COMMUNICATIONS SUPPORT PROJECT

Mid-term Evaluation of Radio San Gabriel, Bolivia and the Tiwanacu Health Project

July 1985

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Submitted by the Institute for International Research Inc.
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Preface

This evaluation was carried out under the auspices of two contracts funded by the Agency for International Development's Bureau of Science and Technology, Education Division: the Communications Support Project and PRITECH.

The consultants were Father Philip Bourret and Mr. Michael Stokes, sent by the Institute for International Research, and Mr. Michael Favin by PRITECH.

The three consultants' reports were submitted in draft form to USAID/Bolivia and S&T/ED in early June 1985. The following report constitutes a synthesis of those three draft documents, and has been edited by Mr. Michael Laflin of the Institute for International Research.

INTRODUCTION

The Tiwanacu Health Project (Favin)

The Tiwanacu Health Project (THP) was established in 1980 by Radio San Gabriel (RSG) located in La Paz, Bolivia. Major external funding was provided by the Inter-American Foundation ($540,530) and from the United States Agency for International Development (USAID--$300,000 for the period May 1983 to May 1986). Radio San Gabriel and the communities involved make cash and in-kind contributions, and the Bolivian Ministry of Health (MOH) and private health programs make direct or collaborative contributions.

The Tiwanacu Health Project aims to improve the health of the mostly Aymara Indian population of Ingavi and Los Andes provinces, which border the southern end of Lake Titicaca. The original target population of the project was 23,000 people in 98 communities, but it is now reported to be approximately 70,000 people. The great majority of the area's population are small farmers, although fishing and selling and buying contraband from Peru have some economic importance.

The major causes of morbidity and mortality are believed to be diarrhea, respiratory diseases, tuberculosis, impetigo, and typhoid. The infant mortality rate is estimated at 300/1,000 live births, and infant and child malnutrition is widespread. There have apparently been no accurate measurements of these health indices.

The original project objectives were to (1) educate and *conscientizar* the population about the importance of good health, of simple preventive measures they can take to preserve health, and of early and low-cost curative care when necessary; (2) to teach the people the importance of prevention through immunizations and through simple measures from modern and traditional medicine; (3) to provide curative health care in health posts built by the people themselves; and (4) to create a social security scheme to protect the population's health indefinitely.

Although critical elements of the project were delayed due to USAID's freeze on funding projects in Bolivia, the full project got underway in 1983. In 1984 a project evaluation was begun, but apparently never completed. This present report summarizes the findings and recommendations of the project's "mid-term" evaluation, conducted in May 1985.

The evaluation team was to examine the Tiwanacu Health Project's progress towards its goals, and to make recommendations in regard to (1) recent changes in project emphasis (from curative care to promotional and preventive health activities and related social programs); and (2) a possible extension of USAID funding for the project. Specific areas for which USAID desired assessment and suggestions included the impact of health services provided by health posts and of health messages broadcast on Radio San Gabriel; the two-way radio system; drug procurement and management; USAID project implementation procedures; social security financing alternatives being considered; and project administration.

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Radio San Gabriel (Stokes)

Radio San Gabriel was founded 30 years ago by the Maryknoll Fathers. It is now owned by the Archdiocese of La Paz and operated by the Brothers de la Salle. Radio San Gabriel is the radio station of the Aymaras, "The Voice of the Aymara People" broadcasting programs in the Aymara language that are written or suggested by the people themselves. For example, a program service called the "telephone" broadcasts an average of 2,500 personal messages per month to the many areas of the Altiplano which lack access to commercial means of communication. Such messages are brought to Radio San Gabriel in La Paz by rural dwellers. They are received by a special department created due to the demands imposed by the volume of messages. Radio San Gabriel is listened to by a majority of the 1-1/2 to 2 million Aymaras who live in northern Chile, southern Peru, and western Bolivia. The station aims to appreciate and preserve the Aymara culture; to serve the Aymaras through broadcasting relevant information and personal messages, and to assist the Aymaras gain practical skills in literacy, education, agriculture, health, and other areas. Several rural development and education projects have emerged from Radio San Gabriel, including the Tiwanacu Health Project.

Non-formal educational services broadcast by Radio San Gabriel, such as literacy and specific skills courses, continue to be in demand. Conversations with informants who have no connection with Radio San Gabriel but who, through their work with international development agencies are in frequent contact with the Aymaras, confirm that the station has an exceptionally high level of listenership and confidence among its target population. However, little concrete data can be found regarding actual effectiveness as there are practically no investigative data to support any claims.

Radio San Gabriel takes seriously its role as an agency for the promotion and advancement of the Aymaras. Ninety-eight percent of the programming is transmitted in the Aymara language. Forty-five of the station's 50 staff members (figures may be somewhat dated) are of Aymara origin. The station's overall goal is the preservation of the Aymara culture, which is reflected in the style and content of the daily programming. Since the station practices participative communication -- all programming and projects must originate from the rural dwellers themselves -- it is certainly far more appealing to the rural indigenous population than any of the area's commercial stations.

The History of Communications Channels within the Tiwanacu Health Project (Stokes)

The 15 communities where the health posts of The Tiwanacu Health Project are located were selected from many in Tiwanacu on the basis of a survey among rural dwellers of the area. (The survey was undertaken by Dr. Severo Chavez, former project director, and it has not been available since his leaving the project.) Those communities selected for a health post each formed a committee for the construction of the health post. Later, these same villages agreed to democratic election of Health Auxiliaries as elections are a prominent feature of Aymara culture. At that time, there was no radio health program, only announcements of the election results.

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As construction of the health posts began, a 15-minute radio program was launched, airing at 5:45 a.m., from Monday through Saturday. It was directed specifically to the 15 communities participating in the Tiwanacu Health Project setting to advise them of the arrival of construction materials provided by USAID and of the necessity of community participation in supplying basic materials and labor. The Radio San Gabriel health programs informed communities of the progress of sister villages thus encouraging their own labors.

At that time, Dr. Chavez, Lic. Francisco Gastaminza, and Sr. Donato Ayma, all of the project, made at least weekly visits to the construction sites and to the elected auxiliaries to supervise and stimulate progress.

Sr. Donato Ayma, a member of the Radio San Gabriel news department, carried a tape recorder, and collected the sounds of construction and interviews with community members about their labors and their hopes for the health posts. Even the symbolic dedication of all the posts, held at two of the locations and which officially inaugurated the project's operation, was tape recorded and broadcast on Radio San Gabriel.

