

Mass Media Nutrition Education

Ecuador



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A SUMMARY REPORT ON THE MASS MEDIA NUTRITION EDUCATION PROJECT IN ECUADOR,
CONDUCTED BY THE GOVERNMENT OF ECUADOR, ASSISTED BY MANOFF INTERNATIONAL INC.
AND SPONSORED BY THE AGENCY FOR INTERNATIONAL DEVELOPMENT

INTRODUCTION

In the project, radio was used to communicate with all households in two provinces in Ecuador. Prerecorded messages, produced in Ecuador under the supervision of the contractor, were broadcast over local stations approximately ten times daily each, for each station, for 15 months. Before the program and during the project period, 2,800 households were interviewed to determine impact on knowledge, behavior, and attitude

The accomplishments of the project can be summarized as follows:

- This was the first closely studied effort to use modern marketing methods, not associated with a product but with changing food and personal hygiene behavior.
- The project was carried out in Ecuador, using Ecuadoreans to do most of the technical work, recording, filming, and interviewing, with technical assistance from Manoff International.
- We did not require years before we were broadcasting. Even with delays, we were broadcasting within six months after beginning work.
- Our interview schedule, including nearly 2,800 respondents, studied over an 18-month period, is the largest field interviewing program ever undertaken in rural Ecuador, and the largest opinion research project undertaken in the country.
- We have been able to document changes in behavior, knowledge, and attitude as a result of the messages.
- We have demonstrated that a national social service program can get access to the radio airways and can provide professionally produced materials without a large investment in studios, writers, directors, and all the other costs traditionally associated with radio programs.
- We have demonstrated to the Ecuadorean Government that they can use this technique to reach rural mothers, farmers, young people to educate them without an investment of thousands of dollars for studios, etc.
- We have shown that this model is appropriate for other countries achieving greater impact because of the lessons learned in Ecuador.

SECTION ONE

I. PURPOSES OF THE PROJECT

The purposes of the project were the following:

A. EDUCATION

"Educate specific segments of the Ecuadorean population as to the viable solutions to specific priority nutrition problems".

This was to be an experiment so that much of what was to be learned as a result would be about processes of carrying on a project, and also to serve the nutrition objectives of the Ecuadorean Government.

Furthermore, we demonstrated in this objective an important principle of marketing: segmentation of the audience. This is an important step in designing the message and an important technique to pass on to our Ecuadorean counterparts for use in future mass media programs or for nutrition education projects of any type.

B. MOTIVATION

"Motivate these segments to take steps to improve their nutritional habits by the educational technique and back-up programs".

Our messages identified specific actions that mothers could take to improve the nutritional status of their children, such as continuing breast-feeding, giving iodized salt, and boiling drinking water.

The specificity of the messages could help nutrition educators in their work. In these purposes, we have carefully distinguished between educating, i.e., increasing knowledge and changing attitudes, and motivating to action. The goals go beyond mere increases in knowledge and awareness, to include changes in behavior.

When we began to assist this project, we did not know, nor did anyone else, how much time and how many exposures to a message would be necessary to move an undereducated mother along a continuum of problem awareness, solutions awareness, solution trial, satisfaction, and changed behavior. The more than 2,800 household interviews that we conducted throughout the 15-month broadcast period attempted to measure this process. The data that we present in Section Two of this report are suggestive of the requirements of this process, but they do not give a definitive answer. Only after many trials, under a variety of circumstances, will there be enough data to describe the schedule of change.

Finally, though not planned, "back-up programs" could support and complement the radio messages. We did not believe nor do we now believe

that with only radio messages permanent behavior change can occur. The radio is not a replacement for face-to-face contact, or for education through other media, but it is a complement. In one of the test areas of Ecuador, Manabi province, there was, when the project began, a heavy government investment in health care facilities and personnel. In Imbabura Province, in the highlands, however, there was less health and nutrition activity. Other than one poster for each message which received rather wide distribution, there was no "back-up" activity that related to the messages.

The impact study did not find any difference in the changes of nutritional practices between Manabi Province where there was more health activity and in the Sierra where there was less. However, coastal people appeared to have higher levels of knowledge and awareness of health and nutrition practices than Sierra people.

C. WORKING MODEL FOR OTHER COUNTRIES

"Provide a working model of the Mass Media Reach and Frequency education technique for other countries to emulate".

We have been most successful in this regard. We believe that one of the most important outcomes of the experiment was the process that we learned. When we began we knew that we had to make adaptations from commercial campaigns in the United States to a social marketing scheme in Ecuador. The working model is an expression of these adaptations.

