PD-ABM-746
99077

A.I.D. EVALUATION SUMMARY - PART I

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.
2. USE LETTER QUALITY TYPE, NOT "DOT MATRIX" TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit:

Mission or AID/W Office USAID/Bolivia
(ES# DP 01/96)

B. Was Evaluation Scheduled In Current FY Annual Evaluation Plan?
Yes [x] Slipped [ ] Ad Hoc [ ]
Evaluation Plan Submission Date: FY 96 Q 1

C. Evaluation Timing
Interim [ ] Final [x]
ExPost [ ] Other [ ]

D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; If not applicable, list title and date of the evaluation report.)

Project No.	Project/Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo / Yr)	Planned LOP Cost (000)	Amount Obligated To Date (000)
}511-0619	Interactive Radio Learning Project	91	9/96	5,000	4,549

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director — Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
1. Consider using IRL methodology in future results packages in health and population, democratic initiatives, economic growth and environmental education.	Paul Ehmer Carl A. Cira Steve Smith Mike Yates	Ongoing
Secretaria Nacional de Educacion is to: 2. Increase information-sharing between PARI and Secretaria Nacional de Education 3. Place PARI in Division of Primary Education, SNE 4. Develop stronger relationships between PARI and regional and local education officials 5. Expand PARI's approach into broader social context as mandated by Educational Reform Law.	Earle Lawrence (monitoring PARI successor activities)	2. Ongoing 3. 9/30/96 4. Ongoing 5. Ongoing

APPROVALS

F. Date Of Mission Or AID/W Office review Of Evaluation: (Month) 4 (Day) 4 (Year) 96

G. Approvals of Evaluation Summary And Action Decisions:

	Project Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
Name (Typed)	Earle Lawrence, HHR		Virginia Wheaton, DP	Lewis W. Lucke, ADir
Signature	Earle Lawrence		Virginia Wheaton	Lewis Lucke
Date	April 4, 1996		4 April 1996	4/10/96

ABSTRACT

H. Evaluation Abstract (Do not exceed the space provided)

A team of specialists in communication and education, public health and health education, public health medicine, and applied communications and evaluation came to Bolivia between August 8 and September 1, 1995, to evaluate the Programa de Aprendizaje de Radio Interactiva (PARI), HHR's interactive radio learning project (511-0619). The purpose of the evaluation was to:
1. Measure the quality and impact of the health program offered to students in Santa Cruz, Cochabamba, and La Paz;
2. Measure the institutional capability of the Secretariat of Education to begin running the project without technical assistance and to recommend the optimal organizational structure for running the program;
3. Evaluate the applicability of the programs to educational reform;
4. Measure the institutional capability of Educational Radio Program (PER), the implementing PVO created by the project, and make recommendations for marketing and sustainability;
5. Analyze how the IRL methodology could be applied to USAID activities in sustainable economic growth, population and health, democratic initiatives, and the environment; and
6. Assess the monitoring and evaluation system used for this project.

The team collected and reviewed documents from various sources; interviewed public sector health and education officials, PARI personnel, USAID/Bolivia staff, Educational Development Center staff, school staff, and others; and observed interactive radio lessons and classroom follow-up in La Paz, El Alto, Sucre, Cochabamba, and Santa Cruz.

The team found that:
1. PARI has been successful in improving the quality of primary education but must work harder with community health educators to disseminate health messages in the community. Poor radio transmission and reception also hinder the program's effectiveness;
2. PARI or its successor must take leadership during the transition of responsibility from PARI to the Secretariat,as the Secretariat is not capable of managing IRL on its own yet. PARI and the Secretariat must develop stronger relationships with regional and local health and education officials to create stakeholders in the program's success;
3. The Programa de Educacion por Radio (PER) served the project well and should be encouraged to expand its outlook and institutional capacity.

The report recommends that:
1. The programs in health and mathematics be strengthened, expanded to include more topics, and extended to grades two and six. Additional training material for teachers, directors and supervisors and additional training itself are needed.
2. PARI or its successor continue to train its own personnel and increase training and information-sharing with the Education Secretariat. PARI should place itself in the Secretariat's Division of Primary Education and should provide technical assistance for at least 12 to 18 months.
3. PARI or its successor assume leadership in strategic planning, curriculum development, and production of materials.
4. The program be kept at regional and local levels at this time, rather than expanding it to the national level.
5. PER seek to expand by marketing its expertise in production of materials, teacher training, and evaluation of program effects; PER should seek alternative funding sources from other international donors and nurture its relationships with ProSalud, Save the Children, and Plan Internacional .
6. USAID/Bolivia consider IRL in future results packages across all four Strategic Objectives. In particular, IRL is an effective way to teach reproductive health in the context of literacy education, and to teach applied mathematics, critical to sustainable economic growth, to school children and adults.
7. PARI develop an effective management information system that incorporates the information and experience of regional coordinators, supervisors, directors, and teachers in decision making.

COSTS

I. Evaluation Costs

1. Evaluation Team Name	Affiliation	Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S.$)	Source of Funds
Richard Burke	Creative Associates, Intl.	HNE-5832-I-00-4016	60,000	Field Support
Gerri Marr-Burdman	Creative Associates, Intl.			
Carlos Tamayo Caballero	Creative Associates, Intl.			
Nancy Torrey	Creative Associates, Intl.			

2. Mission/Office Professional Staff Person-Days (Estimate) 3

3. Borrower / Grantee Professional Staff Person-Days (Estimate) 15

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recomendations (Try not to exceed the three (3) pages provided)
Address the following items:

- Purpose of evaluation and methodology used
- Purpose of activity(ies) evaluated
- Findings and conclusions (relate to questions)
- Principal recomendations
- Lessons learned

Mission or Office :	Date This Summary Prepared :	Title and Date Of Full Evaluation Report:
Health & Human Resources	April 3, 1996	Evaluation of the Interactive Radio Learning Project in Bolivia, Final Report, March 1996

Bolivian education is characterized by poor teacher preparation, low initial enrollment, high dropout rates, and high rates of repetition, resulting in a low level of education in the general population. This has seriously impeded Bolivia's attempts to bring about a higher level of social and economic development. Hence, in 1994 the National Secretariat of Education began a major reform of the educational system, with two philosophical premises: cultural diversity, recognizing Bolivia's broad cultural base; and popular participation, recognizing the need to decentralize administration and return significant financial power to local communities.

Since 1988, the Bolivian educational system has used a form of instruction known as Interactive Radio Learning (IRL) as one means of teaching mathematics at the primary level. Since 1992, IRL has been used to teach health in grades three, four, and five. The Interactive Radio Program (PARI) grew out of well established IRL programs in other countries. The mathematics and health curricula were developed in accordance with Bolivia's existing curriculum and adapted to Bolivia's diverse cultural characteristics.

PARI has upgraded the quality of primary education and increased access to education in both content areas. The mathematics programs are now used in more than 700 schools in all nine departments, serving more than 150,000 students. The health programs are used in 345 schools in four departments, serving more than 60,000 students. PARI has a well developed system of curriculum development, program preparation, and production, including a statement of objectives, pre-test of materials, content revision and post-test research.

The health program's progress was measured primarily through interviews and observations by PARI's regional coordinators and supervisors. Health learning gains were quantified during the pilot project, and by pre-and post-test measures of third and fourth grades for the 1994 school year; fifth graders were measured in 1995. IRL methodology has been generally well received among school teachers and school directors. Complaints tend to focus on technical problems, logistics, and training rather than on methodology.

With the financial support of USAID, the Education Development Center (EDC) has assisted PARI with curriculum development, program and materials production, research and evaluation, and management. USAID has funded IRL in Bolivia for eight years, but this will end in June 1996. It is now time for the National Secretariat of Education to take over the program. In this final phase, PARI is concentrating on institutionalization and sustainability by working closely with education and health authorities to incorporate IRL into educational reform by improving management information systems, instructional development, public relations, income generation, and outreach.

The purpose of this evaluation was to:
1. Measure the quality and impact of the health program offered to students in Santa Cruz, Cochabamba, and La Paz;
2. Measure the Secretariat of Education's capability to run the project without technical assistance and recommend an optimal organizational structure for running the program;
3. Evaluate the applicability of the programs to educational reform;
4. Measure the institutional capability of Educational Radio Program (PER), the PVO created by the project, and make recommendations for marketing and sustainability;
5. Analyze how the IRL methodology could be applied to USAID activities across all four Strategic Objectives; and
6. Assess the monitoring and evaluation system used for this project.

The team collected and reviewed documents from various sources; interviewed public sector health and education officials, PARI personnel, USAID/Bolivia staff, EDC staff, school staff, and others; and observed interactive radio lessons and classroom follow-up in La Paz, El Alto, Sucre, Cochabamba, and Santa Cruz.

FINDINGS

1. PARI is an effective means of teaching mathematics and health to primary school children. Its conceptual basis should be transferable and highly useful in other settings, although regional characteristics in materials need to be adapted for use in other countries.The project has a strong system of curriculum development, preparation, and production of radio programs and printed materials.

The interactive methodology appears to be generally well received among school teachers and directors. Topics are well developed and appropriate for specific grade levels. Lessons focus on preventive health, awareness of health and disease, and healthy behavior in daily life. There is evidence that students apply the messages at home: some parents reported that their children had learned about oral rehydration and were more knowledgeable about hygiene.

However, teachers reported technical problems with the quality of broadcast reception. Broadcast schedules are not always reliable; some radios are of poor quality; and times of broadcast are not always appropriate to children's and teachers' needs. Classroom reception depends on electrical power, batteries, or in some rural schools on solar panels. Some schools have difficulty ensuring that at least one source of power is always available.

Teacher training needs considerable strengthening. PARI has created high-quality teacher's guides and makes good use of child-to-child learning methods. However, one-day training sessions are insufficient for preparing teachers in IRL. Most teachers lack an adequate conceptual framework for teaching health, most evident after transmission, when teachers must rely upon their own understanding of the topics. Twenty-five supervisors monitor the teachers, but these supervisors are not adequately trained. Well aware of this, PARI designed a supervisors' training manual. Some training has been offered to senior level students in Bolivian Normal Schools, but more needs to be done.

2. PARI has received good technical assistance in curriculum development, technical production, and program evaluation. However, the EDC health educator position was not continuously staffed during the life of the project; when the health educator was promoted to chief-of-party, the two positions were combined. Since both positions are critical to the project's success, a distinct position of health educator should have been maintained.

Because EDC anticipated the time when the Secretariat of Education would implement the programs on its own, a substantial part of its technical assistance in the last two years has been directed toward project sustainability. PARI program content fits well within the guidelines of educational reform. However, the Secretariat depends almost entirely on PARI for the development of curriculum and scripts, all technical aspects of the program, and teacher training and supervision. PARI has developed strong ties with the Secretariat at the national level, but much more needs to be done at regional and local levels, where PARI has not aggressively sought stakeholders among parents and officials. However, PARI has established closer communication with the Secretariat of Health through regional meetings with key officials, whose staff are considering ways to collaborate with PARI in school health education.

3. The Secretariat of Education has made PARI's mathematics and health programs the official curricula for primary schools. Since the Secretariat does not have a standard health program, PARI can contribute considerable expertise to the Secretariat in developing and refining health education programs.

4. PER's curriculum design, production of materials, and teacher evaluation and training has been integral to the PARI program. PER should meet regularly with top Secretariat of Education officials to discuss ways to help implement educational reform. PER recently became a member of PROCOSI, an umbrella organization for non-governmental organizations working in health; this membership will offer PER access to other funding opportunities. The four principal members of PER are willing to explore new structure and administration, but changes in attitude and professional direction will take time and may be difficult. PER's principals would benefit from training in organizational marketing.

5. IRL, broadly understood, could be used in several USAID activities. The evaluation team found specific possibilities in maternal and child health and in fostering democracy and suggested activities in environment and sustainable growth. USAID's most profitable use of IRL lies in maternal and child health programs, reproductive health teaching in the context of female literacy education, and promotion of democratic initiatives projects' goals.

6. From the outset, PARI has had a reasonably sophisticated system of evaluation, which uses qualitative and quantitative methods. Data is extensively and meticulously collected, much of it indicating successful diffusion of the project. PARI staff feed information back into the program. For instance, teachers' guides and programs were modified according to the findings of the 1994 evaluation of 3rd and 4th grade health programs, and teachers said they liked the new version. However, evaluation does not always focus on analysis and interpretation, which limits its usefulness. It is difficult to establish a sound basis for judging program impact in rural v. urban settings, gender differences, and long-term benefits without more sophisticated data analysis than PARI has presented to date.

RECOMMENDATIONS

1. Programs in health and mathematics should be strengthened, expanded to more topics, and extended to grades two and six.
2. Additional training and material for teachers, directors and supervisors are needed. Specifically, materials and methods are néeded for instructors with limited background in health education. Supervisors should be trained in monitoring, evaluation, reinforcement and systematic feedback to teachers.
3. Activities should be coordinated with community health educators to diffuse health messages into the community.
4. Immediate attention should be given to improving the quality of radio transmission and the maintenance and/or replacement of all malfunctioning equipment.
4. PARI should seek to transfer lessons learned to other developing countries. It should share information through international organizations -- the National Council for International Health, American Public Health Association's International Section, PVOs and others.
5. PARI or its successor should continue to train its personnel and increase training and information-sharing with the Secretariat of Education. It must not be perceived as a parallel project and thus vulnerable to reduction in scale.
6. PARI should get administrative support from placement in the Division of Primary Education, and should draw technical support from the 600 technical/pedagogical advisors whose positions will be created by the Secretariat under educational reform. PARI should provide technical assistance for at least 12 to 18 months.
7. PARI or its successor should take the lead in strategic planning, curriculum development, and production of materials.
8. PARI should develop stronger relationships with regional and local education officials, and must create stakeholders at the local level to ensure continued social and financial support.
9. PARI should expand its approach into a broader social context as is now mandated by the Education Reform Law. The Secretariat of Health's support is essential to this task.
10. The program should not be expanded to the national level at present. Although regional government health and education officials express interest, similar interest needs to be cultivated at the local level to comply with the spirit and the letter of popular participation. Local stakeholders are key to the program's moral and financial support.
11. PER should market its expertise in production of materials, teacher training, and program evaluation; it should nurture relationships and seek funding from other international donors. It must diversify, specialize, and redefine its mission to expand its expertise beyond primary education. It must also create stakeholders within the municipalities to support it politically and financially.
12. USAID/Bolivia should consider IRL in future results packages across all four Strategic Objectives. In particular, IRL is an effective way to teach reproductive health in the context of literacy education, to further democratic initiatives, and to teach applied math skills -- critical to sustainable economic growth -- to children and adults.
13. PARI should develop a management information system that incorporates the experience of regional coordinators, supervisors, directors, and teachers into its decisions. PARI should further develop its capacity to analyze and interpret data regarding gender differences, urban-rural variations, and long-term learning gains.
14. PARI's MIS should incorporate a mechanism that provides feedback to teachers, directors, supervisors, and regional coordinators in order to improve communication and enhance teaching and learning.

ATTACHMENTS

K. Attachments (List attachments submitted with this Evaluation Summary, always attach copy of full evaluation report, even if one was submitted earlier; attach studies, surveys, etc., from "on-going" evaluation, if relevant to the evaluation report.)

Evaluation of the Interactive Radio Learning (IRL) Project in Bolivia, Final Report

COMMENTS

L. Comments By Mission, AID/W Office and Borrower/Grantee On Full Report :

Two people reviewed the evaluation team's draft report; in November 1995 the project's program officer forwarded their comments with a strong suggestion that the team incorporate as many as possible in the next version, advising the team that "without these changes we feel the evaluation will be substandard and not reflect well on the authors or Creative Associates." Despite a 3-month lapse before the Mission received the final report, the team ignored the Evaluation Officer's comments entirely and paid only glancing attention to those of PARI's Chief of Party. In particular, the team grouped its recommendations by subject and made no distinction in importance between or within these groupings. It also failed to spell out a frequently used acronym even after being told to identify it. Despite a specific request, the team did not include lessons learned and referred only in passing to the program's "transferable successes," without specifying them. Hence, neither lessons learned nor transferable successes appear in this summary, and the Evaluation Officer relied entirely on her judgment in ferreting out the key recommendations from the copious but undifferentiated list.