As the project's activities increased, Ayma went regularly to the communities and taped the talks given by the auxiliaries to community members. The practice has lapsed, but there are plans to reinstate it. Interviews with patients and community members were taped also, and all these elements were incorporated into the radio health programs.

According to Ayma, the radio programs are remembered as being a real stimulus to community collaboration in each locale. Moreover, they have remained a regular, early-morning staple of Radio San Gabriel's programming, having evolved into an educational and motivational instrument.

Program topics, which were originally selected only by the Tiwanacu Health Project team, have, since 1983, been chosen jointly by the medical field directors of the (now) four projects which participate in the radio program series. Each project (Foster Parents Plan, Mision Alianza Noruega, Proyecto Pucarani, and Tiwanacu Health Project) is allotted one week in a monthly rotation. The physicians of each project have agreed to supply Ayma with educational materials regarding the topic areas in which the respective projects specialize. These are: Foster Parents Plan, environmental health control; Mision Alianza Noruega, nutrition; Project Pucariani, maternal-child health; and the Tiwanacu Health Project, natural, or traditional, medicine. Within these themes, the physicians select specific topics according to a cyclical calendar of diseases in the Altiplano.

The programs have included such topics as vaccinations, fractures, vector-borne diseases, personal hygiene, diarrhea, nutrition, food preparation, childhood diseases, and the history of natural medicine in the Altiplano. In addition to the materials supplied by the projects' doctors, Ayma adapts material from sources such as Where There Is No Doctor. Materials received from other organizations, such as UNICEF, the Unidad Sanitaria de La Paz, and the MOH (obligatory) are also utilized in the program.

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The topic of the program is always related to health but is set in a broader context of daily life in the *campo*. The Aymaras, according to Ayma and others at Radio San Gabriel, view agriculture and domestic affairs as integral parts of life and therefore essential factors in their health status.

The primary purpose of these programs appears to be promotional health education for the entire listenership, including those outside the project's communities. However, Ayma states that he frequently includes reminders about the services offered by the health posts and the importance of visiting the post if one is ill, thus directly promoting the project.

Secondarily, the programs are used at times to motivate the health auxiliaries by explaining their role in the community to listeners and by directly asking the auxiliaries such questions as: "How many families have you visited in your community this week?"

Radio San Gabriel: Internal Organization

Radio San Gabriel is divided into several internal departments which bear discussion, as they reveal the nature of the station's approach to its target population.

The department of research and planning conducts surveys for various purposes, which include socio-demographic listener profiles, investigation of musical tastes, hours of greatest listenership, economic activity in the rural sector, data regarding perceived community needs and current realities. Data are tabulated and forwarded to other departments concerned with its application, or it is filed for reference. When working in rural areas, Research and Planning uses more than 1,000 indigenous interviewers to whom it has given basic, non-technical training. It also takes advantage of listeners who visit the studios in La Paz by interviewing them on the spot.

Although this department has included health as a topic within some of its broader investigations, and is currently conducting a survey regarding family planning practices in the rural sector, it has done no data collection directly related to the Tiwanacu Health Project.

Adult Education plans and executes two adult education programs, one related to literacy, the other for accelerated, advanced education. (These are known as CEMA and EIBA.) Agriculture, health practices, and other topics are integrated within the basic curriculum. As a part of Escuelas Radiofonicas de Bolivia (ERBOL), a non-formal strategy is used employing programs broadcast by Radio San Gabriel which are accompanied by coordinated booklets, designed and pre-tested by this department. Registered participants follow the booklets during the broadcasts, then complete assigned exercises. Participants also meet with a volunteer monitor/instructor once a week to review their work and ask questions.

The Department of Production of Educational Materials is responsible for producing the printed materials mentioned above, as well as those associated with

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agricultural and other projects. No materials have ever been produced for the Tiwanacu Health Project.

The Schools and Teachers Department assists formal education in the Aymara region of the Altiplano, although it offers no formal, in-school broadcasts. Instead, it provides radio programs and supplementary printed materials designed to complement in-school activities and to stimulate independent student initiative in studying science, history, and other subjects. The department's promotions have included contests of painting and another in which schools with the overall best scores based on a standardized test received desks and school supplies. The department also provides textbooks at low cost to eligible teachers.

The Department of Programs and Projects, initiated in 1984, is in charge of the planning and oversight of a variety of rural development and income-generating projects. The Tiwanacu Health Project is one of the former. Such projects may or may not use integrated social communications, via Radio San Gabriel or other channels, depending on their nature. But most projects with any impact on the rural sector use Radio San Gabriel, at least for their initial promotion. Programs and Projects does research regarding feasibility and practicability, but in regard to social investigation there is little connection between this and other departments of Radio San Gabriel.

Finally, the station has departments of administration, accounting, public reception (for those who wish to pass messages), personnel training, socio-religious promotion, radio production, and journalism.

Technical Issues (Bourret)

Radio San Gabriel reaches the Tiwanacu area with a 10Kw, medium wave transmitter operating on 620Khz, but with its omni directional antenna it reaches an area 20 times greater than Tiwanacu. With the completion in four months of the conversion of their former 10Kw transmitter to a short wave frequency of 6080Khz, the coverage will be extended to reach virtually the entire Aymara speaking population of Bolivia and Peru. With an additional 10Kw standby transmitter, Radio San Gabriel could furnish the radio broadcast coverage for any other health projects aimed at the Aymara population. The minor engineering support problems are not a factor in this or any other health project within the station's coverage.

The four production studios are properly equipped with modern recording and audio mixing equipment and are adequately maintained. There are a dozen Ampex Recorders, broadcast quality microphones and suitable mixing consoles. A measure of the technical involvement of the Aymaras is the fact that the production personnel and the station's chief engineer are all Aymaras.

After two years the two-way radio is not yet operating. Although the problem was discussed with Brother Jose Canut, the major gathering of information and working out of acceptable solutions was done with the project sub-director, Lic. Gerardo Romero, with invaluable help from volunteer engineer, Mr. Carlos Franciscangeli. The equipment chosen for the two-way radio between the 14 health stations and both the Tiwanacu Center and Radio San Gabriel in La Paz is based on

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the frequencies given by the Ministry of Health. These two, both close together in the 4000 Khz region, can only be used with single side band (SSB) equipment. For a national system such as that required by the Ministry of Health, SSB is the right system providing that it has several frequencies, suitably spread so that frequencies for all-day operation at different distances are available. But in the case of a system such as at Tiwanacu, where the stations are all within 50km of each other and the distance to La Paz is no greater than 90 km, a far better system would be VHF-FM. The reason given for not using this more effective and somewhat less costly system was that the Ministry of Health, which eventually will take over the operation of the health stations, does not use VHF-FM and thus would be unable to integrate such a system into their national network.

