MAINTENANCE OF SCHOOL RADIOS

1. Current Status: Nearly all schools visited reported few or no problems in radio maintenance. Most of the radios distributed were durable and none needed major repairs. Of the 36 radios checked, 15 were found to be in very good operating condition. The remaining 21 needed minor repairs but were operable.

Eleven radios had improperly functioning volume controls. Seven radios had damaged tuning dials. Two radios were cracked on the outside and two others both had broken handles and antennas.

Thirty-three radios had locally made protective cloth covers but all were nevertheless exposed to dust, damp and dirt.

None of the school officials felt there were any problems in locating a "competent" person to repair the radios. All radio schools were relatively close to facilities where minor repairs could be made.

2. Problems: Since the radios are all less than five years old, major repair problems have not yet arisen. In the future, it is possible that major repairs may be needed beyond the skill of local repairmen and replacement radios may be necessary.

Despite the contention of two-thirds of the teachers that radios were locked up each night in the schools, it was observed by New ERA that 25 of the 36 radios were instead in the homes of the headmasters and other local residents. Private use of the radios may be an important reason for the delay in the maintenance of loose volume and tuning knobs. The condition of the radios may have been adequate for private use, so needed repairs were delayed since costs had to be paid by the user personally.

There was a general feeling among teachers that delays in making repairs contributed to progressively bad reception and subsequent non-use of the radios in schools.

There was also some ignorance among teachers and headmasters concerning the proper care of radios. Some teachers continued to use weak and defective batteries and allowed leaking batteries to remain inside the radios. A few people even felt that leaking batteries contributed to better tuning and sound.

3. Recommendations: All school radios should be serviced annually by competent local repairmen. Loose knobs should be fixed before they become serious problems and dust should be removed from the inside. MOE should provide funds for such annual servicing.

Teacher workshops on classroom use of radios should include simple care and repair techniques and should supply schools with basic repair kits.

The Institute of Education should include radio care and repair in a required course on radio use in the classroom.

VIII. SCHOOL CONDITIONS

Individual school conditions were not considered during the distribution of radios. One radio was given to each school with grades 1-5 in all the designated districts. The variety of school conditions, however, presented a variety of problems. Information for this section was compiled from measurements and observations made by New ERA researchers. Attendance figures are based on actual attendance on the days of our survey, not official attendance lists.

1. Current Status: Classrooms in all the radio schools were observed for size, construction, light conditions and ventilation.

Nine of the 36 radio schools had multiple sections in at least one grade and in seven of them different classes were held in the same room simultaneously. Partition walls in those schools either had not been built or were in disrepair.

Construction materials varied greatly, even within the same schools. Outside walls were made of brick, stone, cement, bamboo and/or wood. Two classrooms, both in Dhanusha schools, had no walls. Floors were made of mud, brick cement, stone or wood. Roofs were stone, cement, wood, grass, corrugated tin or clay tiles. One school in Rupendehi was under construction and had no roof.

Although many schools were mixed structures combining a variety of materials and differed from village to village, typical hill schools had stone walls, mud floors and stone or wooden roofs. Schools in the Kathmandu valley usually had brick walls, brick or mud floors and wood, bamboo, tin or tiled roofs. Typical terai schools had cement walls, cement or mud floors and cement or grass roofs.

The smallest classrooms were generally in the hills, where attendance was lowest and the population least dense. The largest classrooms were in the terai. Typical hill classrooms had approximately 150 square feet of floor space, valley schools had about 200 square feet and terai schools about 300 square feet. The largest classroom was in Dhanusha in the terai and measured 588 square feet. The smallest was in Bhojpur in the eastern hills and measured 108 square feet.

Hill schools usually had only one or two shuttered windows or openings in a classroom. Valley classrooms had 2-3 windows, made of wood or glass. Terai classrooms had 3-4 windows, usually glass or bamboo. Light and ventilation was poorest in the hill schools but generally inadequate everywhere.

Student attendance was greatest in grade 1, followed in order by grades 4, 2, 3 and 5. (Grades 1 and 4 are the entrance points for primary and secondary schools, respectively. Many students drop out after the first grade, hence fewer second and third graders. Schools with grade 4 draw additional students from primary schools in their area but again there is a high dropout rate and fewer students in grade 5).

Attendance varied widely from school to school. Figures here include only grades 1-5 although all the schools surveyed had classes beyond grade 5. Twenty-one schools went up to grade 7 and fifteen schools went to grade 10.

One school in Bhojpur had a total of 23 students in grades 1-5. A school in Surkhet, in the far western hills, had 374 students. A school in Tanahu in the western hills had 131 students.