XD-ABM-7446-A
99078

Evaluation of the Interactive Radio Learning (IRL) Project in Bolivia

Final Report

Prepared for:
U.S. Agency for International Development
Contract # HNE-5832-I-00-4016-00

By CREATIVE ASSOCIATES INTERNATIONAL, INC.,
Washington, D.C.

Evaluation Team:
Richard Burke, Ph.D., Team Leader
Gerri Marr-Burdman, Ph.D.
Dr. Carlos Tamayo Caballero
Nancy Torrey

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EXECUTIVE SUMMARY

SUMMARY OF FINDINGS AND CONCLUSIONS

1. Measure the quality and impact of the health program offered to students in Santa Cruz, Cochabamba, and La Paz.

The Programa de Aprendizaje por Radio (PARI) project has a strong system of curriculum development, preparation, and production of radio programs and printed materials. PARI uses a methodical approach in its use of needs assessment, clarification of learning objectives, pre-testing, content revision and post-test evaluation and interpretation. The system, which has been validated in actual school use, is an effective and appropriate means of teaching mathematics and health to primary school children.

The health topics are well developed and appropriate for the specific grade levels. The lessons focus on building a foundation of knowledge about preventive health, an awareness of health and disease, and healthy behaviors in daily life.

There is considerable evidence of learning gains in health education in the areas served by PARI. The health program has been measured primarily through interviews and observations which are undertaken by PARI's regional coordinators and supervisors. Health learning gains were quantified during the pilot project as well as by pre- and post-test measures of third and fourth grade students for the 1994 school year.

There is also evidence that health information is being transferred to the families of primary school students. Some parents reported that their children had learned about oral rehydration, and that children were more knowledgeable about personal and family hygiene. There is some evidence that the PARI health program could achieve even greater impact on health knowledge and behaviors by increasing the number of hours of programming per week, and by extending the programs to the second and sixth grades.

The interactive methodology appears to be generally well received among school teachers and directors. In contrast to the success of the methodology there are reported technical problems with the consistency of broadcast reception quality. Broadcast schedules are not always reliable; some radios are of poor quality; and times of broadcast are not always appropriate for the needs of the children and teachers. Classroom reception of the PARI program depends on electrical power, batteries, or in some rural schools on solar panels. Some schools have difficulty in ensuring that at least one source of power is always available.

The health programming reaches girls and focuses on improving the health status of girls as well as boys. Gender issues are addressed as appropriate, given the limited time and scope of the current health programming.

Teacher training needs considerable strengthening. One-day training sessions are clearly inadequate as a means of preparing teachers to use the interactive methodology. Most teachers do not have an adequate conceptual framework for teaching health in primary school. The lack of conceptual grounding is most evident during post-transmission activities when teachers must rely

upon their own understanding of the topics. PAIRB employs twenty-five supervisors to monitor program activities in the schools, but these supervisors are not yet adequately trained in the techniques of providing guidance to the classroom teachers. PARI is well aware of the need for additional supervisor training, and the organization has just designed a manual to train supervisors in health content and methods.

PARI has created high quality teacher's guides for both math and health. The guides provide directions for facilitating teacher student interaction. PARI has also been diligent in incorporating into its programs and materials suggestions for making good use of the child-to-child learning methods. PARI is aware of the need for close collaboration with the Bolivian Normal Schools. Some training has been offered to senior level students, but more needs to be done in training the primary teachers of the future.

The conceptual basis for the program and many of the "lessons learned" should be transferable and highly useful in other developing countries. Some of the regional characteristics inherent in the Bolivian program materials would need to be adapted to the realities of other countries.

2. Measure the institutional capability of the Secretariat of Education to begin running the project without local or international technical assistance and make recommendations for an optimal organizational structure for running the program.

PARI has received very good long-term and short-term technical assistance in curriculum development, technical production, and program evaluation. Consultants who advised the project demonstrated creativity and understanding of project purposes. The EDC health educator position was not continuously staffed during the life of the project. When the health educator was promoted to chief-of-party, the responsibilities of the two positions were combined. Since both positions are critical to the success and sustainability of the project, evaluators feel that it would have been advisable to have maintained a distinct position of health educator. There is evidence that EDC thoughtfully and imaginatively anticipated the time when the Secretariat of Education would have to implement the programs in health and mathematics on its own. A substantial part of the technical assistance provided by EDC in the last two years has been directed toward achieving project sustainability.

PARI program content fits well within the guidelines of the educational reform. The reform demands that education should promote self-esteem, multi-cultural understanding and respect, understanding of nature, personal health and hygiene, and child health. The Secretariat of Education is currently almost entirely dependent on PARI for the development of curriculum and scripts, all technical aspects of the program, and the training and supervision of classroom teachers.

PARI has developed strong ties with the Secretariat of Education at the national level, but much more work needs to be done to establish communication between PARI and the regional and local education authorities. PARI has not been aggressive in seeking ways to establish stakeholders among parents and officials at the community level. Much to PARI's credit, they

have established closer communication with the Secretariat of Health through regional meetings with key health officials. Health staff are currently reviewing PARI materials and considering various ways of collaborating with PARI in carrying on health education in primary schools.

PARI should be fully integrated into the Secretariat of Education. It must not be perceived as a parallel project that is vulnerable to cutting or reducing in scale. The PARI program should get administrative support from its placement under the Division of Primary Education, and it should draw technical support from the six hundred technical/pedagogical advisors, whose positions will be created by the Secretariat under the educational reform.

3. Evaluate the applicability of the math and health programs in the context of the educational reform activities.

The Secretariat of Education has adopted the PARI mathematics and health curriculum as the official curricula for primary schools. Since the Secretariat does not have any alternative/standard health program for the primary schools, it appears that PARI will be able to contribute considerable expertise to the Secretariat in developing and refining health education.

The evaluation team does not recommend the expansion of the health program to the national level at this time. There is interest in the continuation of PARI at the local level on the part of teachers and directors, and there has been expression of interest by regional government health and education officials. However, similar interest needs to be cultivated at the local level to comply with the spirit and the law of popular participation. The creation of stakeholders who will give moral and financial support to the program is essential.

4. Measure the institutional capability of the Educational Radio Program (PER), the implementing Private Voluntary Organization created by the project, and make recommendations for marketing and sustainability.

PER has rendered invaluable assistance to PARI in all aspect of the program. PER's services in curriculum design, production of materials, evaluation and training of educators has been an integral and essential component of the PARI program. PER should be meeting on a regular basis with highly placed officials of the Secretariat of Education to discuss ways in which PER can continue to be of assistance in implementing the plan for educational reform. PER recently became a member of PROCOSI, an umbrella organization for non-governmental organizations working in the area of health in Bolivia. Membership in PROCOSI will offer PER potential access to other funding organizations and to other opportunities. PER has not yet fully explored the potential for alternative sources of funding. It must look for opportunities to diversify, to specialize, to re-define its mission, so that it can adapt its expertise in radio learning to markets other than primary school education for in-school youth. PER's most fruitful direction is to trade on two key aspects of current Bolivian social change: popular participation, and educational reform. PER must solidify its presence within the municipalities to create "stakeholders" who will buy into PER's services and support PER politically and financially. The four principal members of PER are willing to explore change, and some possible new configurations in structure and administration. The change of attitude and professional direction

will take time, and it may be difficult. PER would benefit from a modest level of technical assistance that would fund some training opportunities for the four principal members in organizational marketing.

5. Analyze how the IRL methodology could be applied to future USAID activities in sustainable economic growth, population and health, democratic initiatives, and the environment.

The interactive methodology, broadly understood, could be applied to several USAID activities. The evaluation team has identified two or three specific possibilities in maternal and child health, a specific possibility in fostering democratic initiatives, and suggestions for supporting USAID activities in environment and sustainable growth. In order of priority, The evaluation team feels that USAID's most profitable uses of interactive radio learning methods would be in the support of maternal and child health programs, the teaching of reproductive health in the context of female literacy education, and as a means of promoting the goals of the democratic initiatives project.

6. Assess the monitoring and evaluation system used for this project.

The PARI project has a reasonably sophisticated system of evaluation that has been in place from the beginning of the project. It includes formative and summative evaluation, utilizing both qualitative and quantitative methods. There has been extensive and meticulous data collection. Much of the information collected has been analyzed and interpreted to indicate successful diffusion and expansion of the PARI project in the areas served.

PARI staff have demonstrated their confidence in evaluation results by feeding information back into the program. For instance, after the 1994 evaluation of the 3rd and 4th grade health programs, the teacher guides and programs were modified according to the findings of the evaluation. Teachers commented favorably on the new, 1995 version of the guides.

Evaluation activities have been somewhat limited in their usefulness in that they have not always focused on data analysis and interpretation. It is very difficult to establish a sound basis for judging program impact in terms of rural v. urban settings, gender differences, and measurable long-term benefits without more sophisticated data analysis than the PARI staff has presented to date.

RECOMMENDATIONS

Objective One: Quality and Impact of Health Programs

1. Additional health training materials should be developed for teachers, directors, and supervisors. Specifically, materials and methods should be developed to facilitate the teaching of health by instructors who may have limited backgrounds in health education. Additional in-service training should be considered a priority for all teachers of health.

2. Training should be provided for coordinators and supervisors. Specifically, they should be given training on how to provide monitoring, evaluation and appropriate reinforcement and systematic feedback to teachers regarding their performance.

3. The health component should be expanded through additional hours of programming each year that would allow the inclusion of more topics and the extension of programming to grades two and six.

4. Priority should be given to coordination with the Normal schools as well as with Universities and other teacher preparation institutions in order to diffuse the IRL methodology.

5. PARI should foster communication and coordination with the Secretariat of Health at all levels. Priority should be given to coordination at regional levels between the personnel of the Secretariat of Health and the Secretariat of Education.

6. There should be consistent follow-up and reinforcement of post-transmission teaching/learning activities in the classroom, home and community. Specifically, efforts should be made to coordinate activities with community health educators in order to facilitate diffusion of health messages beyond the classroom and into the community.

7. Immediate attention should be given to improving the quality of radio transmission and the maintenance and/or replacement of all malfunctioning equipment.

Because the quality of the entire program depends to a large extent on the quality of radio transmission of messages and the teacher/student interaction, this is an area that should be evaluated and addressed at all levels. Monitoring and maintenance need to be built in to the overall program operations, and provision should be made to have equipment functioning appropriately.

8. PARI should explore the potential for transferring program successes and "lessons learned" to other developing countries.

Attention should be given to marketing techniques that will reach other developing countries. Opportunities should be sought for sharing information informally as well as formally through various international organizations. For example, the National Council for International Health annual meeting; American Public Health Association, International Section Newsletter; Private

Voluntary Organizations and others.

Objective Two: Institutional Capabillity of SNE

1. PARI/PAIRB should continue to train its own core team of 4 to 6 members, and PARI/PAIRB should increase the amount of training and information exchange for SNE personnel who will be responsible for program implementation.

2 PARI/PAIRB must strive to take leadership in sustaining the interactive radio learning methodology within the Secretariat of Education. A passive, reactive approach could easily marginalize PARI/PAIRB within the Secretariat's reform.

3. PARI/PAIRB/SNE should develop closer working relationships with organizations such as ERBOL (Escuelas Radiofonicas de Bolivia) to take advantage of their experience in dealing with some of the logistical problems that have affected the efficiency of the IRL program.

4. PAIRB/SNE must contract with PER or a similar organization (or develop their own capability to produce materials) in order to continue PARI programs in health and mathematics.

5. PAIRB should review the current laws regarding decentralization and popular participation and develop relations with the Secretariat of Popular Participation to better situate themselves within the structural framework of the Secretariat of Education.

6. PAIRB should familiarize itself with and take advantage of the legislation that requires the mass media to provide educational broadcasting.

7. PAIRB needs to develop a sound rationale for deciding where to place itself within the Secretariat of Education. The evaluation team has suggested placement within the Office of Primary Education, but that decision should be made after careful analysis, balancing of alternatives, and judicious estimates of likely long-term success, rather than as a matter of convenience.

Objective Three: Applicability of Math and Health Programs

1. PAIRB should become involved in the Education Reform by integrating its activities directly with the Secretariat of Education in the strategic planning and development of curriculum, content and the IRL methodology in both health and math.

2. PAIRB should develop stronger relationships at the regional and local levels with education officials in order to gain fiscal and political support for PARI in the school as the Education Reform is implemented. PARI and the SNE must make a very strong effort to create "stakeholders" at the local level to ensure continued social and financial support.

3. PARI should further expand its successful approach of incorporating health themes into a broader social context as is now mandated by Article 28 of the Education Reform. The collaboration of the Secretariat of Health is essential in carrying out this task.

Objective Four: Institutional Capabillity of PER

1. PER should seek opportunities to expand its services by making contacts with funding agencies such as the World Bank, IDB, USAID, UNICEF and others.

2. PER must collaborate more closely with health and education personnel, and with representatives of Participation Popular at the local level to create stakeholders in the program, and to ensure continuous administrative and technical support.

3 PER should review its compliance with current governmental regulations for NGO's.

4. PER should consider creating an Advisory Board composed of health and education officials.

5. PER must develop an aggressive stance and strategy for marketing its expertise in production of radio programs and printed materials, teacher training and evaluation. PER must be flexible and innovative in terms of subject expertise, typed as media employed, and types of services offered.

Objective Five: IRL Future Applications

1. USAID/Bolivia should consider using IRL methodology in its future project development in health and population, democratic initiatives, sustainable economic development and environmental education.

2. USAID should give special consideration to using interactive radio learning methods in support of its programs in health and population, and as a means of teaching reproductive health to women in the context of literacy education.

3. Interactive radio learning should be considered an effective method of promoting democratic initiatives.

4. Interactive radio should be considered a means of teaching environmental awareness, and a tool for training and reinforcing appropriate behaviors related to the environment.

5. USAID should seriously consider supporting the teaching of mathematics to in-school youth and to adults as a key element in educating people in applied mathematics, since knowledge of mathematics is essential in fostering a climate of sustainable economic growth.

Objective Six: Monitoring and Evaluation System

1. PARI should establish a management information system that incorporates the information and experiences of the regional coordinators, supervisors, directors and teachers in decision making.

2. PARI should further develop its capacity to analyze and interpret data regarding gender differences, urban-rural variations, and long-term learning gains.

3. Priority should be given to developing a mechanism to provide feedback evaluation results to teachers, directors, supervisors, and regional coordinators in order to improve communication and enhance on-going teaching/learning activities.

INTRODUCTION

II. INTRODUCTION

A. Primary Education in Bolivia

The state of primary education in Bolivia has been well documented in several publications, so only a few of the major issues that have been identified will be listed.

In Reforma Educativa: Propuesta, (Ministerio de Desarrollo Humano-Secretaria Nacional de Educacion, 1994) the authors of the proposal note that:

- In rural areas, only 60% of school age children actually are enrolled in school.
- Absolute illiteracy stands at 20% of the population, but if taking into account those who are functionally illiterate, the figure is closer to 55% of the population.
- More than half of the rural schools offer education services only through the third grade. Many of these schools are staffed with under-trained teachers.
- School desertion rates are high, especially in rural areas, and especially among young girls.
- It takes an average of 12 years for a student to complete 6 years of primary schooling.

These are but a few of the problems that affect public education in Bolivia. A vivid, and more detailed representation of educational concerns in Bolivia is included as Annex I.

The National Secretariat of Education is currently attempting to address some of these problems through a long-term educational reform program that will be implemented over a twenty year period from 1994 to 2005. Section IV of this report will deal with the educational reform in greater detail, but briefly, the reform hopes to improve the quality of education, extend coverage, and increase retention rates by:

- transforming the curriculum
- strengthening the institutional and administrative aspects of the public education system
- building new schools, as well as refurbishing and equipping existent schools
- re-ordering the financial policies and practices within the educational system

In their Nutrition and Health Country Assessment (Education Development Center: October, 1994) Brenda Langdon and David Netherton characterize the Educational Reform in the following manner:

The two major components of the Educational Reform are scheduled to be implemented

simultaneously. The first of these, the Educational Improvement program, is directed at placing didactic materials, texts, libraries, equipment and school snacks throughout the nation's schools, as well as improving the quality a nd accessibility of school facilities. The second, Educational Transformation, is directed at radically defining the nation's curriculum, teacher training programs, classroom methods, and educational administration. *Interculturality* within the curriculum and *social participation* in the implementation of educational programs philosophically underpin the reform movement. The new school, while focussed primarily on the learning process, is also conceived as a center for integrated child development, with activities in the areas of social development, health, nutrition, sports, recreation and productivity, as well as community service. Bilingual education for the majority of Bolivian children who do not speak Spanish as a first language will shortly become a reality.