A network similar to that of Tiwanacu is now in service by the Foster Parents Plan using SSB but with additional higher frequencies. A visit to their main station showed that they are able to use the system with acceptable effectiveness. Communication is often marginal, however, because of varying reflecting conditions of the ionosphere at different distances and relatively poor transmission. In the daytime there is notable atmospheric noise and at night, stations in other countries often interfere.

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EVALUATION

Impact on Health (Favin)

There is no accurate way to measure the impact of the Tiwanacu Health Project on the health of its target population. Nonetheless, judging from the project's limited promotional and preventive activities (until the past year) and the low utilization of its medical services, it is unlikely that thus far it has had a significant impact on the health of the population it serves. This discouraging situation results from factors both within and beyond the project's control. Some of these factors are described below.

Factors Beyond Project Control

1. Because of the 1980 coup, USAID funding was delayed for over two years, which made impossible the purchase of vehicles, medicines, and other project inputs funded by AID. Thus, despite the fact that the project organized 15 communities to build health posts and trained auxiliaries who had been selected by these communities, there was a long delay before services began. This situation deflated the initial enthusiasm of the auxiliaries as well as of the communities, and neither group came to expect much from the project. Project staff got used to doing little beyond sitting around and filling out reports.

2. Because the Tiwanacu area is close to La Paz and contains a large population of statistically poor people, it has attracted projects from many organizations. The competition from and dependence created by approximately 10 other health projects in the same region has greatly harmed the Tiwanacu Health Project's effectiveness. While the Tiwanacu Health Project has stuck to its principles in not giving away free goods and services, other projects give or sell at a nominal fee such items as food, curative care, drugs, and construction materials. Why should communities collaborate with a construction project stimulated by the Tiwanacu Health Project, for example, when they can receive food for work from other sources?

The easy availability of goods and services from other sources is working to erode the traditional Aymara community's willingness to help itself. These free goods have squashed community initiatives; short-changed the time-consuming, difficult, yet critical task of community education, so that, for example, while many latrines are being built, few are being used; and greatly complicated the Tiwanacu Health Project's objectives of a revolving drug fund, a social security system, and substantial community participation in preventive health projects.

3. Bolivia's tremendous rate of inflation (3000-4000%) has made impossible setting appropriate prices for drug replacement and has lessened the people's ability to pay for goods and services.

4. The recent drought has hurt nutrition levels and has cut expendable income.

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5. Finally, the extremely conservative Aymara culture complicates changing the people's knowledge, attitudes, and practices in ways conducive to better health. Every culture has its own world view and values. While they appear static at one moment in time, values do change over time due to external influences. Given their extensive contact over the past 800 years with dominant external cultures (Inca, Spanish, Bolivian), the Aymara culture has remained extraordinarily resistant to changes in its basic cultural values, although it has combined some outside values with its own traditional ones.

The Aymara values -- including the importance of ritual, strong community cohesion, and important relationships with such natural forces as earth, mountains, and hailstorms -- are so resistant to change in part because to the precarious existence that most Aymara eke out on the Altiplano. The slightest mistake caused by some innovation (e.g., new hybrid seeds) could be disastrous for a family's well-being.

Given this precarious existence as self-sufficient agriculturalists, the Aymara have developed strong defenses against perceived threats. Natural disasters such as drought or hailstorms are seen as the direct result of the improper behavior of some community member or family. Such behavior may consist of allowing a family member to die in a hospital; allowing an infant to die unbaptised; allowing a mentally or physically deficient infant or the weakest of twins to survive; or having "too many" surviving children.

To avoid such occurrences, Aymaras rarely allow a family member to go to a hospital, remove any hospitalized family member quickly before he or she has a chance to die there; bring dead and even already-buried infants to priests to be baptized; and set outside "defective" or "excessive" infants, who contract pneumonia and die.

If a family is unsure what to do in a doubtful situation, the community leaders will often meet and then inform the family what to do. If a family actually fails to follow clearly prescribed behavior, family members will be shunned, criticized in public, and even beaten.

To change health-related behavior in such a traditional, conservative people, at least four major ingredients are probably necessary: (1) long and persistent efforts; (2) new behavior that empirically gives a very quick payoff (such as use of ORT, which shows results in a few hours); (3) grafting health education messages onto existing practices and beliefs; and (4) an appreciation of the dynamics of community control and of the extreme difficulty of motivating individual innovators who will openly contradict traditional ways.

Factors Within Project Control (Recommendations on these findings are found later in this report)

1. Although efforts are being made to modify the project's medical orientation, it has been difficult to turn around the initial emphasis on curative services. The auxiliary nurses who staff the project's 14 health posts were initially seen by the project and are still seen by themselves and the communities as minidoctors. They

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have little motivation, few skills, and little incentive to do promotional and preventive work. The auxiliaries personal characteristics are not optimal.

2. There is surprisingly little coordination between Radio San Gabriel and preventive and promotional health work in the communities. The Tiwanacu Health Project is missing an excellent opportunity by not using Radio San Gabriel more effectively. (See the report on social communications.)

3. Planning has been adequate for some specific project activities, but the project has never had a logical, cohesive strategy or overall plan of action. The project has never collected baseline data on major health problems -- which should be the basis for planning appropriate interventions -- nor has the project collected systematic information on knowledge, attitudes, and practices -- which is necessary for the design of effective health education. Original project objectives were not well-defined. They were expressed as such general goals as reducing morbidity and mortality, building health posts, and training auxiliaries, but they were never logically and specifically related to prevalent health problems.

Positive Factors That Could Improve Project Effectiveness

1. The current staff recognize many of the problem areas and have begun to take steps to address them. The project has moved much more towards an integrated, multisectoral approach to health improvement. This is particularly important where, as in the project area, health improvement is not the main priority of the population.

2. Some aspects of program management and activities have improved notably over the past year. Supervision is quite good and supportive. Although accurate statistics are unavailable, immunization coverage is believed to be good (60-70%), and few cases of immunizable diseases have been encountered. The new tuberculosis program, which the Tiwanacu Health Project is handling for other programs in the region, seems well-conceived, and will experiment with the innovative use of traditional medicines to treat tuberculosis. The initiative of introducing traditional medicines in the project pharmacy and health posts is commendable, although not without problems (see below). Some women's promotion and social activities (channeled through mothers clubs and volunteer promoters) have good potential. These programs organize many short courses (in literacy, knitting, embroidery, nutrition, etc.). Finally, in conjunchas instituted more coordinated planning, for example, giving joint inservice training to auxiliaries and jointly selecting an educational theme for each month.