The largest school in the Kathmandu valley, in Bhaktapur, had 603 students. The smallest valley school, also in Bhaktapur, had 185 students.

In the terai, the largest school had 291 students. The smallest terai school had 199 students.

Per capita classroom space, of course, also varied greatly. Minimum floor space in each grade ranged from 2-4 square feet per student where attendance was high in small classrooms. Maximum floor space ranged from 11 square feet per student to 100 square feet where there were only a few students in a large room.

Grade 1 per capita space ranged from a minimum of two square feet to a maximum of 11 square feet. Grade 2 ranged 3-100 square feet per student; grade 3 from 4-30 square feet; grade 4, 4-27 square feet; and grade 5, 3.5-71 square feet.

2. Problems: Many factors within the classrooms inhibited regular use of the radios. Acoustics were poor. Children were crowded into small spaces, huddled close to the available light and ventilation.

Noises from outside were bothersome. Partition walls between rooms were often too low and did not block out sounds from other classes. Some classes shared the same room without any partition.

Radios could not always be played at loud enough levels because they would disturb the other classes. Teachers in these other classes often complained that the radio was bothering them and some teachers who tried to use the radio were forced to stop.

When the radio was used it was usually placed on the teacher's desk at the front of the room or just outside the door. The students crowded around it on benches or on the floor and looked up at it, straining to hear.

One teacher commented: "Radio school students tend to lose one class period a week whereas non-radio school students do not have to 'pay' for the pleasure of looking at the radio."

3. Recommendations: Rather than moving the radio from room to room, each school should have a separate classroom set aside for radio listening. This room should be large enough to seat everyone comfortably and should be as far from the other classrooms as possible. It should be "sound-proofed" with locally available materials such as straw mats, woven grass, corn leaves, etc. School supervisors and headmasters should be taught simple sound-proofing techniques in order to use these materials efficiently.

A low table, rather than a teacher's desk, should be used for the radio. This should be placed inside the room in such a position so that proper sound will reach the greatest number of students.

If radio rooms were considered "special" rooms with an adequate number of desks, benches and furniture taken from other classrooms, this would enhance the atmosphere of radio listening. This special room could be used by other classes when the radio is not on but would be reserved for radio classes during the hours of school programmes. Multiple section schools should be given additional radios or extension speakers and should rotate the use of the radio room and the regular classrooms.

The Building Design Unit of the Ministry of Education should consider the needs of radio listening in future school designs.

IX. STUDENT ACHIEVEMENT TESTS

In the planning of this study it was decided that a comparison of student achievement test results between radio and non-radio schools would serve as a useful indicator of school broadcasting's effectiveness. Regretably, we were unable to produce a reliable comparison.

The test results showed no significant difference between radio and non-radio school students in any of the grades or districts. However, the results do not, in fact, compare schools using radios with non-radio schools since only two of the 36 radio schools were reported to have used the radios regularly.

More accurately, the chart below compares students in schools which have radios but use them infrequently and ineffectively with students in schools without radios. A finding of no significant difference in the scores might therefore be expected.

Student achievement, though, is a function of many variables such as the relative experience and training of teachers, classroom conditions and the availability of educational materials. These and other factors were not equal between the radio and non-radio schools in our survey. Teachers in the non-radio schools selected in many districts had more experience and training.

The written tests we administered reflected to a large degree the students' ability to read and write Nepali. Some of the students, particularly in grade 2, did not complete the tests and in most cases the scores were uniformly low. A comparison between the two schools which used the radio and other non-radio schools was inadequate because of the small sampling.

Mean Scores in Percentages of Radio and Non-Radio Schools for Specified Grades and Subjects

Districts	Nepali Grade II		English Grade IV		Soc. Studies Grade V	
	Radio	Non-Radio	Radio	Non-Radio	Radio	Non-Radio
Kathmandu	59.4	75.9	60	84	66	69.3
Bhaktapur	46.2	46.2	48	54	66	69.3
Kavre	56.1	49.5	56	72	72.6	52.8
Tanahu	49.5	46.2	56	46	69.3	62.7
Bhojpur	52.8	52.8	60	58	62:7	75.9
Surkhet	52.8	62.7	34	52	79.2	59.4
Dhanusha	56.1	56.1	46	58	56.1	59.4
Rupendehi	69.3	46.2	60	48	66	69.3
Overall Mean	55.7	55.5	54.8	60	64.9	66.4

SUMMARY

Radio for school broadcasting was intended as a classroom aid for teachers around Nepal. Yet, judging by our sample, very few of the 500 radios supplied by UNICEF were used regularly in the classes.