B. Interactive Radio Instruction in Bolivia

1. A brief explanation of Interactive Radio Instruction

Interactive Radio Instruction is a method of teaching that blends together the principles of educational psychology, instructional development, curriculum design and creative radio programming and production. For more than 20 years, several projects in Africa, Asia and Latin America have demonstrated that interactive radio methodology is effective in teaching language, mathematics, health and science to primary school students as well as to adult learners.

The methods, specific applications and results of interactive radio instruction have been described in several publications, the most recent of which are Ministry, Union, The Church and Teachers: Bolivia's Partners in Innovation. (LearnTech Case Study Series, Number 6. Michelle L. Fryer, May, 1995) and Delivering Basic Education Through Alternative Means: Lessons Learned and Literature Review. (LearnTech Project, Education Development Center, Inc. May, 1994)

Briefly, however, Interactive Radio Instruction is a system of direct classroom instruction that typically consists of 100 to 150 radio lessons, a printed guide that describes suggested classroom activities to be carried out by the teacher before, during and after the radio lesson, and in some situations other supplementary publications for student use. The radio lessons and classroom activities are based on the following pedagogical principles:

a. Children take an active role in their own learning. They respond in an "interactive" manner, by shouting out the answers to the questions posed by the radio teacher. Students are also "active" learners in that each radio lesson contains one or more songs that the students (and teachers) are expected to sing. Many lessons allow time for students to do some physical exercises at their places in the classroom, under the guidance of the classroom teacher or the teacher's assistant.

b. Learning skills are broken down into clearly identified instructional objectives, that can usually be measured in precise terms.

c. Specific learning skills are identified, and the skills are presented in appropriate sequences for each learning objective.

d. There is an appropriate blend of new topics to be learned and review of material to reinforce topics that have been presented earlier in the school year.

e. The pacing of radio lessons is relatively fast, so that students in the classroom remain interested and involved in learning.

f. The follow-up period, immediately after the radio broadcast, is carefully designed to direct the classroom teacher to engage in appropriate activities in application of skills and review of important principles.

2. Interactive Radio Instruction in Primary Education in Bolivia

The application of Interactive Radio Instruction in the teaching of mathematics and health in Bolivian primary schools has been thoroughly documented by Michelle Fryer in Ministry, Union, the Church and Teachers (see full citation in Section B,1.)

The radio learning project purpose is to improve the quality of basic education through national dissemination of the interactive radio mathematics curriculum previously developed under the Radio Learning Project, and through development and validation of a radio-based health education curriculum. The project will also improve the capabilities of the teachers to teach these critical subjects to children and to other community members. The project will contribute to on-going policy dialogue/reform through rigorous data collection efforts on specified indicators of education and health.

Project Description

Beginning in 1987, the Radio Learning Project field-tested the use of interactive radio to improve the quality of mathematics education in Bolivian primary schools. In addition, a small pilot activity undertaken in 1989 applied this same methodology to the teaching of basic health concepts at the elementary school level. Based on the success of this endeavor, IRL is now working to institutionalize the model mathematics and health education curricula in the Bolivian school system. Major components of the project include:

a. continued evaluation and dissemination of the interactive radio math curriculum, developed under the previous project in all nine of Bolivia's Departments.

b. development of behaviors in personal hygiene, nutrition, sanitation, and the prevention of diarrhea and other transmissible diseases among other topics for

upper primary school grades three and four in 1993 and for grade five in 1994.

c. development of a teacher training support model for improved teacher effectiveness in the project.

d. enhancement of the SNE's ability to manage a permanent basic education program using interactive radio.

e. implementation and effectiveness.

f. extension of the interactive radio curriculum to out of-school children and adults in 1994.

g. achievement of policy objectives for integrating the radio curricula into the national educational reform package. In its final phase, the IRL project is concentrating on institutionalization and sustainability. the project will continue to work closely with education authorities to develop a strategy to work with the education reform activities. It will develop strategies for improvement of management information systems, institutional development, public relations, income generation and outreach to the public health sector.

h. Pilot projects to test ways to improve the impact of the program, i.e. bilingual education, use of the solar panels, etc.

EVALUATION DESIGN

III. EVALUATION DESIGN

Purpose of the Evaluation

This report describes the outcome of an evaluation of the PARI Project. The main purposes of the evaluation were to:

1. measure the quality and impact of the health program offered to students in Santa Cruz, Cochabamba, and La Paz.

2. measure the institutional capability of the Secretariat of Education to begin running the project without local or international technical assistance and make recommendations for an optimal organizational structure for running the program.

3. evaluate the applicability of the math and health programs in the context of the educational reform activities.

4. measure the institutional capability of the Educational Radio Program (PER), the implementing PVO created by the project, and make recommendations for marketing and sustainability.

5. analyze how the IRL methodology could be applied to future USAID activities in sustainable economic growth, population and health, democratic initiatives and the environment.

6. assess the monitoring and evaluation system used for this project

Under each of the main purposes listed above, there are specific questions that will be addressed in Section IV of the report.

The Evaluation Team

The evaluation was undertaken by the Marketing and Communication Division of Creative Associates International, Inc., a Washington, DC-based firm with substantial experience with USAID project evaluations. The team included Richard C. Burke, specialist in communication and education; Geri Marr-Burdman, specialist in public health and health education; Carlos Tamayo Caballero, medical doctor and specialist in public health, and Nancy Torrey, specialist in applied communications and evaluation. The members of the team were in Bolivia for various lengths of time between August 8 and September 1, 1995 (Burke, August 8 to August 23; Marr-Burdman, August 8 to August 29; Tamayo, August 8 to September 1; Torrey, August 15 to September 1). All members of the team were able to communicate effectively in Spanish (Dr. Tamayo is a native speaker) and all of the members of the team had previous work experience in Bolivia.

Methodology

The methodology employed during the period of evaluation incorporated several approaches:

- the collection of documents from the Government of Bolivia, USAID/La Paz, Education Development Center and other sources.

  The analysis of the various documents provided historical background and sequence of project activities, detailed descriptions of health and mathematics curricula, planning and production methods and techniques, formative and summative evaluation criteria and outcomes, and USAID documents that provided the team with insight regarding future USAID activities.

- interviews with public sector officials in health and education, personnel of PARI, PER, representatives of USAID/La Paz, representatives of Education Development Center, school principals, teachers and supervisors and other persons who provided us with valuable insights into the problems, accomplishments and future prospects for education in Bolivia.

- structured observations of interactive radio lessons and classroom follow-up in La Paz, El Alto, Sucre, Cochabamba and Santa Cruz. The observations were frequently complemented by interviews with classroom teachers, principals, teaching assistants, parents, and the students themselves.

A Participatory Approach to Project Evaluation

The members of the evaluation team agreed that it was important to make this evaluation a cooperative and participatory evaluation rather than an adversarial or threatening evaluation. The team members explained their point of view and preferred approach to Ann Fitzgerald, EDC Chief of Party for the PARI project. She agreed that this would be a productive approach. In the first few meetings with PARI personnel we explained that we were carrying out an evaluation that would be a learning experience for the team as well as for the PARI personnel. We explained the purpose, context and implications of each of the six main objectives, and we reviewed each of the specific questions associated with the objectives. All interviews with PARI personnel were carried out in strict confidence so that each respondent felt free to make personal observations, comments, criticisms or complaints without fear of subsequent criticism or punishment. We kept Ann Fitzgerald and other members of the PARI group informed of our progress at regular intervals, and we asked for regular feedback and comments on our tentative observations, interpretations, conclusions and recommendations throughout our stay in Bolivia. Two members of the evaluation team carried out a formal de-briefing of PARI personnel during the last week of August. All participants in the meeting were encouraged to ask questions, modify, challenge or refute any statements made by members of the evaluation team. The members of the evaluation team are convinced that our participatory approach

was successful in encouraging free exchange of ideas, frank discussion of problems, and shared visions of future constraints and opportunities.

We also took a participatory approach in our discussions with USAID personnel in La Paz. We found that an open approach to USAID was similarly productive. USAID officials were extremely helpful in guiding our work, responding to our questions, and helping us to conceptualize this report. We hope that it will serve not only as a summary of findings and conclusions but as a series of helpful suggestions for future USAID interventions.

Methodological Constraints

Although we received generous and gracious cooperation from all of the people we interviewed, we encountered some scheduling problems that made it difficult to carry out our evaluation as initially planned. The scheduling problems were minor, but they reduced slightly the number of schools that could be seen by all members of the evaluation team.

OBJECTIVES, FINDINGS AND RECOMMENDATIONS

IV. OBJECTIVES OF THE EVALUATION

Objective One: Measure the quality and impact of the health program offered to students in Santa Cruz, Cochabamba, and La Paz.

1.1 Are the subjects being taught and the actual messages being delivered appropriate for Bolivia and for the age groups that are participating in the program?

1.2 Has there been any measurable change in health knowledge, attitudes and behaviors that can be attributed to the "Cuidemos Nuestra Salud" Program? Has it had any impact on the preventive health activities within the school?

1.3 Is the methodology (combination of radio and teacher support) effective and appropriate?

1.4 Does the program reach girls, address gender issues, and contribute to improving the health status of the girls participating in the program?

1.5 Are the teacher training and the teacher guides appropriate?

1.6 Does the program meet its goals of providing the children with opportunities to implement child to child activities?

1.7 What is the opinion of the teachers, school principals and parents about the program?

1.8 Is this program transferable to other countries?

1.1 Are the subjects being taught and the actual messages being delivered appropriate for Bolivia and for the age groups that are participating in the program?

The health program has a good system of curriculum development, materials preparation and production. The methodological approach includes a needs assessment, statement of objectives, content analysis and ongoing content revision. The topics respond appropriately to the age groups that are participating in the program and reflect key preventive health issues that are current in Bolivia today. The health messages are clear and are reinforced through the teacher guides and interactive classroom activity as time permits.

The health topics addressed by the PARI radio program, "Cuidemos Nuestra Salud" are appropriate for third to fifth graders in Bolivia. In the third grade, the focus is on basic concepts of prevention and health maintenance through personal hygiene as well as aspects of nutrition, water and sanitation, and control of diarrhea and upper respiratory diseases.

The third grade topics are considered appropriate for ages seven through nine because

often children of this age already have assumed responsibility for caring for themselves as well as younger siblings in their households. They are beginning to build their own basis for understanding health and hygienic practices and are very receptive to basic health messages that they can personally put into practice. Children can become catalysts for health behavior change in their families and communities.

Fourth grade curriculum includes more in-depth information about diarrheal disease, prevention of communicable diseases, and accident prevention as well as basic first aid practices. These are all important subject areas given the epidemiological patterns throughout Bolivia. The students at this level have observed in their own communities the realities of diarrheal disease as well as numerous communicable diseases. Basic first aid practices and the need for accident prevention are topics of great interest because often these children are the ones who must take appropriate action with younger siblings who are left in their care.

Fifth grade health topics focus on nutrition, immunizations, self-esteem, and the human body and reproductive systems. These topics are considered highly appropriate because the age span of 11-14 is a time when both girls and boys are entering into adolescence and physical maturity. There are many emotional as well as physical and hormonal changes for this age group, and clear information and facts about these changes will assist them in making better choices about their health and social lives. This age group is also preparing for independence from their families, both economically and socially.

Human anatomy and physiology have not been taught previously in the Bolivian school system. This generation of students is the first to receive such basic information and there is considerable interest that has, in fact, reached well beyond the classroom. For example, an "open lesson" was offered to parents in La Paz to model IRL methodology. Nearly 450 parents and community members attended the PARI lesson on reproductive health.

PARI is providing the opportunity for many Bolivians to augment their understanding of basic health issues and to form a basis for changing health related behaviors. The actual messages being delivered by the PARI program have been systematically designed and tested. They are based on the master plans that have been developed for each grade level and are designed in response to audience research on the culture, language, lifestyle and attitudes of contemporary Bolivian students. The messages have been tested multiple times and revised accordingly.

PARI evaluation staff conducted a pilot study of the third grade health program which addressed the language of instruction. An experimental group received health lessons via cassettes in Quechua, while the control group received the same lessons in Spanish. It was hypothesized that these students would learn health concepts better in their native language of Quechua because of their lack of familiarity of learning in Spanish, coupled with the personal and sensitive nature of health topics. More specifically, the concepts and words needed to communicate the health messages are sophisticated, and probably more effectively taught in the native tongue.

The statistical outcomes of the experimental research indicated clearly, with highly significant differences, that third graders had higher learning gains when taught in their own Quechua language. (See "An Investigation Into the Effectiveness of Teaching Health Concepts in Quechua or Spanish to Third graders in rural Bolivia" by Magda Raupp, October, 1994.) PARI has been considering the possibility of producing lessons in Quechua and Aymara in addition to Spanish. This would be consistent with the goals of the Educational Reform in Bolivia which call for more culturally and language-appropriate instruction at all levels.

1.2 Has there been any measurable change in health knowledge, attitudes and behaviors that can be attributed to the "Cuidemos Nuestra Salud" Program? Has it had any impact on the preventive health activities within the school?

There have been some measurable changes in health knowledge that can be attributed to "Cuidemos Nuestra Salud." These knowledge changes have been documented for the third and fourth grades through the 1994 PARI Evaluation Study. Fifth graders are currently being studied; however, results are not yet available. (Please see Objective #6 discussion of findings for further information on the evaluation of knowledge gains.)

Behavioral change is difficult to quantify with only ten hours of health programming per year. An increase in program time would provide greater motivation and basis for change, but may not yet be feasible due to the short school days for Bolivian students (approximately 18 hours per week). Reinforcement of radio programming via different methods may be more effective than additional program hours. For example, PARI has proposed a plan of collaboration with PROSALUD, a health services delivery organization, whereby health educators would include school visits in order to reinforce the PARI lessons and serve as resources for both students and teachers.

PARI is currently conducting a pilot program in San José de Chiquitas (Province of Santa Cruz). The local Department of Health works in partnership with the schools to bring "Cuidemos Nuestra Salud" (Let's Take Care of Our Health) by cassette tape to school children, out-of-school youth, and adults. The lessons are complemented with additional discussion and activities led by community health workers.

These types of linkages with other organizations could increase the impact of PARI programming on health behaviors. Additional program impact could be obtained through linkages with organizations or projects that use social marketing methods to improve and reinforce the dissemination of health information.

The success of the health program has been measured primarily through qualitative interviews and observations/supervision conducted through the system of regional coordinators and supervisors as well as through the activities of the PARI evaluation staff. In addition, and perhaps, most importantly, there is evidence of basic health information being transmitted to the students' families, homes and communities, with numerous reports of children improving hygienic practices, becoming catalysts in their own homes for change in health behavior.

Many of the schools have reported a heightened awareness on the parts of the teachers as well as the students regarding basic hygiene and health practices. This has translated into children coming to school in cleaner clothing, better hand washing before meals, and more attention to cleanliness in the school setting by teachers and students.

The health program could achieve more measurable impact if programming were expanded to allow the inclusion of additional key topics that address basic health needs of families and children in Bolivia now. Specifically, expansion of the programming around the leading five causes of morbidity for the 6-14 age group (Secretariat of Health, 1993 -- Langdon Report) should address: (1) malnutrition--specific deficiencies, (2) acute respiratory infections, (3) parasitic infections, (4) dental caries, (5) skin diseases. Additionally, aspects of accident prevention and substance abuse prevention were considered important by most of the school personnel interviewed.

It should be noted that Bolivia's endemic malnutrition and infection characteristics suggest a school-aged population that may be at increased risk for learning disorders. Health topics should be considered basic to the curriculum, and should be addressed more thoroughly. Extending to grades two and six will increase the opportunity for diffusion of fundamental health messages within schools, homes and communities.