3. The Radio San Gabriel name is highly respected in the project area. Radio San Gabriel staff have many, although not all, of the skills required for effective mass media health education.

4. The staff have taken and continue to take many steps to allow the government to assume responsibility for the medical portion of the program in May 1986. The steps include training the auxiliaries according to the government's curriculum, paying them according to the government pay scale, collaborating with such government programs

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as PAI (immunizations), and using some government forms such as the well-baby record book. (Whether government takeover is truly desirable, however, is discussed below.)

Many Radio San Gabriel projects that are not part of the Tiwanacu Health Project -- for example, the basic education programs are an upcoming plan to distribute seeds and fertilizers and give training in their use -- should have positive, indirect effects on health. A note of caution should be registered in regard to Radio San Gabriel's income-generation projects. Unless accompanied by effective education on healthful ways of spending new income, people might well tend to spend it on manufactured foods and drinks that are less healthy than food in their current diet.

Health Posts and Auxiliaries

While the quality of the auxiliaries' work in the project's 14 health posts varies among individuals, the overall level is disappointingly low. Something is clearly amiss when there are an average of 1-2 visits per day to each health post in an area with an estimated infant mortality rate of 300/1,000 live births. Factors that may explain this low utilization include:

- Most auxiliaries have yet to win their communities' confidence. Many people do not have faith in the care they provide.
- Many auxiliaries have not promoted the health post in their communities; in one community where the auxiliary did promote the post, utilization reportedly increased.
- Many preferred sources of medical care are available, including home remedies, traditional healers, and doctors available in such towns as Guaqui and Tambillo.
- The people's major priorities are agriculture and education, not health.

Overall, auxiliaries lack skills (particularly in promotion and prevention, but also basic curative skills) and motivation. Most stay in their posts despite the lack of patients and do little if any of their expected home visits, completion of family health forms, or other community work. Despite exhortations by project staff, auxiliaries still look upon themselves as minidoctors, and upon their role as treating patients who seek their help. The auxiliaries' low morale (and pay) is reflected in a number of instances of petty corruption (selling drugs, selling beer and other items in the health post, taking extra vacation days, etc.)

Unfortunately, the auxiliaries' ineffectiveness is not atypical of auxiliaries in other parts of Bolivia. Project Concern's description of a group of government auxiliaries in Oruro could very well fit those in the Tiwanacu Health Project. The Oruro auxiliaries are described as lacking skills, knowledge, motivation, rewards, and training. "Many...should be terminated...Many are occupied with other activities. Others seem at a loss for something to do." (Bastien and Rake, pages 43-44)

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Part of the problem in the Tiwanacu Health Project is no doubt due to the auxiliaries' selection, first by the communities and then by examination. Generally, health programs find that women 30-50 years old, who have lived in their communities for many years and who have completed childbearing, make the most effective and stable community health workers. The fact that most of the Tiwanacu Health Project's auxiliaries are young men reflects the unfortunate MOH requirement of 6 years of formal education. While health officials often feel that candidates with more schooling are easier to train, they are not necessarily the best potential health workers.

The project has initiated a series of inservice courses for auxiliaries to review old skills and add promotional and rural development skills. Recent courses have covered communications and maternal/child health. Other courses will cover tuberculosis, traditional medicine, medical care by body system, skills in farming and raising livestock, and literacy. Given their low salaries, and sometimes indifferent community support, some auxiliaries may resent these efforts to convert them into health extensionists. There is also a logical contradiction in attempting to make auxiliaries into multisectoral rural development workers, while simultaneously working to turn them over to the MOH in one year.

Project Evaluation

The original project agreement states that the Tiwanacu Health Project will measure success through (1) reductions in morbidity and mortality in the project area, and (2) improved quality and quantity of health service coverage. Objective 1 can no longer be measured, since no baseline information has been collected. Moreover, with all of the exogenous factors such as inflation, drought, and the activities of other projects in the area, being able to attribute changes in morbidity and mortality to project efforts was highly problematic from the beginning. Objective 2 is easier to measure (particularly the quantity of services), but is of limited value since it may correlate poorly with improvements in public health.

Supervision and Monitoring

Supervision and monitoring of project activities has improved over the past year. The medical director visits each health post at least once every three weeks. He uses these opportunities to assess the auxiliaries' work, to encourage them, and to give informal inservice education. The persons in charge of women's promotion and social programs likewise visit each community frequently and work with the promoters. The auxiliaries meet in Tiwanacu every two weeks.

The current monthly reporting form for health posts is quite successful in not overemphasizing the curative portion of the auxiliaries' work. Items included are treatments, injections, home visits, prenatal controls, well-baby controls, the total number of patients, courses that took place in the community, immunizations, contacts with other programs, and problems (usually a shortage of drugs or malfunctioning equipment).

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Project Administration

Administration of the Tiwanacu Health Project appears to be satisfactory and improving. Recent progress includes the introduction of new reporting forms on morbidity, health post income, and immunizations; monthly meetings to coordinate the work of the Tiwanacu Health Project and that of four other health projects in the region; and a cardex system for control of drugs. Computerized information on drugs and equipment in some health posts is also kept at Radio San Gabriel in La Paz.

The principal problem in project administration is the divorce between Radio San Gabriel's division of projects and programs and the Tiwanacu Health Project. This problem is discussed in the report on social communications.

Revolving Drug Fund

An original project objective was to create a self-financing revolving drug fund that would be primed by AID-funded purchases of U.S. drugs. This objective will not be achieved for several reasons:

- the inflation rate of 3,000-4,000% a year makes it difficult to set realistic prices.
- because they can receive free or cheaper drugs from other projects in the area, people are not willing to pay full replacement price for drugs.

At present, the auxiliaries bring to each biweekly meeting a list of drug sales and consultations and the money these generated. Prices of drugs have been set as a percentage of the cost in private pharmacies. Prices started at 10% the pharmacy price and have increased to 50% (in coordination with the Foster Parents Plan's drug charges). Staff want to continue a gradual increase in drug charges. The project staff have no accurate idea of what percentage of their drug replacement costs are financed by drug sales and consultation fees, but it is probably a very low percentage since the charges are small and since auxiliaries give free services to persons who cannot afford to pay for them.