This report is the first chapter in a series of refinements that we intended to make on the "how to" of mass media education and behavior change projects. Our work in Nicaragua and the Philippines has already provided us with a wealth of new information and experiences in applying this technique under different circumstances.

D. COOPERATING INSTITUTIONS

1. Ecuadorean Institutions

When we began working in Ecuador, USAID had already proposed the Ecuadorean National Institute of Nutrition (INNE) as the recipient of institution building grants. The project was sponsored by INNE and its parent organization, the Ministry of Health.

The Ministry of Health and INNE were instrumental in accomplishing the objectives of the project. Personnel from each institution participated from the first steps of the project - deciding what ought to be the subjects of the messages and the target areas, and they were, through the Minister, responsible for gaining initial access to the radio stations.

Since the media were expected to provide free broadcast time, and several government agencies were to cooperate in the evaluation interviews, it would have aided the projects immensely had we been associated not only with the Ministry of Health, but also with the National Planning Board and their national nutrition planning section, and to the Office of the Presidency.

By involving several levels of government in the project, we would have been more assured that the technique might have been adopted by the government more readily at the end of the demonstration period.

2. USAID/Ecuador

Throughout the project, we received the support and assistance of the local Mission of AID. We worked through the Office of Family Health, directed by Sam Haight. The nutrition advisor to USAID, Dr. David Nelson, was particularly helpful.

3. The Private Sector in Ecuador

All the broadcast time was donated by station owners in Manabi and Imbabura provinces. As we explain below in the section on the "Media Situation", this was accomplished through the good offices of the government, assisted by our local project representative, Dr. Donald Swanson.

In addition, some of the costs of the project were paid for by local businesses. For example, some of the records on which the spot announcements were recorded and distributed to the stations were donated, and several companies financed the printing of posters for each of the five messages.

Before the broadcasts began, province level nutrition committees were formed in each area. They contained the seeds of a new involvement of the community in becoming aware of nutrition problems and developing some local solutions. But, the local committees never became deeply involved in the project and were not functioning.

Mass media programs, because of their pervasiveness, have the potential of stirring up unexpected community reactions. Program managers must be ready to capitalize on these reactions.

II. MASS MEDIA SITUATION

A. GENERAL

There is an abundance of radio stations in Ecuador and in many cases the competition among them is high for advertising revenues. Local radio stations exist in many rural towns with populations of only 3,000 people. Television has a reach beyond the bounds of the main cities, through repeaters to the provincial cities of the country.

Radio ownership is high. Our studies showed that rural families in the three target groups have radios or access to radios.

Television ownership does not penetrate much below the middle classes in the large cities, though there is some group viewing in lower income areas.

We find that the Ecuador media situation can be summarized as follows:

- Numerous radio stations, privately owned, give all parts of the country, except the sparsely populated Oriente, coverage of at least two or three stations.
- Some stations, through repeaters and powerful transmitters, have region-wide reach, but most stations are low power, extending no more than 25-50 mile radius.
- Radios serve as the primary means of communication for the rural areas, linking them to province capitals and to Quito and Guayaquil. Radio ownership is widespread.
- Stations have characteristic programming that limits their audience to a particular sector, such as youth, country music, and soap operas.
- Few of the local stations are sold out commercially, except at a few peak hours such as noon or between five and six in the afternoon.
- The government uses the radio for general educational purposes. Except for some brief, intermittent campaigns of spots, almost all government programs are 15 to 30 minutes in length.
- Facilities for production of radio spots and programs exist in the country.
- Television is mostly an urban medium, confined to the middle and upper classes.
- Television programming uses both local and imported materials.
- Although television time is not sold out commercially, free access is more difficult than radio.
- Video production facilities are adequate for professional quality work.
- Reasonably reliable data on radio and TV audiences exist for the major cities only.

- Although cinema seems to be an effective means of reaching low-income people, attendance is too infrequent among large sectors of the rural and urban populations to achieve impact through short messages.
- Newspaper readership is low compared to the total population, though access is relatively easy for short campaigns.
- Low literacy, high cost of purchase, limited distribution keep readership low.

B. OUR USE OF THE RADIO

In the two experimental areas there are about 45 radio stations, most of them with a local reach, though some covering large portions of the province. Quito stations reach into Imbabura province, but we chose not to use them.

This experiment was to introduce an educational component into the use of radio in Ecuador. Many efforts have been made in the past by the government, the private radio stations, and private groups to use radio for educational purposes. This project would be somewhat different in that it would continue over a longer period of time.