1.3 Is the methodology (combination of radio and teacher support) effective and appropriate?

Based on observations in schools in La Paz, El Alto, Sucre, Cochabamba, and Santa Cruz, the IRL methodology employed by PARI appears to be effective and appropriate. PARI math and health programs are lively, engaging, and stimulating to students who otherwise spend their school hours in classrooms devoid of much audio or visual stimulation. The traditional Bolivian teaching methodology is that of rote repetition and memorization. IRL methodology approaches the teachers as partners and the students as active learners and, most importantly, it fosters responsiveness in the teaching-learning interaction.

The methodology in interactive health has been adopted from the more traditional IRL approach. The radio messages are action oriented, emphasizing desired preventive health behaviors rather than attitude change. Students are actively engaged with the radio teacher for 20 minutes and then they are expected to explore the health topic further in 15-20 minutes of follow-up activities with the classroom teacher. It is hoped that follow-up will take place in the homes of the school children according to specific homework assignments. The combination of information from the radio, demonstration and elaboration intended to stimulate and reinforce new health behaviors.

This methodology is monitored by SNI/PAIRB supervisors in classrooms throughout the regions of La Paz, Sucre, Santa Cruz and Cochabamba. Their observations show that teachers vary greatly in their ability to animate the radio lessons during the broadcast and to conduct post-transmission follow-up activities. Although the methodology itself is widely approved and accepted, the inconsistencies in carrying out the methodology need some attention. Teacher

training, incentives, continuing education and feedback from supervisors are all means of ensuring effective implementation of the methodology. These issues are discussed in greater depth in Section 1.5

The quality of broadcast transmission and reception is essential to the success of the IRL methodology; however, the quality of transmission is not consistent among radio stations. Some have clearer transmissions than others, some have greater reach. Those that are not clear adversely affect the attention of the students as well as the teacher in the classroom. Regular monitoring of radio transmissions should be considered a priority for PARI and changes must be made as appropriate and feasible.

In 1994, a change of radio stations in the Santa Cruz region elicited favorable feed back from teachers in that zone. We recognize that there are constraints on the PARI programming with regard to broadcasting. Constraints include financing of broadcast time, and scheduling broadcasts with stations that may not have radio education as a priority. Given these constraints and others we believe that it is important to monitor and evaluate the consistency and quality of broadcast transmissions and to make changes as necessary and possible.

The quality of broadcast reception is equally important as the transmission of radio signals. Radio receivers in the schools are of variable quality which again affects the learning on the part of the students. PARI must be prepared to repair and/or replace equipment that is not receiving and emitting good quality sound to the classrooms. Teachers also should be trained in the proper use and maintenance of the equipment.

Some teachers appeared to have difficulty tuning into the correct radio station for the broadcasts. Students in classes with poor radio reception were observed to be less attentive and less responsive to the broadcast than students in classes with clear reception.

Electrical power is not consistently available to some schools. In those cases, schools either do not conduct the PARI lessons when there is no power or they rely on batteries. While some schools have batteries readily available, other schools apparently do not have the resources to provide batteries.

Because some urban and many rural schools have difficulty in providing a consistent source of power for the radios. PARI's experimental program in the use of solar panels holds important potential for the future of the project. If the solar panels prove cost-effective and accessible, they may be viable alternatives for any PARI school that needs them.

1.4 Does the program reach girls, address gender issues, and contribute to improving the health status of the girls participating in the program?

The PARI program reaches girls and focuses on improving the health status of girls as well as boys participating in the program. Gender issues are addressed as appropriate given the limited time and scope of the health program to date.

The number of girl and boy participants in the program is nearly equal. A very positive aspect of the health program is that girls and boys are learning together about basic health preventive measures including nutrition, food preparation, hygienic practices, accident prevention, human body functions, reproductive health, and self esteem. The inclusion of these topics in the curriculum affords a unique opportunity for girls and boys to discuss health values and health behaviors together. Both boys and girls learn the importance of cleanliness. Students are taught about the need for clean hands during food preparation. It is hoped that these children will carry this knowledge and new health habits into their future role as parents.

Many of the tasks and issues assumed to be "women's work" may be viewed differently as a result of learning in this context. The potential for utilizing IRL for reproductive health and other health issues of concern to both men and women in the community needs to be explored. There is evidence that males and females of all ages (in school and in the community) have a great deal of interest in the wide range of topics related to health promotion and reproductive health. The enthusiasm for the IRL methodology thus far is indicative of its potential in areas of critical concern to women across the life-span.

1.5 Are the teacher training and the teacher guides appropriate?

PARI has provided basic teacher training to all teachers utilizing the IRL methodology. However, these one day training programs are insufficient to build competency and confidence for implementing the PARI health program.

The health program was introduced in schools that for the most part had already been participating in the PARI mathematics program. Therefore, many of the teachers were already familiar with the basic IRL instructional approach. However, the health curriculum was completely new to the teachers. It was the first attempt to teach health in Bolivian primary schools with a methodical and up-to-date approach.

Teacher training has been conducted in large groups with very little opportunity provided for participatory learning. Teachers have indicated that smaller, more interactive training sessions would be beneficial. The teacher guides are excellent; however, training should include more emphasis on the utilization of the guides. Teachers also suggest that training could be reinforced through occasional broadcasts tailored to their specific needs, supplemental texts on the health content to broaden their knowledge and foundation for teaching health related topics, videos of IRL methodology, regular in-service training, and other related teacher support activities.

Teacher preparation at the level of Normal Schools and other Bolivian teacher preparation institutions, as well as in-service education for teachers is critical to the success of the program. In a pilot program with the Normal Schools, students were introduced to the theoretical underpinnings of IRL and to the basic issues regarding school health and health education. They observed model classes which demonstrated the IRL methods in practice. As student teachers they were offered incentives to participate in the PARI program. They were not

given focused training in the PARI mathematics and health programs because it was not immediately applicable to their needs as students. Rather their perspective in teaching was broadened to include participatory, interactive methods and they were encouraged to understand the importance of teaching health to students and the impact that poor student health has on learning.

Not all Normal School students practiced the PARI methods during their practice teaching, and not all students were reached by the PARI educational module. It is clear, however, that there is a need to include the IRL methodology and school health topics in the curriculum of aspiring teachers as well as in the in-service training of teachers already working in the school system.

A major concern is that teachers receive only one day of orientation prior to being expected to carry out the program in the classroom. Some teachers do a masterful job of facilitating the health instruction because they have the basic knowledge and skills to do so; others with more limited health backgrounds are less skilled. There is concern that some of the health messages may be inadvertently misinterpreted by teachers at times. The very brief amount of time devoted to teacher preparation in the area of health is a serious limitation that must be addressed.

The project has focused considerable attention on the design and development of quality curriculum guides for teachers in the health area. The health program guides are very well developed, and teachers rely upon the guides throughout the radio broadcasts as well as during the post-broadcast activities. They were developed, tested and revised by PARI staff with input from classroom teachers. The guides are clear and provide valuable assistance in the classroom as they provide direction for facilitating health values clarification as well as student-teacher interaction in all health content areas.

PARI has not yet provided teachers, directors, coordinators, and supervisors with an adequate conceptual framework to teach the health themes with confidence. The 25 supervisors who provide on-going monitoring of program activities in the schools need additional training in the health area in order for them to effectively provide quality monitoring and evaluation and appropriate reinforcement of the health messages through teacher/student/community interaction.

Likewise, the very brief amount of time devoted to teacher preparation in the area of health is a serious limitation. At present, teachers receive only a one day orientation to the health materials. Their first experience teaching the subject matter, many are not appropriately prepared. Some have the basic knowledge and skills to teach health; however, the others are not yet adequately prepared. This is noted as an area of concern by many health professionals who were contacted by the evaluation team.

Because of very basic need for quality school health education, attention should be given to expanding the time, content and quality of teacher preparation in this area as well as school health activities. Wherever possible, coordination should take place with the school health programming and local/regional public health activities.

1.6 Does the program meet its goals of providing the children with opportunities to implement child to child activities?

The program provides opportunities for children to implement child to child, child to home, and child to community activities. There is considerable anecdotal evidence that children are, in fact, very effective communicators and evaluators of health status in their communities.

Children in the program are demonstrating their enthusiasm for the material and are actively engaging other students, friends, siblings, and neighbors in the learning process through informal diffusion of the messages.

There is evidence that peer influence has encouraged improved hygienic practices and personal health care among the children in school as well as in the homes.

1.7 What is the opinion of the teachers, school principals and parents about the program?

Overall, teachers, directors, supervisors and parents are well pleased with the program. The major concerns of all are the equipment quality and maintenance issues. During the course of the interviews in the schools, nearly all described frustrations with power failure and equipment malfunction and/or transmission and reception problems.

Health has only recently become a required topic for primary education in Bolivia. While many teachers do not yet have an adequate basis for teaching health in the primary school, the PARI program content fits well with the Educational Reform law which states that education should promote self-esteem, multi-cultural understanding and respect, and understanding of nature, personal health and hygiene as well as child health.

Teachers and students are both learning from the interactive process, and there is visible enthusiasm in many of the classrooms. It is evident that the subject matter is meaningful and relevant to the setting.

Teachers participating in the PARI program may see their work and teaching methods positively reinforced through the diffusion of Educational Reform across the country. Many teachers enthusiastically reported that they are seeing the PARI songs and activities used in other subject areas such as reading and writing. In general, teachers, school directors, supervisors, and parents are reporting positive experiences related to the program. Most are highly supportive of the program once exposed to its potential and when they become familiar and comfortable with the change in methodology.

Teachers in Santa Cruz were particularly enthusiastic about the IRL methodology. The Santa Cruz region is one area of Bolivia where the Educational reform is already being implemented. The IRL methodology is consistent with the innovative teaching methods promoted by the reform which encourages greater levels of student-teacher interaction, greater use of resource materials, and appreciation and acknowledgement of cultural diversity.

1.8 Is this program transferable to other countries?

PARI has developed a unique program by creating highly useful and appropriate materials as well as by adapting and incorporating other program successes such as those of the *Niño a Niño* methodology into the curriculum. PARI staff have benefited from some opportunities for professional development abroad, and they have shared lessons learned and program successes with colleagues from other countries to a limited degree. There are many aspects of the program that would have applicability to the situations in other developing countries, and the potential for transferring the program successes needs to be carefully explored.

Some of the regional characteristics inherent in the program materials would need to be adapted to the reality of other regions and/or countries. However, the conceptual basis for the program and many of the "lessons learned" should be transferable and highly useful in other developing countries.

Objective One: Recommendations

1. Additional health training materials should be developed for teachers, directors, and supervisors. Specifically, materials and methods should be developed to facilitate the teaching of health by instructors who may have limited backgrounds in health education. Additional in-service training should be provided for all teachers of health. The one day training should be expanded to at least five days and should focus on core curricular content as well as participatory teaching methodology for each grade level.

2. Additional training should be provided for coordinators and supervisors. Specifically, they should be given training on how to provide monitoring, evaluation and appropriate reinforcement and systematic feedback to teachers regarding their performance.

3. The health component should be expanded through additional hours of programming each year that would allow the inclusion of more topics and the extension of programming to grades two and six. Specifically, expansion of programming around the leading causes of morbidity for the 6-14 age group should address (1) malnutrition--specific deficiencies, (2) acute respiratory infections, (3) parasitic infections, (4) dental caries, (5) skin diseases. Also, aspects of accident prevention are considered important.

4. Coordination should be strengthened with the Normal schools as well as with Universities and other teacher preparation institutions in order to diffuse the IRL methodology.

5. PARI should foster communication and coordination with the Secretariat of Health at all levels. Specifically, coordination at regional levels between the personnel of the Secretariat of Health and the Secretariat of Education is necessary in order to emphasize the importance of school health education.

6. There should be consistent follow-up and reinforcement of post-transmission teaching/learning activities in the classroom, home and community. Specifically, efforts should be made to coordinate activities with community health educators in order to facilitate diffusion of health messages beyond the classroom and into the community.

7. Immediate attention should be given to improving the quality of radio transmission and the maintenance and/or replacement of all malfunctioning equipment.

Because the quality of the entire program depends to a large extent on the quality of radio transmission of messages and the teacher/student interaction, this is an area that should be evaluated and addressed at all levels. Monitoring and maintenance need to be built in to the overall program operations, and provision should be made to have equipment functioning appropriately.

8. PARI should explore the potential for transferring program successes and "lessons learned" to other developing countries.

Attention should be given to marketing techniques that will reach other developing countries. Opportunities should be sought for sharing information informally as well as formally through various international organizations. For example, the National Council for International Health annual meeting; American Public Health Association, International Section Newsletter; Private Voluntary Organizations and others.

Objective Two: Measure the institutional capability of the Secretary of Education.

2.1 Have EDC and the Educational Radio Program (PER) provided adequate technical assistance to the Secretariat to implement the interactive radio program in mathematics and health on its own?

2.2 Is the Secretariat of Education ready to run the program with the staff that has been trained to date without further technical assistance from EDC?

2.3 Can the Secretariat of Education provide the continuity necessary for the success of the program in terms of personnel, politics and the education reform?

2.4 What type of organizational structure would be the most appropriate for maintaining the interactive radio learning program in the public school system?

2.1 Have EDC and the Educational Radio Program (PER) provided adequate technical assistance to the Secretariat to implement the interactive radio program in mathematics and health on its own?

EDC and PER have provided very sound technical assistance to the Secretariat of Education. The long-term EDC advisors have been dedicated to their work in Bolivia, and it is apparent from reports and interviews of PARI personnel that EDC has provided an abundance of expertise through numerous visits of short-term consultants. EDC has prepared careful quarterly and annual reports summarizing accomplishments, problems encountered, and future plans and activities. The long-term consultants have received good support form the EDC offices in Newton, Massachusetts and Washington, D.C., and it is our impression that EDC representatives have had amicable and productive working relationships with USAID personnel in Bolivia.

In the last two years the PARI curriculum was declared a Ministry approved mathematics curriculum. All nine of Bolivia's departments now use radio math in the public schools.

> PARI turned its focus to the regional education authorities and began a series of orientation and training activities which places the education authorities on the front lines of implementing the PARI project activities in the 1994 school year. To that end, the project has developed a national infrastructure of teachers, supervisors and departmental authorities trained in the use of interactive radio instruction (Learntech Project Update, April, 1994, Number 15)

In 1994, the PARI team began a two-fold strategy to involve the Secretariat of Education in all aspects of implementation

> from teacher training activities, to identifying and negotiating broadcast schedules with the radio stations, to classroom observation, to participation in the solar panel project. On the political side, the PARI team is working at the departmental level to gain Ministry line item funds for a "PARI" supervisor in the regional offices. The first success has been in the city of Oruro, where a supervisor formerly paid by the PARI project was placed into a Ministry-funded position. The goal is to acquire line items throughout the country in 1994, thus <u>improving the prospects for sustainability</u>. (emphasis added) (Learntech Project Update, April, 1994, Number 15)

In this same issue of the <u>Learntech Project Update</u> it is noted that another goal is to assure that PARI be included as an educational methodology within the national educational reform. To that end, PARI brought together national education authorities and union leaders in Cochabamba to demonstrate the PARI program and its effectiveness and to gain their continued <u>support of the PARI project once Learntech's role ends</u>. (emphasis added)

In February of 1994, PARI sponsored a three day seminar to train public school supervisors in the use of Interactive Radio Instruction. Another illustration of EDC's provision of technical assistance during the last two years is PARI's meeting in Santa Cruz in 1993, to which they invited representatives from the health and education sectors to work with the PARI International Technical Panel in an intensive review of the pilot health lessons.

In reviewing the PER Scope of Work for 1995, the evaluation team noted that PER, in its role as the local Non-Governmental Organization providing Technical Assistance to the PARI

Project, had the following responsibilities:

Form a technical team of 4-6 persons within the Ministry of Education by the end of 1995. This team will be capable of implementing the PARI program and able to provide technical assistance on a national level to the regional supervisors and the teachers participating in the program.

Train 25 PARI supervisors on the SNE payroll who will be working across the country to support the PARI Program.

Train the technical advisors who are working with the education reform project.

Develop a training and content guide for the "Cuidemos Nuestra Salud" program for SNE.

Work with local NGOs to expand the health program to the rural areas.

Produce three newsletters for the teachers participating in the program, thus leaving a model for the SNE to follow in 1996. (emphasis added)

Complete a summative evaluation of the 5th grade health curriculum.