Social Security System

An original project objective was to create a self-financing social security system for the project's population. By the end of project activities (May 1986), the area's population -- through payment of a monthly contribution and through payments for drugs and services -- would finance its own health care system. Judging from the experiences of many other health programs (see APHA's Community Financing of Primary Health Care for many examples), this was never a realistic objective. It has become all the more impossible due to the same factors that doomed a successful revolving drug fund -- extremely high inflation and the people's unwillingness to pay major portions of health expenses because free or low-cost services were readily

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available from other sources. Moreover, this objective may be questioned on philosophical grounds, since the justice of poor Aymara Indians financing their own health care while urban Bolivians received free care is questionable.

As of May 1986, the MOH is supposed to pay the salaries of the auxiliaries. The communities will continue to take responsibility for health post maintenance and make some contributions toward the cost of drugs and services. This leaves many project costs still to be covered, including salaries, vehicle maintenance, some drug costs, etc. The project staff has presented to USAID some ideas for independent sources for raising revenue to cover these expenses, including chicken or pig-raising operations and a vehicle to transport fish from Lake Titicaca to La Paz. The director of Radio San Gabriel, however, feels that more years of external financing are necessary.

Traditional Medicine

The project is to be commended for its recent attempts to supplement manufactured drugs with traditional medicines that are sold (at a minimal price) through the project's pharmacy in Tiwanacu and (soon) through the 14 health posts. If successful, this effort could decrease both the project's and the community's dependence on manufactured drugs. Initial sales of traditional medicines have been disappointing, however, probably for several reasons:

- Traditional medicines generally work slower than manufactured drugs, and people want to see quick results.
- People are not used to buying them in markets, picking them themselves, or having traditional healers administer them.
- Promotion of traditional medicines has been weak.

The project has scheduled an initial meeting with some of the traditional healers from the region, with the objectives of having them participate in health education.

USAID Oversight

It appears that before project approval, USAID should have been much more demanding concerning clear project objectives, evaluation methods, and a much more specific plan of action. Many activities that would have helped in these areas -- a socioeconomic survey, for example -- never occurred as planned. It is thus unfortunate that the original schedule for project evaluations was not maintained, so that problem areas could have been identified and corrective actions instituted earlier.

The project has encountered confusion and delays because of the requirement to purchase U.S. drugs. Whether avoiding these problems was in the control of USAID/Bolivia is not clear.

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A Review of the Original Project Proposal, with Regard to the Role of Radio San Gabriel in the Tiwanacu Health Project (Stokes)

Before discussing the role of radio broadcasting and social communication in the Tiwanacu Health Project, it is important to point out that USAID funds do not support the communications aspects of the project (save the two-way radio communications). Nonetheless, it is important to discuss the current and potential role of social communication in the Tiwanacu Health Project for various reasons: first, the Tiwanacu Health Project is under the direct control of Radio San Gabriel, which facilitates desirable interaction between the two; second, radio programming is being used regularly to support the goals of the Tiwanacu Health Project; and, third, a more efficient use of the social communications component would go far to help strengthen various areas of the Tiwanacu Health Project.

The original goals and objectives of the project were unclear and confusing. This is also true of the planned integration of social communications, including Radio San Gabriel, into the Tiwanacu Health Project.

From the start, it was envisioned that the radio would play a forceful and coordinating role in the Tiwanacu Health Project, both through direct promotion of the health services to be offered at the health posts and through education for improved health practices among residents of the 15 (now 14) communities to be served by the project. It was hoped that radio would also have an indirect influence on the entire Radio San Gabriel listenership through increased health awareness, due to exposure to the Tiwanacu Health Project radio programs. In demographic terms, about 23,000 would be affected in the first case; about one million in the second (although later in the document the second figure is reduced to 500,000).

One of the project's fundamental principles would be to implement an educational and social communications system that would raise the consciousness of rural dwellers and convert them into active members who are a fundamental part of the project.

Further, the project was spoken of as a totally new system (emphasis added) for the presentation of health services in the rural area. The innovation would consist of the introduction of a new methodology of raising the consciousness of rural dwellers through the educational programs that Radio San Gabriel will transmit daily on health and human promotion. The objectives of such programs were to cause the rural dweller to see the importance of health and the consequent benefits; and to help inculcate the understanding that one must pay a fair price for such health services, that they are not a gift.

To accomplish these stated objectives, a heavy reliance was placed on the credibility enjoyed by Radio San Gabriel among its target audience. Radio would form the basis of an educational system and would link the project's directors, the health auxiliaries and the various rural communities to be served. Radio San Gabriel, it was said, would be the essential and binding element of all the work of the project

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via its 15 minute program focusing on health promotion and prevention, with the frequent participation of rural dwellers, health auxiliaries, and the project's team of directors.

As is always the case with Radio San Gabriel, according to its philosophy of rural, developmental communication, no prior list of health concerns would be drawn up directors or other parties who were not part of the target population itself. Rather, priorities and concerns would be determined through contact with rural dwellers themselves (although subject to interpretation by the directors).

A campaign of integrated media was conceived (but never carried out) to promote the idea of a cooperative social security system among villagers by which they would pay for health services and provide self-financing for the project. It called for flip charts, slides, pamphlets, posters, and radio programs, all to be utilized according to a determined schedule.

It was envisioned that Radio San Gabriel's educational process would be applied to the Tiwanacu Health Project in the following way:

1. Investigation of the health necessities and priorities of the rural sector;

2. Preparation of an educational curriculum in agreement with the results of the investigation;

3. Drafting of educational materials to support the educational campaigns (posters, pamphlets, etc.);

4. Selection of radio formats most appropriate for various campaigns;

5. Writing (and production) of radio scripts, as well as development (printing) of accompanying educational materials;

6. Training of health auxiliaries and promoters for the proper advancement of the campaign. (It is not made clear what part the radio programs were to play in this.)

7. Continuing evaluation to improve the supporting role of radio and to achieve the direct support of rural dwellers in the radio programs.

The project document's section on evaluation states certain factors would be measured at various intervals, but refers only obliquely to measurement of the desired impact of radio or other communications channels.