Many school officials and local residents instead took over the radios for their private use and any benefits to the students were indirect, i.e., teachers listening to various other educational and news programmes outside the classroom may have become better teachers or may have passed some of this information on to the students.

Most teachers were never told why the radios were provided, were never trained in how to use them effectively with the students and were never officially encouraged to use them in the classrooms. Indeed, when they used the radios at all, the teachers usually just turned them on and left the room.

The scheduling of the school calendars and the programmes made it impossible for most students to listen to a full cycle of broadcasts in line with their classroom curricula.

Battery and maintenance costs were not budgeted for the schools and miscellaneous funds were often inadequate.

Classroom conditions, especially overcrowding, made radio use difficult and bothersome to teachers and students in other classes. The programmes, all produced in Nepali, were hard for non-Nepali speaking students to understand without the help of teachers and were too "urbanized" and "sanskritized" for many village schools.

Programmes were not adequately pre-tested. Criticisms and suggestions by school officials about the content and quality

of the programmes were vague, misleading and hard to compile because of poorly designed feedback forms.

If blame for the project's failures may be focused on any one aspect, it would be on the planning of it. If teachers had been thoroughly trained first in the proper use of radios in the classroom and told the purpose of the project, if lessons were broadcast in line with the school calendars, if programmes had been properly pre-tested, if conditions in the schools had been better considered, if battery and maintenance costs had been budgeted and specific instructions made before distribution, then perhaps the project would have had a fairer test.

Expansion or continuation of the project should take all these factors into consideration. No one or two changes are likely to improve the effectiveness of school broadcasting and we make the following recommendations realizing that only a thorough overhaul of the project can help it attain its original goals:

1. A national educational radio channel or regional stations should be established and programmes broadcast in coordination with the school calendars.

2. The Ministry of Education, the Audio-Visual Division and UNICEF should conduct workshops at the district headquarters to train teachers in classroom radio use and radio maintenance.

3. Radio training and maintenance should be a required course at the Institute of Education.

4. UNICEF should help train A-V D staff members in pre-test skills and all programmes should be thoroughly pre-tested in hill, valley and terai schools. An independent research group should assist with the pre-testing and design and compile new evaluation forms for teachers.

5. UNICEF should provide an adequate number of vehicles to A-V D to facilitate pre-testing and communication with village schools, educational specialists, government agencies, libraries and other sources of information.

6. UNICEF should also help A-V D to start a library of sound effects tapes as well as books and magazines in the fields of radio production, programme development and educational broadcasting.

7. A-V D and UNICEF should publish pamphlets and posters for schools to encourage programme use. The times, dates and summaries of the broadcasts throughout the year should be included.

8. The Ministry of Education should direct all radio schools to schedule lessons into daily routines and include the number of radio lessons in their monthly reports. Teachers should be required to listen to the programmes and discuss them with the students.

9. Review boards consisting of teachers, supervisors and educational specialists in each of the four zones around Nepal should meet annually and discuss the effectiveness of radio programming. Their written recommendations should be submitted to A-V D, MOE and UNICEF.

10. Vocabulary lists for each grade should be compiled by the Textbook, Curriculum and Supervision Development Centre and distributed to A-V D and all schools. The broadcasts should adhere as closely as possible to these lists and should be colloquialized and balanced for urban and rural audiences.

11. English programmes should be spoken slowly and distinctly.

12. Batteries should be considered by MOE as basic classroom necessities. Miscellaneous allocations should be larger to radio schools than non-radio schools to provide for the purchase of 20 sets of batteries per year.

13. Radios and batteries should be considered school property and private use should be discouraged.

14. Adapters should be provided where electricity is available and alternative energy sources, such as solar energy, should be tested.

15. MOE should provide funds for annual servicing of the radios.

16. Special radio rooms should be set aside at schools as far as possible from the other rooms. These rooms should be "sound-proofed" with locally made materials and should be adequately furnished.

17. Extra radios or extension speakers should be provided for multiple section schools.

We have seen a genuine enthusiasm for radio listening by students and teachers alike. Employees at A-V D also are eager to make the project a success. Many Nepalis, both children and adults, who do not attend schools but who have access to radios appear to enjoy listening to the school programmes.

What is most urgently needed is a new approach to the whole project in order to channel these positive factors into a viable, effective educational experience.

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Notes

New Era is a private non-profit research group in Kathmandu, Nepal. 8 of their staff contributed to the study. The study describes the general evironment in which the UNICEF project took place: radio broadcasting to schools in Nepal, which began in 1962. The aim and activities of the project are described, as well as the evaluation effort and results of the surveys. Some of the project's failures were blamed on lack of planning; recommendations towards a better design were made.

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