Specific objectives of PER with regard to advising the SNE on implementing the project and assuring its position as an integral component within the education reform include:

Further develop the capacity of the SNE to implement the project.

Guarantee financial support for the program's operating costs.

Establish firm working relationships with the staff of the education reform, and the newly vested SNE authorities.

Establish a formal agreement with the Ministry of Human Development to maintain IRL as a methodology within the Education Reform.

PER has been relatively successful in fulfilling its responsibilities in the first category of activities (training, working with NGOs, producing newsletters and evaluating curriculum). The evaluation team feels that PER has been less successful in carrying out the responsibilities listed under "advising the SNE on implementing the project and assuring its position as an integral component within the educational reform." Admittedly, this latter set of objectives is much more difficult to measure in quantitative (or for that matter qualitative terms) than the previous set of objectives. If the Secretariat is to assume responsibility for project management and implementation, key personnel in the Secretariat will require more sophisticated training in three areas: management of human resources; process and logistics of the PARI program and the techniques and use of monitoring and supervision.

In management, additional training will be required in the design of organizational structure, formulation of a plan for human resource development, identification of job descriptions and development of plans for continuous in-service training of Secretariat personnel. PARI may be assuming that Secretariat employees are well informed about PARI, but it is more likely that Secretariat employees need considerable information about PARI's purposes and objectives, methods of design and production, and the results of PARI evaluations of learning gain, teacher acceptance and community impact.

In process and logistics, Secretariat personnel will need thorough training in ways of dealing with radio stations who do not take seriously their responsibilities to provide regular amounts of public service educational programming, and technical aspects of classroom reception including radios of inferior quality, failures of electricity, poor broadcast reception, provision of batteries for those schools that operate without electricity, delivery of printed materials, and all of the many other details of the program that could cause teachers to become frustrated with the program service and decide to abandon the use of radio programming.

SNE has no technical expertise or equipment for the production of radio programs. SNE could carry out the PARI program only if they broadcast the existing radio programs. Without the capacity to make program changes, the integrity of IRL methodology is compromised. The PAIRB personnel within SNE must either contract services for design, development, production and testing of the new programs, or they must develop that capacity within PAIRB.

Finally, the Secretariat will need considerable training in formulating new methods of supervision and pedagogical advice. The old systems of supervision are not going to be fruitful in this new environment of reform and re-vitalization.

In summary on question 2.1, there is considerable evidence that EDC and PER have been diligent and imaginative in preparing for the time when SNE would have to implement interactive radio instruction on its own. Our impression is, however, that there is more work to be done before the Ministry can sustain this project on its own.

2.2 Is the Secretariat of Education ready to run the program with the staff that has been trained to date without further technical assistance from EDC?

Although EDC and PER have made significant contributions to the Secretariat in the past two to three years, we have considerable doubts about the capacity of the Secretariat to run the program with the staff that has been trained to date without further technical assistance from EDC (or from some other source).

We noted in the previous question (2.1) that one of PER's deliverables was to "form a technical team of 4-6 persons within the Ministry of Education to implement the PARI program". This technical team has been trained, and their roles and responsibilities have been identified. Four members of the team have worked with the project as regional coordinators, and all of them are familiar with the aims, purposes and methods of the PARI project. Each of the four will have

a specific area of responsibility and expertise: Nestor Rodriguez will be responsible for implementation and administration; Daniel Escalante will be responsible for health; Rodolfo Rotello will be responsible for mathematics and Napoleon Ramirez will be responsible for evaluation. A fifth member of the technical team is Jorge Ayala, an employee of the Secretariat, who has served for many years as the National coordinator of the Bolivian Interactive Radio Learning Project (Proyecto de Aprendizaje Interactivo por Radio en Bolivia (PAIRB). Professor Ayala will lend leadership and administrative guidance to the newly formed team that will be responsible for the Secretariat's implementation of the PARI program.

The Secretariat of Education has adopted the PARI mathematics and health programs as the official curriculum in those subjects. The PARI program has been well-received by students, teachers and school directors. The Secretary of Education, the Sub-Secretary of Education and the Director of the Office of Pedagogical Services all expressed their enthusiasm and admiration for the work of PARI during our interviews in August. PARI staff are well located within the Secretariat of Education as PAIRB (see paragraph above re: PAIRB), and the Secretariat funds 25 educational supervisor positions dedicated to the PARI program.

It is clear that there is extraordinary support for PARI in philosophical, administrative and financial terms. However, the educational reform (which will be discussed in greater detail in question 2.3) is going to bring about extensive change within the Secretariat. It is essential that PARI/PAIRB not only make their presence felt in this new educational environment but that PARI/PAIRB take a stronger and more active position of leadership during this important time of transition. PARI/PAIRB has a great deal to offer the Secretariat (i.e. a strong, well-tested mathematics program, an up-to-date health curriculum, and the capacity for developing a new mathematics program or programs in other subjects to meet the standards of the new curriculum reform).

SNE has expressed interest in the participation of PARI staff in discussions about new curriculum development. They suggested a collaborative study regarding the transition of PARI to SNE in terms of costs and sustainability within SNE. SNE admitted that, to date, PARI programs have not been included in internal discussions of the reform budget.

Another dimension of this discussion is the fact that PARI has had little success in gaining national recognition from the Secretariat of Health. Everyone at PARI agrees on the importance of this collaboration and recent efforts are directed towards gaining this recognition. Meetings were recently held with the regional directors of health in Sucre, Cochabamba and La Paz. Under the various new government reform policies, interagency collaboration is being stressed at the national, regional and local levels. Within the Ministry of Human Development, multi-lateral working groups have been mandated but not yet fully coordinated. The Sub-Secretaries were planning to meet to discuss projects for collaboration. SNE suggested that PARI should be included in these important discussions.

Finally, regarding question 2.2, there is an urgent need for PARI/PAIRB to enter into formal agreements with the authorities in local communities throughout Bolivia. The support of local infrastructure in accordance with the criteria set forth in the new laws of Popular

Participation is going to be crucial to future activities in radio-based learning.

2.3 Can the Secretariat of Education provide the continuity necessary for the success of the program in terms of personnel, politics and the education reform?

In our review of published documents such as Reforma Educativa: Propuesta; Ley de la Reforma Educativa; Nuevos Programas de Estudio de la Reforma Educativa and Organización Pedagógica, we noted the presence of key themes in the philosophy and conceptualization of the education reform. Among the fundamental principles of the reform are the following:

- education is both a right and an obligation for all Bolivians.
- education is an inseparable element in the spirit and practice of democracy.
- education will be bilingual in communities that require it, and it will be intercultural in promoting the values of national, regional and indigenous cultures.
- education will promote solidarity, equity and justice in human relations.
- education will be a process of permanent renovation in its content and methods, seeking always to maintain high levels of accomplishment in science and technology.

In statements of objectives for the educational reform we noted several themes that are especially relevant in carrying out our assessment of the Secretariat's capability to provide the continuity necessary for the success of the program in terms of personnel, politics and the education reform. Of special interest are the following specific objectives:

- the realization of educational objectives must depend on the fullest participation of the community.
- young men and women must be educated in critical thinking skills, universally recognized ethical principles and the cultivation of moral leadership.
- education in health will be an important component of the curriculum. This will include a solid foundation in family-life and responsible parenthood as well as instruction in mental and physical health.
- an emphasis on environmental education and the protection of human resources.

In looking at the fundamental principles and specific objectives of the educational reform, it is evident that the Secretariat is creating a receptive environment for innovation and change. PARI will have much to offer in this new climate, but at the same time, PARI will be challenged to seek out new directions in which to apply its considerable expertise. Education in health, for example, is recognized as one of the critical aspects of the reform, and PARI will have much to offer. On the other hand, PARI will have to accept the challenges presented by the designers of

the reform and consider ways in which PARI can make significant contributions in the teaching of critical thinking, Spanish as a second language, environmental education or other subjects that may eventually be identified as priorities within the reform.

The Secretariat of Education has chosen to begin its reform with primary education because it views Primary as the foundation of the educational system:

- it is the only method of eradicating the recurrence of illiterates.
- primary education is a means of reducing poverty and distributing wealth in a more equitable manner.
- primary education is the level with the greatest return on investment and the level with the greatest impact on health, nutrition and productivity.

The emphasis on primary education is another factor in PARI's favor. PARI has extensive experience in primary education, and they will no doubt be able to contribute much to the on-going reform.

Since we are attempting to measure institutional capability of the Secretariat, we turn now to a consideration of SNE's specific initiatives in institutional and administrative reform. On pages 42, 44 and 46 of Reforma Educativa: Propuesta, we find succinct statements of the SNE's basic position on institutional and administrative reform:

> The new institutional administrative structure which is proposed under the educational reform grows out of an analysis of the functions that an educational system ought to fulfill. That is to say, function determines structure, not the other way around. All functions will be carried out at all levels, thereby changing the present system in which the central level is only normative, and the educational unit is only operative. At the central level there will be greater emphasis on the normative, but the rest of the structure, especially nucleon and school units will also make decisions and plan their own functions, thereby giving greater dynamism to the system. Each educational unit will design its own annual educational plan, and its budget, with the full participation of the parents...
> The new structure will eliminate the division between urban and rural education, which has traditionally led to unequal treatment to the disadvantage of the rural system....To make the system efficient, it is necessary to guarantee the participation of the community. To that end, we will create School and Nuclear Councils for popular participation with the capacity to plan and control the use of resources, contracting of personnel and determination of school function.

The rest of this section of Reforma Educativa goes on to explain the creation of district councils, departmental councils and cultural councils. The proposed structure is shown as Table 2 in the Appendices.

The Secretariat of Education embarked on an ambitious and well conceived plan of educational reform in 1994, and it is prepared to implement the proposed changes over the next twenty years. From our perspective as the evaluators of PARI, several salient features of the reform must be mentioned.

- within primary education, special emphasis will be given to health, reading and writing, as well as science and technology.

- educational administration will be streamlined so that there will no longer be a distinction between urban and rural education.

- education will involve the participation of members of the community, and education will ideally become a more decentralized, more democratic, and more responsive social enterprise.

In summary, on question 2.3, we feel that the Secretariat has the potential to provide continuity in philosophical approach. The emphasis on interculturality, social participation and education as a means of achieving greater human productivity is thoughtful and promising. In other words, the SNE can probably provide the necessary continuity in terms of the education reform. In terms of personnel and politics, we are less sanguine. The reform will not always take place in an atmosphere of mutual respect and consensus-based forward motion. Teachers and their union representatives have shown marked resistance to most attempts to reform the system, and the Secretariat will be constantly challenged to move the reform ahead in a timely and productive manner.

2.4 What type of organizational structure would be the most appropriate for maintaining the interactive radio learning program in the public school system?

With regard to the organizational structure that would be the most appropriate for maintaining the interactive radio learning program in the public school system, we have already alluded to some of the elements that must be present within any organizational structure:

- a complete integration of the PAIRB team within the Secretariat.

- formal agreements between PAIRB and the SNE recognizing PAIRB as an "official" organism of the Secretariat.

- formal agreements between PAIRB, the Secretariat, and the various councils at various levels.

- a well conceived plan for continuous staff training and professional development of SNE/PAIRB employees.

In short, we believe that PAIRB should be fully integrated into the National Secretariat

of Education. If it were to remain a parallel project, it could easily be cut off, or ignored. The PAIRB program would most likely flourish under the division of primary education rather than in a less central division. The administrative arrangement should take the form shown in Appendix A: SNE Chart.

This administrative arrangement would fully integrate PAIRB into the Secretariat of Education. PAIRB would get administrative support from the SNE vertical structure, and technical support from the Technical/pedagogical advisors.

Objective Two: Recommendations

1. PARI/PAIRB should continue to train its own core team of 4 to 6 members, and PARI/PAIRB should increase the amount of training and information exchange for SNE personnel who will be responsible for program implementation.

2 PARI/PAIRB must strive to take leadership in sustaining the interactive radio learning methodology within the Secretariat of Education. A passive, reactive approach could easily marginalize PARI/PAIRB within the Secretariat's reform.

3. PARI/PAIRB/SNE should develop closer working relationships with organizations such as ERBOL (Escuelas Radiofonicas de Bolivia) to take advantage of their experience in dealing with some of the logistical problems that have affected the efficiency of the IRL program.

4. PARI/SNE must contract with PER or a similar organization (or develop their own capability to produce materials) in order to continue PARI programs in health and mathematics.

5. PARI should review the current laws regarding decentralization and popular participation and develop relations with the Secretariat of Popular Participation to better situate themselves within the structural framework of the Secretariat of Education.

6. PARI should familiarize itself with and take advantage of the legislation that requires the mass media to provide educational broadcasting.

7. PARI needs to develop a sound rationale for deciding where to place itself within the Secretariat of Education. We have suggested placement within the Office of Primary Education, but that decision should be made after careful analysis, balancing of alternatives, and judicious estimates of likely long-term success, rather than as a matter of convenience.

8. PARI must be fully integrated into the SNE structure

Objective Three: Evaluate the applicability of the mathematics and health program in the context of the educational reform activities.

3.1 Is the math program applicable within the context of the educational reform? Is it appropriate to continue the math program through 1996?

3.2 Is the health program applicable within the context of the educational reform? Is it feasible to expand the health program to a national level?

In dealing with Objectives One and Two of this evaluation, we have noted that PARI's programs in mathematics and health are well developed, well accepted by Ministry officials, school personnel, parents and children, and well evaluated for appropriateness and effectiveness. In a primary education system geared toward the development of human productivity, mathematics is an essential subject. The PARI mathematics program is a success story in public education, it is applicable within the context of the reform, and it should be continued through 1996 and beyond.

The PARI health education program is also applicable within the context of the educational reform, and it too should be continued through 1996, and beyond.

Both of these PARI programs will of course, have to be modified, as curricula in mathematics and health education are modified under the mandates of the Educational Reform. In each of the two subjects, new themes will be introduced, new areas of emphasis will be identified, textbooks and teaching materials will be re-written, new pedagogical methods will be discovered, and teachers will have to be re-trained and re-invigorated.

In responding to the questions of applicability listed under Objective Three, we will consider some of the factors that must be taken into account if these programs are to have a prominent place in the educational reform.

New Methods of Teaching

One of the most enlightening documents published about the Educational Reform is Organización Pedagógica (Technical and Pedagogical Services Unit, Secretaria Nacional de Educacion. La Paz. February, 1995) In a simple and straightforward manner, the document sets forth a new and challenging vision of the learning and teaching that ideally will take place in Bolivian schools of the future. A particularly valuable section of the publication deals with "the new practice of teaching, the new role of the teacher, and a new manner of understanding in the classroom." The authors of Organización Pedagógica discuss the many new roles that teachers will have to assume as agents of change within the educational reform:

Teacher as mediator: The teacher will be a bridge between the child and the learning process. "It is more useful to help the student resolve a problem, than to give the student a set of rules, or already established answers."

Teacher as initiator: The teacher must create suitable learning conditions in the classroom, organize authentic activities, and promote initiative among the students.

Teacher as organizer: The teacher must organize children into real working groups, orient their activities, give them real assignments, and review their work on a continuing basis.

Teacher as observer: The teacher must constantly observe the students to measure student progress and student disposition toward learning. This careful observation will permit teachers to put children into appropriate working groups, so that each child can learn to the best of his or her ability.

Teacher as communicator: The teacher will create confidence in the students. "When children feel secure, and can express themselves freely, they will learn better, participate more freely in class discussions, ask questions, and think carefully before responding to questions."

Teacher as intercultural communicator: The teacher will be a democratic, sensitive intercultural mediator. The teacher will give children from different cultures and different regions of the country the necessary attention and encouragement to permit the child to develop a mature personality, and to develop his or her creativity.

The authors conclude with the observation that these characteristics of the "new teaching" will demand an integration of teaching practice with learning theory, an emphasis on intercultural communication and the professional development of the professor. (emphasis added).