It would be unfair to say that the Tiwanacu Health Project has not utilized Radio San Gabriel in at least some of the above mentioned ways. Equally, the Tiwanacu Health Project has not applied formative evaluation, specific behavioral objectives, and carefully orchestrated channel integration to its use of radio and other communications channels. The irony is that the Tiwanacu Health Project is a part of Radio San Gabriel which is an organization relatively well advanced in development communication methods and which, outside of the Tiwanacu Health Project, appears to

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be involved in other, more integrated activities which are having a greater impact. The most impressive part of this process is the skill and sensitivity with which Ayma conceives, writes, and produces programs. In the first place, proven scripting and production practices are followed, observing rules of attracting, maintaining, and refocusing attention, as well as those related to presenting, impressing, and reinforcing information. All of this is done in an attractive, entertaining style.

Secondly, and more importantly, Ayma uses a style which seems very much in accord with the world view and culture of the indigenous audience. For example, instead of including technical information about protein and vitamins which is foreign to his audience, Ayma speaks instead about the value of different parts of a chicken and how they protect the health of various parts of our bodies. Rather than lecturing on the dangers of impure water, he takes listeners on a journey across the Altiplano in the character of Juan, who is terribly thirsty and who finally, unable to resist, drinks from an unclean source, even though he knows better. Naturally, this leads to unhealthy consequences. Or, instead of chiding mothers about selling eggs to buy bread and noodles, he may have Maria, a mother who sells her goods at market, realize that she's already sold enough eggs for today and should take the remaining ones back to her family. They will strengthen her children's bones better than bread, she reasons. The announcer never takes an "I-you" position, but instead speaks of "we."

Each program, after an appropriate introduction and theme music, will present the main topic, either through dialogue, drama, or storytelling, and then reflect upon it by means of an interview, an open question to the listener, or some other device. After more music, an announcer returns to reinforce the day's message.

At times, especially during vaccination campaigns, spot announcements will be inserted in the program to remind mothers of places and dates, such as meetings of mothers' clubs, women's promotional groups, and others. Ayma regrets that he has had little time to visit the rural communities recently, and that interviews with listeners are now sorely lacking in the program. He tries to compensate for this by occasionally interviewing rural dwellers who visit Radio San Gabriel, especially those who happen to come from one of the Tiwanacu Health Project communities.

Every three months, the physician/project directors meet to plan the calendar of project activities and radio program themes. At this time, an evaluation is made in three areas: have the four participating institutions fulfilled their obligation to send materials to Ayma? What problems are confronting Ayma, as program producer? What effect is the program having? Regarding the last item, the evaluation of the program series' effect is dependent solely upon the observation and judgement of the health auxiliary. This, it is felt, is an extremely weak basis for evaluation. Nonetheless, on the basis of these three points, the series makes adjustments and goes forward.

Ayma, a native Aymara, is currently studying communications at the Catholic University of La Paz. It would be difficult to fault the thoughtful effort he is currently making in producing the health programs. He also produces a daily afternoon news program of interest to the rural Aymara communities. However, formative evaluation, specific behavioral objectives, and communication channel integration within the project are all lacking. Ayma appears quite open to learning and applying techniques which will make a positive impact through his work.

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In the Research Department, Jaime Archando and Vicente Collaiza stated that no data have ever been collected by that department specifically to support the Tiwanacu Health Project. Dr. Chavez' survey, a baseline data study in the Tiwanacu Health Project area is no longer available. Instead, studies have taken an integral approach. For example, a socioeconomic study conducted in one hundred communities included some items on health. Some of the data yielded are of interest, but should be taken only as an indicator of preferences and concerns, rather than as being totally authoritative. For example, one item showed that 26% of community members visit a health post when ill, more than visit any other source of medical attention. In terms of perceived community necessities, agricultural projects and potable water were most often mentioned, and by a two-to-one margin over health posts, the third-place item.

The Research Department has conducted studies of listenership by parts of the day. A 1983 survey of early morning (4:30 to 6:00 a.m.), which includes the Tiwanacu Health Project program time slot, reveals that of 273 respondents 5.8% request that materials of personal interest be presented between 5 and 6 a.m.; 11% do not listen at that hour, either because they are working, are not awake, or do not have batteries; 36.2% listen to that entire period; and 45.7% say that they almost always listen from the start of programming at 4:30 a.m.

The Tiwanacu Health Project recently attempted to coordinate community health talks and radio topics according to a calendar, but the linkage still seems to be weak. Other than radio and community talks, and the visual aids which some of the more motivated auxiliaries produce for themselves, there appear to be no Tiwanacu Health Project communications materials for community consumption.

In general, both the Tiwanacu Health Project and Radio San Gabriel support projects and programs generated by the rural dwellers themselves. However, both could improve the quality of such projects by applying systematic communications planning to needs which the Aymara people have themselves felt worthy of attention.

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RECOMMENDATIONS

Health Posts and Auxiliaries (Favin)

Turning the project's health auxiliaries into effective community health advocates requires overcoming many obstacles. Nonetheless, if the goal of turning all posts and auxiliaries over to the MOH in May 1986 is dropped, it may well be worth the effort. A multifaceted approach to improving the auxiliaries' effectiveness might include the following elements:

o There should be concentrated efforts at inservice training and restructuring the auxiliaries' jobs. A clear job description should be written that includes curative skills and that adds skills in home visiting, data collection, health education, group dynamics, planning community projects, etc. To avoid overloading them, auxiliaries should have minimal responsibility and training in agricultural, literacy, and other skills related to but not directly part of health improvement. These later skills should be taught to promoters and other community volunteers.

o Once the auxiliaries are better trained and motivated for preventive and promotive activities, health posts should be open only until 11 a.m. for curative care other than emergencies. Auxiliaries should spend afternoons in home visits and working with community groups such as mothers' clubs. These changes should be carefully explained and agreed upon in a general assembly in each community.

o These changes in the auxiliaries' role should be accompanied by steps to motivate them and give them more prestige. These steps might include:

-- no change in salary, but perhaps salary supplements for bicycle maintenance, small per diems to attend meetings and courses, etc.

-- giving recognition to the preventive and promotive work of specific auxiliaries through praise on Radio San Gabriel and in a project newsletter that could be posted in health posts, schools, and other gathering places in the communities.

-- giving auxiliaries a uniform, perhaps a "Auxiliar de THP" shirt or jacket, or emblems that can be sewn on their clothes.

-- encouraging concentration on preventive and promotive activities by emphasizing them in reporting (see below), and by establishing community competitions for preventive actions (with results announced over Radio San Gabriel).

-- giving auxiliaries a framed certificate stating that they have completed the initial auxiliary course and are receiving frequent inservice training. These certificates should be placed on the walls of the health posts.

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-- helping auxiliaries develop more audiovisual materials for use in health education.

-- giving auxiliaries good training in their new role, sot that they will have the confidence to perform it.

o Auxiliaries should complete and update simple family health forms. These will concentrate on family characteristics that indicate high-risk of health problems (e.g., more than 5 children, no latrine, a child with grade 3 malnutrition). These forms will be used for project evaluation (see below) and as a guide to the frequency of home visits to specific families.

o . Auxiliaries (and promoters) should take on very specific health education functions that complement radio education via Radio San Gabriel. They will repeat and reinforce radio messages as well as answer any questions.

o Some health posts should probably be closed, and the employment of the least motivated and least effective auxiliaries should be terminated. The posts closed would be those in communities that have adequate access to other nearby health facilities. In those communities, the project would inform the community that it was ending support for the curative program but that the community could use the health post building as they wished -- hopefully as a social and training center. Other health-related activities carried out by promoters would continue in those communities.

o It is strongly recommended that the Tiwanacu Health Project give a much stronger emphasis to monitoring the growth of children under 3 (or 5). Expert help should be obtained for selecting the most appropriate scales and for developing or adapting a road-to-health chart in Aymara. The charts, protected by plastic, should be kept at home by mothers (studies show that mothers lose fewer charts than do health facilities), since growth charts can serve as an excellent educational tool to show parents the relationships between growth, infection, and nutrition. Weighing sessions should be held monthly at mothers' club meetings, in schools, and/or on a day when the doctor visits. However, the auxiliaries should receive training in and take major responsibility for weighing, recording, interpreting, and following up on the charts with appropriate education.

Project Evaluation (Favin)

Particularly since no baseline data were collected, it is not recommended that the Tiwanacu Health Project attempt to collect data that will show its specific impact on the health of its target population. It is not too late, however, for the project to begin collection data on simple intermediate indicator of health improvement.

Since all parties agree that the project's evolution toward preventive and promotive activities is a healthy one, why not evaluate the project in those terms? It is recommended that, based on the staff's consensus of the major health problems in the area and of the investigations of knowledge, attitudes, and practices, that the staff design a simple family health form that auxiliaries and promoters will complete with each family every 6 months. Auxiliaries, promoters, and communities should all

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receive a good orientation before the actual collection of information begins. The questions to individual families should pertain to behaviors related to the 3-5 most serious health problems. Each questions should pertain to a behavior that is not commonly followed, that has serious consequences when not followed, and that is realistically subject to change in the relatively short run. Besides family demographic information, the forms should contain no more than 10-12 questions. In interpreting responses from different rounds of questioning, the effects of seasonality should be kept in mind.

The many potential advantages to the Tiwanacu Health Project of using such a family health form include the following:

- The auxiliaries will have a concrete reason that requires them to make home visits.
- Individual families' responses can be used to identify high-risk families who should be visited frequently.
- The auxiliaries will doubtlessly discover many health problems that they can treat.
- The specific questions will educate and reinforce some important health behaviors for auxiliaries, promoters, and families.
- The home visits provide an excellent opportunity for health education discussions.
- The individual family forms, compiled for individual communities and for the project as a whole, provide an excellent and practical means of project evaluation.

The compiled information could tell the project staff such information as:

- % of families who eat quinoa, fruit, and vegetables most days
- % of families with vegetable gardens
- % of children under 3 whose weight is monitored regularly and of those, the % whose weight has gained for the past 3 months.
- % of children with "complete" immunizations (the project staff must define "complete")
- % of families who state they used ORT the last time a child had diarrhea
- % of families who participated in community meetings or courses in the past 2 months
- % of families who participated in health post maintenance of a community project in the past 2 months

o % of families who "usually" use a latrine

The actual information on the forms, however, should be developed by project staff using the criteria mentioned above.

Supervision and Monitoring

It is recommended that personal supervision become somewhat more formalized. The supervisor could have a brief list of questions to go over with the community staff. The supervisor should record a summary of the visit and of any problems encountered and solutions suggested.

It is also recommended that if it can become operational at minimal additional cost to the project, 2-way radio be employed to supplement personal supervision. One hour a day might be reserved for radio contact between the medical director and the auxiliaries to discuss problems and treatment plans for specific cases. (It is important, however, that this increased access to the doctor not create dependency of the auxiliaries on him for proper diagnosis and treatment.) This radio contact should also be used for communication between the Tiwanacu Health Project office staff in Tiwanacu and promoters and others in the community.

Project Administration (Favin)

Continue the current improvements. Integrate the Tiwanacu Health Project administration better within Radio San Gabriel.

Revolving Drug Fund (Favin)

Continue attempts to have the people pay as much of the replacement costs of drugs as possible.

Social Security System (Favin)

It is clearly desirable that the Tiwanacu Health Project become independent of external financing as soon as possible. Neither full takeover by the Bolivian government nor complete self-financing of services offer feasible solutions. Thus, some type of independent fund-raising operation may be the best solution. Plans should be pursued for such a project, but must be very carefully prepared in terms of project management, financial management and control, necessary technical expertise, and marketing. It is highly unlikely that such project could become operational and profitable by May 1986. Thus, some external financing, although at a lower level than at present, will most likely be necessary after May 1986 if the project is to continue.

Traditional Medicine (Favin)

The project should promote the use of traditional medicines much more effectively through Radio San Gabriel and through personal contacts in the communities. The project should pursue collaboration with traditional healers for health education.

Communications: Topic Selection and Development (Stokes)

To date, the project has had a primarily curative focus (for historical reasons), despite its initially broader planning. Now, however, it is intended that the Tiwanacu Health Project should expand to include an educational and promotional focus as well. The Tiwanacu Health Project appears to be moving in a sound direction in terms of selecting certain relevant topics for the community talks and radio programs, and in doing so according to a cyclical calendar of diseases in the Altiplano.

It is recommended, however, for purposes of effective social communication support, that a very few curative, preventative, or promotional behaviors be singled out for intense attention by the Tiwanacu Health Project. These can be chosen through a combination of the perceptions of the indigenous people and the observations and knowledge of the project directors. Illustratively, the themes might be infant diarrhea, tuberculosis, and nutritional recommendations.

Further, careful and detailed study must be conducted to determine the actual indigenous knowledge, attitudes, and practices regarding the areas chosen by the Tiwanacu Health Project.