The implications of the "new teaching" are of great importance in assessing the applicability of the PARI math and health program in the educational reform. In both mathematics and health, the teachers who use the radio programs and classroom follow-up may have developed routines of teaching that will require significant change. To encourage teachers to become mediators, initiators, organizers and so forth, PARI and the SNE will have to develop new methods of professional development for the primary school teachers. On the other hand, the PARI program content has already begun to address some of the Reform issues. For example, in the fifth grade health curriculum there is an emphasis on student problem solving in the health context. There is also an intercultural and interregional mixture of dialect, music and theme in the PARI radio programs. They will also have to re-think the ways in which supervisors are trained. To go from "supervisor" to "pedagogical advisor" is a profound change and S.N.E. personnel are going to need considerable assistance in putting these new pedagogical ideas into practice.

Particular considerations with regard to the applicability of health.

PARI health education programs have a solid basis in content and methodology, the curriculum has the support of educational authorities, and this could become an important element in the educational reform, since the Secretariat has few preconceived notions of what a health curriculum should contain.

If the health program is to be truly applicable within the context of the educational

reform, there must be a closer working relationship and continuous coordination with the Secretariat of Health. There also must be a much closer relationship with health authorities, and field workers at the local level. If one purpose of in-school health education is to have an impact on individual families, and on the community in general, the committed collaboration of the Secretariat of Health, at all levels, is essential.

With regard to the feasibility of expanding the health program to a national level, it is our opinion that much more work has to be done in curriculum development, teacher training and supervisor training before health is expanded to the national level. We stress the fact that health education must involve the Secretariat of Health at all levels, and until this relationship is firmly established, especially through local governments and local councils, we would recommend against the expansion of the health program to a national level.

Objective Three: Recommendations

1. PAIRB should become involved in the Education Reform by integrating its activities directly with the Secretariat of Education in the strategic planning and development of curriculum, content and the IRL methodology in both health and math.

2. PAIRB should develop stronger relationships at the regional and local levels with education officials in order to gain fiscal and political support for PARI in the school as the Education Reform is implemented. PARI and the SNE must make a very strong effort to create "stakeholders" at the local level to ensure continued social and financial support.

3. PARI should further expand its successful approach of incorporating health themes into a broader social context as is now mandated by Article 28 of the Education Reform. The collaboration of the Secretariat of Health is essential in carrying out this task.

Objective four: Measure the institutional capacity of the Educational Radio Program(PER),the implementing private voluntary organization created by the Project and make recommendations for marketing and sustainability.

4.1 Is PER technically and financially sustainable at the present time?

4.2 Can PER be sustained through Secretariat of Education contracts for continuing IRL activities?

4.3 What should PER be doing in the final project phase to ensure sustainability through the Secretariat of Education?

4.4 What other marketing possibilities exist for PER? How can these be developed in the near future?

4.5 What structural attitudinal changes need to be made in PER to make it more entrepreneurial?

4.6 What other recommendations can be made to help PER achieve sustainability?

The Programa de Educación por Radio (PER) is the non-governmental organization that was established in 1991, when the Programa de Aprendizaje (PARI) began the transition away from Fé y Alegria to the National Secretariat of Education. PER's mandate is to make their services of technical assistance available to PARI and the Secretariat to ensure the continued operation of the PARI program (in Section II of this report, we discussed PER's Scope of Work for 1995, and its relevance to the sustainability of the project under Secretariat management).

Michelle Fryer in her book Ministry, Union, the Church and Teachers: Bolivia's Partners in Innovation notes that:

> PER's organization in 1991 gave definition to a five year transitional management plan for the Radio Learning Project, establishing both policy and precedent: policy, because IRL was the first national educational intervention adopted by the Ministry prior to formalizing the national education reform; precedent, because of PER's bold decision to place their prestige on the line and organize union support for Ministry implementation.

PER describes itself as a not-for-profit, non-governmental organization, which has as its principal objective, the design, planning, development and writing of curriculum, and the production and implementation of educational radio programs.

Created in Bolivia in 1991, with the purpose of supporting the improvement of quality of education in the basic cycle, PARI uses radio as a means of student-teacher interaction. The method is based on the active participation of students, whose intellectual and physical action is motivated through games, songs and exercises. The method reinforces learning by offering immediate correct answers.

PER's self-descriptive materials explain in detail PER's role in the development of radio mathematics and health, as well as PER's role in teacher training in interactive learning methods. Of more significance, for our purposes with respect to Objective Four of this evaluation, is PER's self-perception of its willingness and capacity to go in some new professional directions. PER mentions its contributions to the pilot program in health, which tested the relative effectiveness of teaching in Spanish and Quechua. PER also alludes to other initiatives such as their awareness of the need to expand in some new curricular directions such as history of Bolivia, preservation of the environment, and additional themes in human sexuality. These new subjects are potential PER activities that could contribute to the educational and social development of Bolivian children in primary schools. (The preceding section on PER's self-perception is taken from Bievenidos al PER produced by PER's Public Relations Department.)

The evaluation team finds, then, that although PER is deeply involved in the design and production of materials for teaching mathematics and health, the organization is nevertheless

keenly aware that opportunities exist for their expertise and professional services in other areas of public and private education.

4.1 Is PER technically and financially sustainable at the present time?

4.2 Can PER be sustained through Secretariat of Education contracts for continuing IRL activities?

The evaluation team considers these two specific questions together because they are so closely linked. PER is technically and financially sustainable until the end of 1995, but at that time the organization will be on its own to find financial support to maintain itself as a viable educational institution. The concept of PER's technical and financial sustainability must be made more explicit and clear. PER was established by its four principal members: Lic. Emilio Oros Mendez, the Executive Director; Lic. Betty Barron de Luna, Chief of Implementation and Evaluation; Lic. Jaime Reyes Velasquez, Chief of Curriculum and Production; and Wilson Vera Villaroel, PER's Administrator. It does not seem necessary for purposes of this report to go into detail about PER's legal status except to note that there seems to be some question as to whether or not PER meets all of the necessary requirements to be considered a full-fledged non-governmental organization.

Can PER be sustained through SNE contracts for continuing IRL activities? The answer to this question depends on the SNE's level of funding from the World Bank and other sources. It also depends on whether or not the outside donors prefer to work with non-governmental organizations, and it depends on disbursement schedules which may not be flexible enough to fund PER at this time. It also depends on how persuasive PER is over the next three months in convincing the Secretariat that PAIRB will need considerable technical assistance for the foreseeable future (Please see the discussion of Objective Two of this evaluation, for a more detailed discussion of the Secretariat's capacity to carry on the project with its own resources. Please see also the discussion of PER's role to date under the terms set forth in PER's Scope of Work for 1995).

4.3 What should PER be doing in the final project phase to ensure sustainability through the Secretariat of Education?

4.4 What other marketing possibilities exist for PER? How can these be developed in the near future?

We consider these two questions together, because like the previous two specific questions under this objective, they are almost inseparable. PER should be meeting on a regular basis with Secretariat officials to offer assistance in the development of the educational reform. They should be meeting with the Secretary of Education, the Sub-secretary, the Director of the Division of Pedagogical Services, and the Director of Primary Education and regional SNE offices. Members of the evaluation team met with most of these high level officials in August, and they are enthusiastic about PARI, and more than willing to consider a variety of options for further collaboration. The time is ripe, the Secretariat is ready to be responsive, and now is the

time for PER to map out its survival strategy. PER should be thinking about putting on formal presentations, informal workshops and in short, whatever it takes to make its presence felt in the Secretariat. We will discuss what structural and attitudinal changes need to be made in PER to make this intensive self-promotional strategy work, but for now, we suggest that PER must be much more pro-active than it has been since its founding in 1991. PER has had a great deal of valuable experience within the Radio Learning Project, but now PER is going to have to convince the Secretariat that PER is a valuable and essential player within the new climate of educational reform and change.

If PER makes a convicing case for itself to the Secretariatr of Education, they may be able to sustain themselves through SNE contracts at some technical and financial level. If the level of support from the SNE is not adequate, PER will need to develop additional business opportunities. If SNE chooses not to connect with PER at all, which is a real possibility given the SNE's budgetary predictions at the present time, the search for alternatives is obviously more crucial.

PER must see itself not only as an interactive radio learning organization, but as a business of company that can offer expertise in other areas. For example, PER should capitalize on its experiences in providing training to the teachers at the Normal Schools, and to public school teachers in the PARI project, i.e. ,to look for training opportunities in the public as well as the private sector. PER needs to take an aggressive stance in looking for opportunities in rural areas, now that Popular Participation is going to change some of the spending and contractual patterns of development oriented organizations. PER could be of considerable service to USAID, for example, in transferring the interactive radio methodology to areas other than formal education These opportunities will be discussed under Objective 5 of this evaluation.)

PER recently became a member of PROCOSI (Programa de Coordinación en Supervivencia), an umbrella organization for non-governmental organizations working in the area of health in Bolivia. Membership in PROCOSI will offer PER potential access to other organizations and to other project and business opportunities. at least in health. PER must consider all of its options, including joining forces with other PROCOSI members to bring more specialized expertise to a project or to an on-going educational activity.

In our meetings at SECRAD at the Catholic University in Cochabamba, SECRAD extended an invitation to PER to give a seminar or workshop on educational research and radio production. PER should seize this type of opportunity with enthusiasm in order to extend its influence in the world of Bolivia educational media.

In short, PER has not yet fully explored the potential for other possibilities for sustainability. It must look for opportunities to diversify, to specialize, to re-define its mission, so that it can adapt its expertise in radio learning to markets other than formal education.

4.5 What structural/attitudinal changes need to be made in PER to make it more entrepreneurial?

Structurally, PER is a rather simple organization. We mentioned earlier in this section that there are four principal members of PER: an executive director, a chief of curriculum and production, a chief of evaluation and implementation, and an administrator. PER could very well become subject to a "tyranny of titles;" the director and administrator are fairly straightforward terms in any organization, but the titles "chief of curriculum and production" and "chief of implementation and evaluation" might very well serve to freeze PER into a single organizational configuration, and a single way of thinking about its potential for moving in some new directions. We would suggest that these titles in fact create a somewhat rigid organizational structure that does not easily lend itself to strong teamwork, and flexibility of approach.

The members of the evaluation team discussed PER's potential with the four principals at considerable length. We asked them "what kind of an organization would you like to become?", "what barriers stand in the way of realizing your vision?", "what changes do you see as necessary for your continued existence?", and other questions of a similar nature. These discussions, supplemented by lengthy personal interviews were time-consuming but very valuable to the evaluators, and we hope also to the four principal members of PER.

In one discussion, we suggested that PER might give consideration to changing its name. At first this suggestion seemed merely cosmetic in nature, but after more discussion, we realized that a change of name to "Program in Educational Media" or "Program for Educational Innovation" would perhaps tend to break the "tyranny of titles." But more importantly, a change of name would permit PER to re-conceptualize itself as a broad based provider of technical assistance, rather than an organization dedicated exclusively to interactive radio. PER members responded energetically to all suggestions about re-structuring and re-defining itself. PER is ready to become a different kind of organization, but the change of attitude and structure will be difficult and it will take time. We felt that the PER principals may need some assistance in re-defining themselves and their professional roles and responsibilities. This assistance could be provided through consultancies or additional opportunities for professional development such as that afforded by the PARI Institutional Planning Workshop, held in December of 1994. Some form of assistance should be provided as a means of strengthening these Bolivian professionals who are dedicated to serving the needs of public education.

4.6 What other recommendations can be made to help PER achieve sustainability?

We have alluded to several possibilities that PER might explore, but perhaps it would be useful to summarize these suggestions at this point:

PER's most fruitful direction is to trade on two key aspects of Bolivian social change: popular participation and educational reform. To become involved as a serious contributor to educational reform, PER must solidify its presence within the municipalities. PER must create "stakeholders" who will buy in to its services and support it politically and financially.

PER needs to develop a methodical approach to marketing itself to a widwe range of potential constituents. PER should create a system for assessing needs in various sectors and a

system for defining how their expertise will help to solve important social and educational problems that have been identified.

PER needs to develop a more aggressive public relations campaign. Their printed materials are clear and informational. However, PER does not have any strategic plan for ensuring that organizations with potential interest in PER's services find out what PER has to offer.

PER needs to be broad in its outlook, and flexible in self definition. PER has solid expertise in research radio programming and production, and the production of printed materials. PER should consider ways to make use of other media such as the *Suplemento Estudiantil* that appears on a regular basis in Sunday newspapers. During our discussions, PER personnel mentioned television one or twice. We do not suggest that PER attempt to become experts in television, but it is a good sign that some of the PER members are thinking more flexibly.

PER needs to pursue vigorously additional opportunities with institutions such as Save the Children, Plan Internacional and Prosalud. PER has developed some initial working relationships with these organizations, and they should bevigorously pursued and expanded.

A very small amount of external funding would be very useful in helping PER to take advantage of some professional growth opportunities through training in organizational development and change.

In summary, with regard to Objective Four, we find that PER has achieved credibility as an institution. It has a good foundation of knowledge that will permit it to explore alternative themes beyond health and mathematics and it appears to have become flexible in considering a wide range of possible changes to sustain itself. It has dedicated and ambitious personnel, who are beginning to take a more active stance with respect to the Educational Reform. PER's recent acceptance into PROCOSI will be very advantageous to PER as a means of getting PER more firmly grounded in the health sector. PER is a legally constituted non-governmental organization, with *personería jurídica*, but there may be some question as to whether or not PER is in strict compliance with the laws governing NGOs.

Objective Four: Recommendations

1. PER should seek opportunities to expand its services by making contacts with funding agencies such asTthe World Bank, The Inter-American Development Bank, USAID, UNICEF and others.

2. PER must collaborate more closely with SNE and SNS personnel, and with representatives of Participation Popular at the local level to create stakeholders in the program, and to ensure continuous administrative and technical support.

3. PER should review its compliance with current governmental regulations for NGO's.

4. PER should also consider creating an Advisory Board composed of health and education officials.

5. PER must develop an aggressive stance and strategy for marketing its expertise in production of radio programs and printed materials, teacher training and evaluation. PER must be flexible and innovative in terms of subject expertise, types of media employed, and types of services offered.

6. PER must give up its "project" orientation and replace it with a business orientation, conceptualizing themselves as providers of services. Perhaps another long term "PARI" will come their way, but they cannot depend on such a relationship for their own sustainability at the present time.

7. PER should consider a liaison with another NGO or small business (perhaps another member PROCOSI) that has similar and/or complimentary skills and interests in order to expand its expertise and its opportunities in the educational media service sector throughout Bolivia.

Objective Five: Analyze how the IRL methodology could be applied to future USAID activities in sustainable economic growth, population and health, democratic initiatives and the environment.

5.1 Is a follow-on IRL project needed with the Secretariat of Education and public school system to ensure continuity of radio math and health programs?

5.2 Can the IRL methodology and infrastructure developed under this project be employed to further USAID objectives in sustainable economic growth, population and health, democratic initiatives, and the environment? Provide a priority list of ways IRL could be most effectively employed in these areas.

5.3 Could the IRL expertise and infrastructure be used to replicate the Honduras radio literacy project in Bolivia? Could a project employing that methodology disseminate information on family planning, child survival, community participation, family agriculture, and micro-enterprise skills?

5.1 Is a follow-on IRL project needed with the Secretariat of Education and public school system to ensure continuity of radio math and health programs?

Throughout this report we have expressed a positive attitude toward the interactive learning project in mathematics and health. We have also discussed our reservations regarding the Secretariats's capability to ensure continuity of radio math and health programs. Thus, we feel that some kind of follow on project is needed. For the long-term, the project could be

similar to the PARI/PER project in which an international consulting agency, is hired to provide a combination of long term and short term, technical assistance for a specified period of time. For the short term, USAID should disburse any remaining project funds directly to the Secretariat to cover the cost of radio broadcasting time, publication of teacher guides, teacher training and salaries. In support of our position regarding the need for continued funding, we cite relevant portions of consultant Charles Patterson's report entitled The Institutionalization of the Interactive Radio Learning Project (PARI) (La Paz: March, 1995)

> The National Secretariat of Education does not have the competence or the funding to operate the program without external assistance. The National Secretariat does not have money for buying air time or paying other operational costs and it is not likely to make these costs standard line items in its annual operational budget. (Patterson, page 2).

Later in his report, Patterson suggests that it will take approximately $600,000 to $700,000 per year to cover the costs of the NGO's which will support the SNE in carrying out the program. Patterson argues that the $600,000 or $700,00 required to operate the program each year, divided by the eventual number of students who would benefit from the program is US $0.65 cents per student per year.

Finally, Patterson recommends that USAID/Bolivia should take the lead in finding (emphasis added) the funding for the annual operational costs of the program: "It is not necessary that USAID/Bolivia itself fund these costs, but USAID/Bolivia should help find the donors that will" (Patterson, page 7).

5.2 Can the IRL methodology and infrastructure developed under this project be employed to further USAID objectives in sustainable economic growth, population and health, democratic initiatives, and the environment? Provide a priority list of ways IRL could be most effectively employed in these areas.

Given the four USAID/Bolivia program areas listed above, the evaluators identify population and health, and democratic initiatives as the most likely areas in which IRL could be most effectively employed.

Development Communication Report, (Number 2, 1993/3 reported on a project that may suggest some ways in which interactive media could be used in health and population:

> Integrated early child development programs are proliferating around urban areas in Bolivia, thanks to a large Government project and a loan from The World Bank. Keeping the "madres educadoras" as the caregivers are referred to within the project, aware of the activities and approaches which stimulate children in all areas of development, and ways they can manage a large home-based program with young children, is quite a large task. To help out, a small pilot project implemented by Education Development Center and funded by USAID is developing an audio cassette/poster series which models and guides simple interactive activities, and then suggests ways the mother educator can create similar activities on her own.

This project used a multi-media approach, diverse learning strategies and management techniques to target hard to reach audiences i.e. women providing early childcare in the homes.

The Female Family Health and Literacy Radio Education activity which will be introduced in Fiscal Year 1996 (pending approval of USAID/Washington for use of population funds for this component) is another example of the way in which the IRL methodology can support USAID/Bolivia initiatives in health and population.

The Female Radio Education component will teach literacy to out-of-school women and girls through content that includes family planning, reproductive health, and child survival skills. The activity will build on Bolivia's success in using Interactive Radio Learning (IRL) techniques to teach math and health in the schools. The IRL project has equipped Bolivia with a great deal of experience and infrastructure in IRL, including an institutionalized radio learning department in the National Secretariat of Education and a PVO specialized in providing teacher training and technical assistance in IRL.

As noted above, USAID has already given serious consideration to expanding the use of communications media in support of child survival strategies. We suggest at least two other possibilities for USAID intervention. Langdon and Netherton in their Nutrition and Health Country Assessment strongly recommend that:

> Careful consideration should be accorded to a systematic public information and communication campaign which uses the school as delivery structure to reach high-risk groups of absentee, non-enrolled and preschool children. Such a campaign should strive to stimulate the consciousness and motivation of development partners, community groups and parents about the health, nutritional and educational risk of these highest needs groups, with a particular emphasis on equity. Particular attention should be accorded to an analysis of the "demand" factors (direct and indirect costs, family values, psychosocial values) which constrain the educational participation of children, with a particular emphasis on the girl. Such an analysis should give rise to a series of social marketing interventions (emphasis added) aimed at increasing participation in a manner that responds to the social and economic realities of these children. (page 85).

A second possibility for media use in support of child survival is also drawn from Netherton and Langdon's Assessment:

> Congruent with Bolivia's April 1994, Popular Participation law, any effort to improve the health and nutrition status of Bolivian primary school children should be designed in a manner that engenders a high degree of participation from parents and from community based organizations. The reasons for community involvement are multiple in any context: in Bolivia, active parental participation is perceived as closely related to the success of existing school-based programs. Parental awareness and support are indispensable to implementing chemotherapy, such as antihelminthic and micronutrients supplementation. Increasing parental knowledge about the underlying causes of malnutrition and morbidity holds the promise of effecting long-term changes in family

health practices. (emphasis added). Finally, parents represent a significant source of both labor and, in some cases, material resources to implement complementary projects, ranging from school latrines to water infrastructure to the administration of breakfast and lunch programs. (page 82).

One of the premises of the IRL in-school health program is that third, fourth and fifth graders will carry home their newly acquired knowledge in health to their families, but Langdon and Netherton remind us that parents must be knowledgeable about underlying causes of malnutrition and morbidity, especially if the children in the family are not of school age.

In the area of democratic initiatives, Interactive Radio Education would have strong potential for supporting Component Two of the Democratic Development and Citizen Participation. Component Two, Effective Citizenship will "promote the minimal local citizen education and voter participation preconditions necessary for the election of legitimate municipal democratic governments capable of enacting the Popular Participation Law. Under C. 2.4, of the Project Paper "Generating and Channeling Local Demand for Citizen Documentation and Voter Registration Services," we note that: "In addition, radio learning broadcasts, democratic education, reform, primary school democracy curricula, and democratic skills training for municipal councils will strengthen democratic culture in municipalities":

The project will finance the development and delivery of radio programming designed to educate citizens on their democratic rights and responsibilities as defined by the Popular Participation and other new laws. The programming will be promotional as well as instructional in nature. Instructional programming will actively lead citizens groups through the procedures for screening voter lists. The project will provide a limited number of transistor radios and recorders to selected local trainers at Project-assisted municipalities. These programs will be taped by citizen's groups and replayed at voter list screening sessions. Radio programming financed by the Project will be distributed by NGO radio networks such as ERBOL to radio stations in DDCP Project-assisted municipalities for dissemination through local radio programs. Radio education experts and equipment will be procured through the national level contractor. The local level contractor will work with local radio stations to determine the appropriate times and audiences for airplay.

Under this project, there will be a need to engage the service of an organization (or organizations) to conduct market surveys, listenership surveys, and audience response surveys. PER has potential to contribute its services in support of the democratic initiatives project, but PER must meet the planners of this project, determine what services are needed, and prepare a coherent plan that demonstrates PER's capacity and willingness to participate.

There may be some opportunities for the use of interactive radio in the environment sector, but potential in environment seems somewhat more limited than in health and democratic initiatives. There may be a need for instructional materials to support the training of the Isoso people in the Chaco who want to become National Park Guides/Security personnel. There may be other environmental programs with potential for radio instruction as a means of support, and we would suggest that PER meet with USAID's Mike Yates to discuss possible avenues of

collaboration.

Finally, in the area of sustainable economic growth, we suggest that USAID and appropriate Bolivian institutions investigate the possibilities of developing a project to teach mathematics to adults. A good grasp of practical and applied mathematics is essential to individual participation in building credit and savings, and developing small scale businesses. The mathematical concepts would have to be adapted to meet the needs of adult learners, but there is no doubt that many adults never learned the fundamentals of applied mathematics, or they have forgotten what they learned as primary or secondary students. There is an extensive literature about interactive radio and adult learning, and the consensus seems to be that adults can and do learn from radio if the materials are presented in an appealing and practical manner.

5.3 Could the IRL expertise and infrastructure be used to replicate the Honduras radio literacy project in Bolivia. Could a project employing that methodology disseminate information on family planning, child survival, community participation, family agriculture and micro-enterprise skills?

Since no member of the evaluation team is knowledgeable about the Honduras project, we do not feel qualified to respond to this specific question. We hope that we have provided some ideas and suggestions about how the IRL methodology could be employed to further USAID objectives in our discussion of question 5.2.

<u>Objective Five:</u> Recommendations

1. USAID/Bolivia should consider using IRL methodology in its future project development in health and population, democratic initiatives, sustainable economic development and environmental education.

2. USAID should give special consideration to using interactive radio learning methods in support of its programs in health and population, and as a means of teaching reproductive health to women in the context of literacy education.

3. Interactive radio learning should be considered as an effective method of promoting democratic initiatives.

4. Interactive radio should be considered as a means of teaching environmental awareness, and a tool for training and reinforcing appropriate behaviors related to the environment.

5. USAID should seriously consider supporting the teaching of mathematics to in-school youth and to adults as a key element in educating people in applied mathematics, since knowledge of mathematics is essential in fostering a climate of sustainable economic growth.

Objective Six: Assess the monitoring and evaluation system used for this project

6.1 Are the indicators adequate for measuring the impact of the strategic objective of improved family health in Bolivia?

6.2 Have the evaluation systems of the IRL project provided the requisite data and information to guide and evaluate the program?

6.3 Have the evaluation activities implemented by EDC been appropriate?

6.4 Are the evaluation systems of the Secretariat of Education and PER appropriate for their needs?

6.5 Has data from the evaluation systems of the implementing agencies been used to guide program development?

The PARI staff have developed a systematic approach to the design, evaluation and monitoring of the health and math programs. They have been conscientious in their on-going activities to conduct audience research to feed into program design and to attempt to determine program impact on health learning and behaviors of students.

The PARI evaluation staff have engaged in meticulous data collection activities. In regard to health programming, they have collected both qualitative and quantitative data for summative and formative evaluation purposes. They have collected data on the diffusion of the radio programs. They have conducted pre- and post-test measures of health learning for third and fourth graders in 1993 and the impact of the program on behaviors in and out of the school on the same two grades in 1994. This was done by conducting case studies of students: measuring learning, visiting their homes and interviewing their teachers, families and friends both at the beginning and the end of the school year. Impact upon fifth graders is being tested at present during the 1995 school year.

Although the PARI staff have conducted many evaluation exercises and collected mountains of data, they appear to come up short on data interpretation and analysis. They have documented diffusion of the program quite successfully, and have presented demographic information on gender of the participating students. (See "General Statistics for Math and Health, 1994, Betty Barron de Luna.) Pre-and post-test measures of learning were made during the pilot program phases of the math and health programs. (See "Preventive Health Program 1993: Results of the Summative Test and Pre-Test for Control and Experimental Groups", Betty Barron de Luna.) However, they have not fully exploited the data for revelations of insight into learning - are there gender differences in the scores? Who attends better to the lesson? Are there urban versus peri-urban versus rural differences? Is learning higher in one region versus another and why? Do third graders learn better than fourth or fifth graders? Do higher learning scores depend upon previous program participation (cumulative learning over the three/four year curricula)? Specific to the mathematics program, what is the effect of the PARI program over time in terms of academic performance? How well are students prepared for the secondary

school math curriculum? These are the types of questions that do not appear to have been investigated, or at least the data has not been analyzed and presented on these topics. It seems that there is a great deal of data that has not yet been interpreted. This does not appear to be due to lack of interest, but rather to lack of experience in manipulating data. Simple descriptive and inferential statistics, while not as complex as multivariate analyses, can be very useful in garnering a basic understanding of some of these issues and should be methods that the PARI staff could utilize on their own. It is only by answering questions more complicated than those regarding numbers of participants and aggregate learning gains that the full impact of the PARI programs will be demonstrated. Information such as this will allow more appropriate adaptation and diffusion of the PARI programs and/or the IRL methodology.

One study, a pilot study of Quechua versus Spanish language programming was thoroughly, professionally conducted. The EDC consultant, Magda Raupp, worked intensively with the PARI staff to design, analyze and present the evaluation findings. More consultant time or intensive training specifically focused on statistical data analysis and interpretation is needed to bring PARI staff up to a skill level that would allow them to effectively monitor and determine program success in terms of impact on learning and behavior in addition to what they already know about program diffusion.

PARI evaluators and staff have engaged in pilot studies which have been primarily experimental in nature. They include the Quechua Bilingual Health Study conducted with third graders in the Cochabamba area; Teacher Training of the IRL/PARI Methodology in the Normal Schools; Pilot programs with out-of-school children in rural San José de Chiquitos based on strong collaboration between the Departments of Health and Education and using cassettes instead of radio broadcasts; and, an experimental study of the use of solar panels to provide power for radios in rural schools. Each of these pilot studies has brought new insight to the PARI program. They demonstrate the staff's willingness to experiment with the adaptation of the IRL methodology which has resulted in the ultimate strengthening and expansion of the program. However, with the exception of the Quechua study, there does not appear to be systematic, illuminating documentation of these projects. The program has benefitted from the pilots through the direct participation of the staff, but the experiential learning cannot be effectively transferred without documentation.

PARI staff should now begin to discriminate regarding the type of research that will be undertaken. In the short term, emphasis should be given to the further analysis and interpretation of existing data as described above rather than collection of more data. Any new data collection efforts should be undertaken only after the program staff defines questions that are critical to future program development. More case studies would probably be in order to fully amplify the potential of IRL. Future studies could include: a cohort analysis of students as they progress toward secondary school; alternative uses of the PARI radio programs such as listening groups in orphanages and community centers; the effects of radio versus cassettes; the effect of the PARI methodology on teachers and their teaching style; and, IRL and The Bolivian Education Reform, among others.

The PARI staff has been responsible for managing the program monitoring and

supervision activities of PAIRB staff. The Secretariat of Education (SNE) employs twenty-five supervisors nationwide to visit schools participating in the PARI program and to observe the teachers conducting PARI classes. These supervisors are immediately accountable to four regional coordinators who in turn report to the National Coordinator for PARI/PAIRB within the SNE. The supervisors constantly collect data on teachers and schools. The data is recorded on forms, collated regionally and sent to the PARI office. There is no apparent use of this data other than to record student, teacher and school participation numbers. A great deal of time is allocated to this systematic data collection and its input into the computer with little return value. The supervisors interviewed by the evaluation team had no idea of how the monitoring information is used; in fact, they never see it again after providing it to the regional coordinators. The monitoring system is a traditional, vertical system that provides little or no feedback to the supervisors who provide the only direct contact on a regular basis with the actual users of the PARI program - students, teachers and school directors. The supervisors are the eyes and ears of the program on a daily basis and their time is primarily consumed by filling out standardized forms. Only a few of the supervisors interviewed reported having time for any other activity such as in class modeling of the IRL methodology or providing feedback to the teachers. This could have the negative impact of creating tension among the teachers because they have no knowledge of how they are being measured or why.

It appears that some of the supervisors lack a clear understanding of their role. Are they merely observers or are they responsible for supporting the teachers in the practical aspects of the PARI/IRL methodology? They also lack the support that they need to effectively do their job in terms of transportation and time. They do not appear to be part and parcel of the PARI organization in terms of the chain of communication. The organization would benefit from the inclusion of the supervisors into the communication network that affects decision making.

PARI staff is aware of the need for greater support of the supervisors and, in fact, has just designed a new training program to train the supervisors more thoroughly in the PARI/IRL methodology and curriculum. However, unless the monitoring system is transformed from rote data collection into a dynamic system of teacher support and program feedback both up and down the line of communication, the training will have very little long-term effect.

The Regional Coordinators are key to the success of the program as well. They all could benefit from additional training in leadership, management and communication skills. Several instances of ineffective leadership and communication were observed by the evaluation team. These instances potentially could have a negative multiplier effect on the success of the PARI program.

There is a positive example of how feedback from the field was used successfully. New programs/ program segments and teacher guides for third and fourth grades were developed in 1995 according to feedback from teachers and from results of the 1994 evaluations. This not only enriched the PARI program, but served as positive reinforcement for teachers who participated in the evaluation.

The PARI staff has demonstrated great success in formative research for program design.

They took an existing IRL math program from another country, conducted needs assessments of Bolivian children, adapted the program to the Bolivian context and tested it. Further adaptations were made according to formative research findings. Based on this experience, PARI developed an entirely new application of IRL to health education. The staff again conducted extensive needs assessments and formative research to design the programs for three grade levels across the nation, incorporating common and diverse cultural characteristics. This success, and the subsequent testing and revision of the programs in 1994-95, demonstrates the strength and diversity of the skills and resources of the PARI staff in program design and production. From this foundation, PARI staff should be able to successfully augment their skills in data analysis and interpretation to further document their progress and diffuse information about it.

It would be difficult to state that a series of radio programs broadcast to elementary school students once a week for a total of 10 hours per year per grade could have a measurable impact on family health in Bolivia within three years. It is apparent from interviews with school teachers and directors, however, that children are practicing better health habits. School teachers across the nation commented favorably on the increased hygiene of students. They reported that there is a noticeable difference for the better since the onset of the PARI health lessons. Children are cleaner and wear cleaner clothes. They also reported that the schools are cleaner, too, in part due to the efforts of the children.

Objective tests show increased health knowledge among pupils. Third graders have been observed mixing homemade solution for oral rehydration and they can name the symptoms of dangerous diarrhea. Fourth graders learn personal hygiene, how to identify and prevent common transmissible diseases and basic first aid skills. Fifth graders are learning about the human body and reproduction for the first time ever in Bolivian public schools. Teachers have requested additional information for themselves to use to support this new learning.