More specifically, it must be carefully determined: a) what are the current behaviors or clusters of behaviors which come into play, of both a personal and communal nature, when the Aymara people of the Tiwanacu region confront these few, selected areas?; b) what behaviors or clusters of behaviors do we desire these people to undertake or avoid when confronted with these selected themes?; and, c) what strategies must we design to teach and reinforce these desired behaviors? By what channel or combination of communications channels -- discussion, lectures, slides, radio programs -- can this be done? In what sequence? In what manner? Our object is to have an ever increasing impact on the behaviors related to these areas, an impact which, though possibly noticed only slowly, can be clearly measured over time.

Baseline Data Collection (Stokes)

With the possible exception of the investigation conducted by Dr. Chavez at the project's outset, there has been no collection of baseline data against which might be measured progress and impact.

If an evaluation of impact is desired, it is recommended that the Radio San Gabriel Research Department design and conduct a minimal baseline data survey in the Tiwanacu Health Project communities, or at least in a representative sample of

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them. The survey should include (but not necessarily limit itself to) probes for current knowledge, attitudes, and practices related to the specific areas targeted for behavioral change by the re-focused Tiwanacu Health Project. The investigation can be carried out according to Radio San Gabriel criteria, and the data generated should be used to inform both mid course project redesign and eventual summative evaluation.

Nor is a survey the only feasible technique. Direct observation of behaviors, if done by the appropriate individuals who are acquainted with the culture, can also prove valuable. Focus groups among mothers could also prove highly fruitful in the Aymara culture, dependent as it is on community consultation. In every case, sensitivity and cultural understanding, as well as a sound understanding of what information is required, are the keys.

Formative Evaluation (Stokes)

Tiwanacu Health Project radio programs are broadcast at present with no pre-testing to determine their clarity or educational effectiveness.

It is recommended that Donato Ayma, in collaboration with the Research Department, design an instrument according to already-known procedures, to measure a sample of at least one program in every fifteen against minimal criteria of understandability and acceptance. It should be understood that any elements which do not meet with favorable results should be rewritten or re-recorded.

Summative Evaluation

There is no field testing to measure impact or effectiveness of the radio programs in terms of increase of knowledge or behavioral change. (In fact, this is an area in which Radio San Gabriel appears to have little experience.)

It is recommended that regular, periodic evaluations be made of all Tiwanacu Health Project social communications materials among the project's target population. As in the case of baseline data, this can be accomplished through survey, observation, or other appropriate methods. The data obtained should be carefully analyzed and used to inform changes and improvements in future programs and materials. The principle criterion for effectiveness should be a continual augmenting of knowledge or behavioral change, however small it may be, against the baseline data.

Channel Selection and Integration (Stokes)

Although the Tiwanacu Health Project conforms to current health project efforts in its cyclical approach to its messages, only recently has attention been given to proper and effective integration of the radio programs and community talks.

It is recommended that all Tiwanacu Health Project materials be integrated by their theme. Further, the behavioral changes in question in each of the selected focus areas should be linked to appropriate communications channels -- radio, talks, slides,

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newsletter, etc. -- in order to achieve the greatest impact on a given behavior. For example, radio may be totally ineffective in teaching a mother how to mix oral rehydration salts; that may have to be done in a lecture/demonstration. On the other hand, radio may very well be able to reinforce the mixing behavior the mother has already learned.

It is recommended that the Tiwanacu Health Project should continue to avoid a campaign approach. Rather, it should continue its cyclical approach and carefully determine how the selected focus areas can best fit within the cycle. The temptation to integrate the focus areas in one general communications and educational effort also should be avoided. Experience shows that the most effective results in learning and behavioral change are most likely to occur when each area is dealt with distinctly and clearly, one at a time, yet within a cycle.

Technical Assistance (Stokes)

The types of investigations, behavioral objective setting, testing, and evaluations recommended in this report are new to the Tiwanacu Health Project and to Radio San Gabriel.

Therefore, it is recommended that, provided project budgetary constraints permit, a minimum of one to three months of short term technical assistance be provided to the Tiwanacu Health Project in these areas. The consultant should have particular strengths in the health promotion/education and social communications areas. The consultant should also be able to assist the Tiwanacu Health Project/Radio San Gabriel to establish systematic procedures in order to institutionalize these evaluative processes.

Technical Issues (Bourret)

Since a VHF FM system would, by using one unmanned and fixed frequency repeater, give 24 hour service, with better average signal strength, and an almost absence of noise, this would better meet the needs of the project, as long as a means were available to connect this local net with the Ministries' large network. To do this, one could use VHF FM units as suggested, and add two SSB units, one at Tiwanacu, the other in La Paz. These are, properly, the only stations which would need to communicate with the Ministry headquarters and with other stations of a regional nature in other parts of Bolivia.

Delays in procuring the equipment seem not to be the direct fault in planning on the part of Radio San Gabriel. But with the equipment already received, the delay in installing antennas could have been avoided by specifying the correct antennas for the presently assigned frequencies, and the higher ones needed for regional networking.

Extensive and carefully studying with Mr. Romero of Radio San Gabriel and the advising engineer Carlos Franciscangeli indicated the possibility of having the best of both systems, by an immediate interchange of the new equipment with other components, also new, which are available to the contractor from whom the present SSB equipment was purchased. This rearrangement of the transceiver components in

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the system to still allow proper SSB operation for inter-region contacts, and at the same time substantially improve local usage between the health stations can be made at fair pro-rated value for each unit involved and without the exchange of money. Thus the same assurances for new and guaranteed equipment would be present, but the units used would allow substantial improvement in performance. In addition due to the faster installation of antenna equipment in the case of VHF FM against SSB, it appears that the first testing of the system can be made within two months.

Since projects of this sort should be planned in such a way that capital equipment will be properly functional for a period as long as ten years, the delay of perhaps a year in the installation and operation of the two-way radios may in the end be not so serious because the entire system will function with much greater efficiency after these system changes are effected. The use of and thus the operation of this system could be of interest for valuation over the next year.

From the questioning done by this evaluation team, it is clear that the Ministry of Health is not prepared to take over the operational responsibility for the Tiwanacu project within the next few years. The radio equipment, although not considered especially sophisticated, does nonetheless require maintenance and technical and financial support. Brother Canut of Radio San Gabriel is aware that the project should not be turned over to the Ministry of Health until they are realistically prepared for it. The timely opportunity to reassess the type of two-way system to allow better local interchange and regional connections, and to negotiate a change of the transceiver units in a manner that distinctly benefits the project, is a serendipitous outcome of the study.