The impact of PARI programming on family health cannot be effectively measured due to the varied influences such as economics, home conditions, family size, parental education, access to health care, etc. However, the reasonableness of the program objectives can be assessed and indicators developed to monitor progress towards achieving those objectives. PARI has developed appropriate objectives, curriculum and materials for teaching health to primary school students. The lessons are relevant to the lives of the children and their families, they have incorporated child-to child learning methods into the programs, and the classroom follow-up instruction does not require additional costly classroom resources. The radio programs are broadcast according to a regular schedule, and children are guided in their learning by teachers who have been trained in the Interactive Radio Learning philosophy and methods.

In summary, with regard to Objective Six of the evaluation, we find that because the development of the PARI program has been accomplished systematically, it can stand up to investigative research. The evaluation staff is in a good position to measure its success toward satisfying PARI health objectives by further analysis and interpretation of the qualitative and quantitative data that has already been collected.

<u>Objective Six:</u> Recommendations

1. PARI should establish a management information system that incorporates the information and experiences of the regional coordinators, supervisors, directors and teachers in decision making.

2. PARI should further develop its capacity to analyze and interpret data regarding gender differences, urban-rural variations, and long-term learning gains. Technical assistance in this area of specific skills could be designed to focus on a particular study (such as gender differences). The study should include a specific plan for data collection, data analysis, and interpretation.

3. PARI should develop a mechanism to provide feedback evaluation results to teachers, directors, supervisors, and regional coordinators in order to improve communication and enhance on-going teaching/learning activities.

SUMMARY OF RECOMMENDATIONS

V. Summary of Recommendations

1. The PARI project has been successful in realizing its objectives of improving the quality of primary education. Therefore, we recommend that the programs in health and mathematics be strengthened and expanded. Specifically, with regard to the health program, we recommend additional hours of programming that would allow the inclusion of more topics, and the extension of programs to grades two and six. We recommend the development of additional training materials for teachers, directors and supervisors, and additional pre-service and in-service training. Increased efforts must be made by project personnel to coordinate health education activities with community health educators to facilitate wider diffusion of health messages beyond the classrooms into the community. Immediate attention should be given to improving the quality of radio transmission and reception, since classroom reception conditions are not optimal. Finally, the evaluation team recommends that PARI should continue to coordinate its activities in health education with personnel of the Secretariat at national, regional and local levels.

2. PARI/PAIRB should continue to train its own personnel in program management and administration. PARI/PAIRB must also increase the amount of training and information exchange for personnel in the Secretariat of Education. PARI/PAIRB must take leadership during this period of transition of responsibility from PARI to the Secretariat. The project must firmly establish itself in the Secretariat, by strategically placing itself in the Division of Primary Education. The Secretariat is probably not capable of managing interactive radio learning on its own at this time, therefore the evaluators recommend the provision of some form of technical assistance to the Secretariat for at least 12 to 18 months.

3. PARI must become involved in the Educational Reform by integrating its activities directly with the Secretariat of Education. PARI must assume a leadership role in strategic planning, development of curriculum, and production and revision of materials. PARI must develop stronger relationships at the regional and local levels with education and health officials in order to gain political and fiscal support for PARI. PARI and the SNE must increase their efforts to create 'stakeholders" at the local level. The evaluators do not recommend the expansion of the health program to the national level at this time. The curriculum needs further work, teachers need additional training, and better relationships between the Secretariats of Health and Education need to be nourished.

4. The Programa de Educación por Radio (PER), the non-governmental organization that was established in 1991 when PARI began the transition away from Fé y Alegría to the Secretariat of Education, has served the project well, and we recommend that PER be given encouragement to expand its outlook and institutional capacity. PER must seek opportunities to expand its service by marketing its expertise in production of materials, teacher training and evaluation of program effects. PER must take a flexible approach in terms of subject expertise, types of media employed and types of services offered. PER should seek alternative sources of funding by presenting itself forcefully to agencies such as World Bank, IDB, UNICEF and others. PER should also demonstrate to USAID how

PER's expertise could be of value developing some new directions for the application of interactive methodology. Finally, PER should nurture its current relationship with ProSalud, Save the Children and Plan Internacional, to create a broad range of potential clients and professional partners.

5. USAID/Bolivia should consider using interactive radio methodology in its future project development in health and population, democratic initiatives, sustainable economic development and environmental education. USAID should give special consideration to using interactive radio in support of its programs in health and population, and as a means of teaching reproductive health to women in the context of literacy education. Finally, USAID should seriously consider supporting the teaching of mathematics to in-school youth, and to out-of-school adults. A knowledge of applied mathematics is essential in fostering a climate that is conducive to sustainable economic growth.

6. PARI needs to establish an effective management information system that will incorporate the information and experience of regional coordinators, supervisors, directors and teachers in decision making. PARI should work toward developing its capacity to analyze and interpret data regarding gender differences, urban v. rural variations, and long-term learning gains. Priority should be given to providing feedback evaluation results to teachers, directors, supervisors and regional coordinators in order to improve communication, and to enhance on-going teaching and learning activities.

SCHEDULE OF INTERVIEWS, MEETINGS AND SCHOOL VISITS

VI. Schedule of Interviews, Meetings and School Visits

August 8, 1995

Burke and Marr-Burdman arrive in LaPaz
Burke, Marr-Burdman, Tamayo meet with Ann Fitzgerald, EDC, Chief of Party

August 9, 1995

USAID security briefing for Burke, Marr-Burdman
Burke, Marr-Burdman, Tamayo meet with Deborah Caro, USAID
Classroom observation, Burke, Marr-Burdman, Tamayo, Villa Victoria, 5th grade health
Presentation of the PARI program by PARI personnel to Burke,
Tamayo and Marr-Burdman

August 11, 1995

Evaluation team meets with Juan Ignacio Siles, Director of Servicios Nacionales Pedagogicos, National Secretariat of Education. Also present at meeting were Lic. Yvonne Nogales, Chief of Curriculum, and Lic. Elvira Arnal, Chief of Evaluation, Division of Pedagogical Services.
Team Meeting with Ministry of Health Officials
PARI staff completes its presentation to Burke, Tamayo and Marr-Burdman
Team interviews Betty Barron de Luna, Director of Evaluation, PARI

August 12, 1995

Tamayo and Burke interview Jorge Ayala, Director of PAIRB and Jaime Reyes (PER) on day long trip to San Pablo and San Pedro.

August 13, 1995

Travel plans reviewed/revised for Marr-Burdman visit to Sucre

Marr-Burdman travels to Sucre with Betty Barron de Luna Burke and Tamayo work with PARI in LaPaz. They continue the interviews with Jorge Ayala and Jaime Reyes Burke meets with Ann Fitzgerald Marr-Burdman observes 3rd grade health class at Escuela Valentin Abecia. Met with two officials from the Sucre Department of Education, three area supervisors, and nine school directors.

August 15, 1995

Nancy Torrey arrives in LaPaz Torrey meets with Burke, Tamayo, and Fitzgerald at PARI Burke and Tamayo interview Emilio Oros, PER Marr-Burdman visits two rural schools to observe mathematics lessons. Interviewed school director and two teachers.

Meeting with Plan Internacional/Sucre.

August 16, 1995

Torrey and Burke to USAID for security briefing. Interview with Peter Natiello, USAID Program Officer re: Future plans and initiatives of USAID/Bolivia. Burke, Tamayo and Torrey interview Sub-Secretary of Education, Antonio Arandia, and Secretary of Education, Juan

Burke and Torrey interview Arturo Archondo, radio producer for KHANA project(non-formal education of adult audiences in the Altiplano) Marr-Burdman visits Escuela Ancieto Arce, and Oscula San Juanillo. Conducts group interview with 13 teachers and two directors. Meets regional director of the Secretariat of health, Dr. Montalvo.

August 17, 1995

Burke and Torrey interview Mike Yates, Environment Officer, USAID and Paul Ehmer, Chief of the USAID Health Division. Tamayo and Marr-Burdman travel to Cochabamba. Tamayo and Marr-Burdman interview Regional Director, Secretariat of Health. Tamayo interviews Nestor Rodriguez, Regional Coordinator for PARI in Cochabamba.

Torrey reviews documents at PARI office. Burke and Torrey travel to Cochabamba in the evening.

August 18, 1995

Entire team visits Obispo Anaya School to observe math lessons. Team interviews teachers, school director, supervisors and parents. Marr-Burdman interviews PAIRB Supervisor Rosario Rocha de Framine. Burke and Tamayo visit Radio San Rafael to interview Director, Salim Sauma Torrey and Fitzgerald meet for further

Entire team visits SECRAD at the Catholic University.Interview with Director Patricia Cortes and members of her staff.

Team interviews Nestor Rodriguex, and PAIRB supervisors Dunia Lopez de Torello and Mary Rojas de Mercado.

August 19, 1995

Torrey, Tamayo, Burke and Emilio Oros visit Hogar San Ignacio de Loyola. Interviews with Sister Gloria Esposito and Brother John Conway re: their use of PARI programs in health and mathematics.

August 20, 1995

Team meeting in Cochabamba to summarize the work of the past two weeks, and to plan the work for the next two weeks.

August 21, 1995

Burke and Tamayo interview Wilson Vera, PER administrative officer. Torrey visits Escuela Nestor Paz Zamora to observe 3rd grade health lesson. Interviewed School Director, Rosario Campos Torrey interviews Nelly Marca, Health Educator for PER and Rudolfo Rebollo, Regional Coordinator for PARI, LaPaz. Burke, Marr-Burdman and Torrey interview Charles Patterson, President of Strategies for International Development

August 22, 1995

Team meetings to document preliminary findings and recommendations Team meeting to de-brief Sub-Secretary and General Director of Education Team meeting with Deborah Caro/USAID

August 23, 1995

Burke departs for U.S.A. Torrey and Marr-Burdman visit three schools in El Alto to observe 5th grade health classes. Interviews with school director, teachers and parents: 1. Unidad Educativa Fiscal Mixta Libertador Simon Bolivar 2. Escuela Eduardo Abaroa 3. Unidad Educativa Calama.

August 24, 1995

Tamayo, Marr-Burdman and Torrey interview five PAIRB/LaPaz supervisors and Rodolfo Rebollo. Torrey interviews Filemon Heredia, Director of Evaluation for PER

Team interviews Nelly Marca, PER Health Educator
Team interviews Esteban Uguinovic, PROCOSI, re: PER's role in PROCOSI

August 25, 1995

Team meetings to document preliminary findings and recommendations.

August 26, 1995

Team travels to Santa Cruz
Team interviews Daniel Escalante Dorado, PAIRB Regional Coordinator for Santa Cruz, and one supervisor, Nilda Canamari

August 27, 1995

Team spends entire day documenting preliminary findings and recommendations. Communicate by fax and phone with Burke.

August 28, 1995

School site visit at Escuela Claudina Thevenet. Interview with Director and four teachers. Torrey meets with PAIRB Supervisor Teresa Fernandez, MarrBurdman and Tamayo meet with PAIRB Supervisor Napoleon Ramirez. School site visit at Escuela Jesus Peredo. Interview with Director Ana Teresa de Ramirez and 5 teachers. Team interviews Departmental Director of Education Silvia Alvarez. School site visit at Escuela 7 de Septiembre. Interview with Director and six teachers. Team communicates with Burke by telephone

August 29, 1995

Marr-Burdman departs for the USA, Torrey returns to LaPaz Torrey prepares presentation for PARI and USAID Tamayo visits Escuela RP Rodolfo Hoen, and visits teachers and Director at Escuela Aponte Tineo. Tamayo conducts interviews at PROSALUD Tamayo interviews teachers and the Director at Escuela Gustavo Parada Tamayo observes 3rd grade health lesson at Escuela Virgen de Cotoca Tamayo returns to LaPaz in the evening.
Tamayo interviews teachers and the Director at Escuela Gustavo Parada
Tamayo observes 3rd grade health lesson at Escuela Virgen de,Cotoca
Tamayo returns to LaPaz in the evening

August 30, 1995

Torrey and Tamayo meet to plan presentation to PARI personnel Torrey and Tamayo present preliminary findings and recommendations to PARI personnel. Torrey meets with Ann Fitzgerald

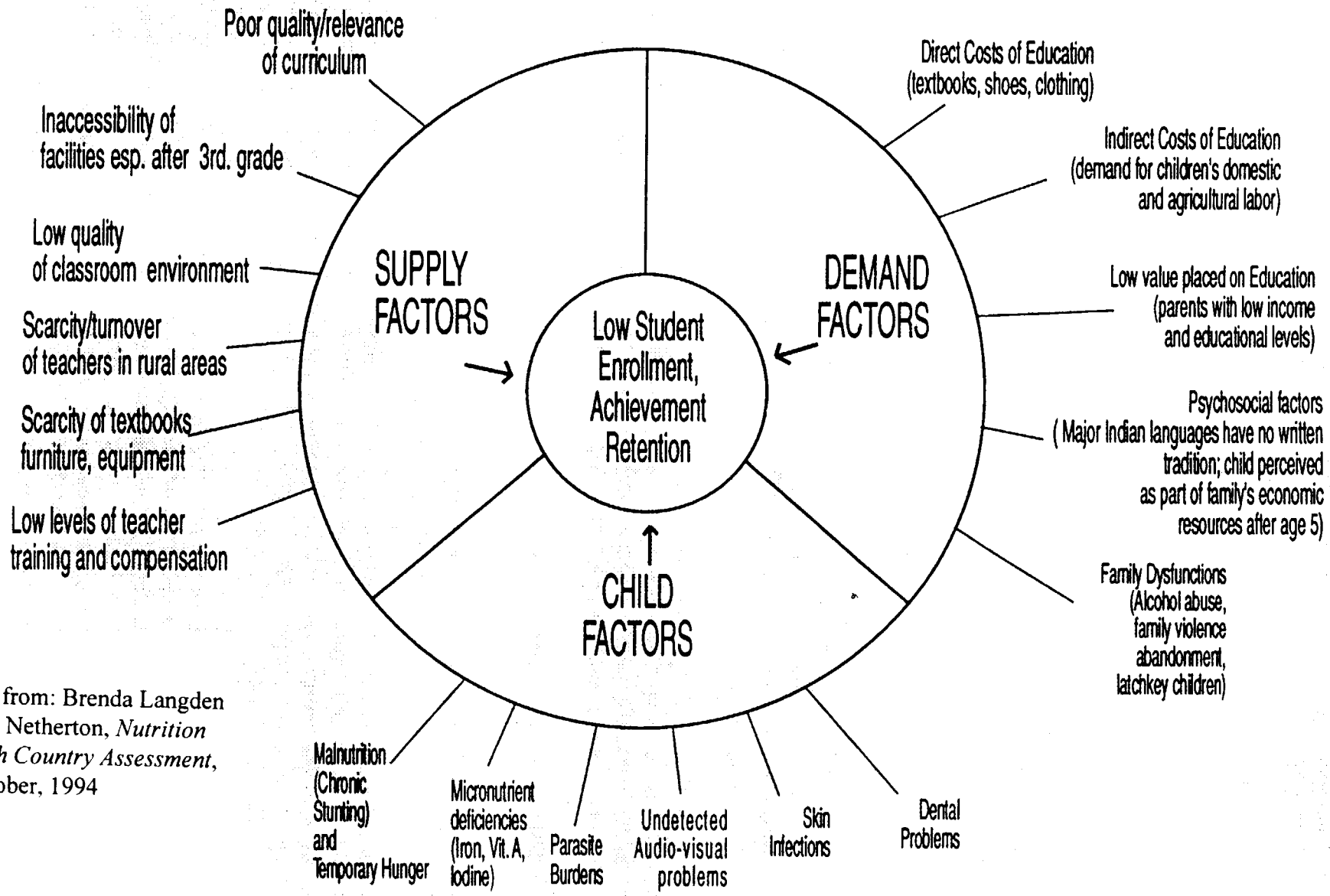
August 31, 1995

Tamayo meet to review presentation to USAID personnel
Torrey and Tamayo present preliminary findings and recommendations to USAID

Torrey departs for USA

APPENDIX: SNE CHART

BOLIVIA: BARRIERS TO PRIMARY SCHOOL EDUCATION



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