With respect to spot radio announcements, station owners felt that the listeners would get tired of hearing the same messages over and over again, unless there were some catchy jingle to go along with it. Furthermore, they felt that they might not be able to sustain a heavy schedule of the spots for the whole 15 month time. But without exception the station managers and owners agreed to join in the campaign.

C. RESULTS OF MEDIA MONITORING

The media monitoring system used was not effective, and we have only rough estimates of the amount of exposure the messages received during the campaign. During the first six months of broadcast, up to about September 1974, the messages were probably broadcast at a rate of 200 times daily, or about 50 each, in each study area. As far as we can tell from interviews with the station managers and from partial monitoring data, all messages received equal exposure.

In August 1974, a letter was sent by INNE to each of the stations thanking them for their cooperation in the campaign, leading several station managers that were interviewed later to believe that the campaign was over. Many stations stopped playing the spots. Some resumed when they were advised that the campaign would continue through April 1975. During the Christmas shopping period, the frequency also fell off generally and did not recover by the end of the campaign in April 1975.

These impressions of the frequency of broadcast gathered during interviews with each of the Sierra stations in April 1975 tend to be confirmed by the drop in message awareness that occurred between the second and third wave of interviews. In these interviews all but one of the station managers said that they enjoyed participating in the campaign, that they thought that listeners did not get tired of the messages, that the messages were professionally done, and thus attractive material for their stations, and that they thought that the campaigns had ended shortly after Christmas.

Even though the opportunity costs for most of the donated time are low or zero, the station managers need to be reminded of the service that they are performing to the country and of the importance of maintaining the schedule. This was done occasionally by our local project director and the Provincial Health Ministry people in Manabi.

The ineffectiveness of the media monitoring systems will keep us from making cost benefit calculations. However, we can estimate that to purchase the amount of time that the campaign received free would cost about \$ 5,000. This is a very low amount for two provinces that cover about one fourth of the population. Costs were kept low in this estimate by excluding from the calculations the cost of buying time from the more expensive Quito stations.

To stage a national campaign using the same frequency would probably require about \$ 20,000 annually if air time were purchased.

D. USE OF TELEVISION AND OTHER MEDIA

Since the breast-feeding message on the coast was for both rural and urban mothers, we wanted to use television spots. In addition, the spots on boiling water, washing hands, and protein were made on 16mm and 35mm film for use in television and the cinema in Manabi. No attempt was made to measure the effect of the spots or to monitor their scheduling or frequency.

In addition to radio and television, posters were produced and distributed that displayed the themes of the campaign: "Wash hands with soap and water"; "Mother's milk is the best milk"; "Give your child every day some of these (protein) foods"; "Eat Iodized Salt and Avoid the Goiter" and "Boil Drinking Water". A logo was developed for the posters and could have been used on numerous other items such as flyers, iodized salt packages, and for future campaigns.

Manoff had a minor role in the development of the posters. For each theme, 4,000 copies were printed and paid for by private companies in Ecuador. No records were kept of their distribution, nor was any evaluation made of the impact they had. In our field evaluations, we often saw one or more in the health centers and hospitals.

III. A WORKING MODEL OF A MASS MEDIA REACH AND FREQUENCY CAMPAIGN

This project was the first attempt to use the reach and frequency technique to change diet and personal hygiene habits without using a new product. It was the adaptation of the commercial advertising technique to the marketing of new behaviors, beliefs, and knowledge.

Until this report, the best statement of this Working Model has been contained in our proposal to AID in April 1974 in competition for the contract to conduct similar campaigns in two other countries. Since that time our experience in Nicaragua and the Philippines has enriched our knowledge of how to start and execute and evaluate these projects. Our work in Ecuador and our reflections on it in light of our subsequent experience have given us valuable insights about how to proceed.

A. REVIEW OF THE NUTRITION PROBLEMS OF THE COUNTRY

Working with the Ecuadorian National Institute of Nutrition (INNE) and the USAID nutrition advisor, Dr. David Nelson, we examined available data about nutrition problems and dietary practices. We did not confine ourselves to strictly nutrition problems, but also looked at major causes of infant mortality such as gastrointestinal diseases. Since we wanted to direct messages to two distinct radio market areas, one on the coast and another in the highlands, initial data review concentrated on the problems of urban slum dwellers in Guayaquil and the rural families of Chimborazo Province.

INNE itself had done some studies of a few communities, but the only national study had been completed ten years earlier by the Inter-agency Committee for Nutrition for National Defense (ICNND). Doctors and health workers assigned to each region proved to be a rich source of information.

As problems were identified, such as protein calorie malnutrition, trial solutions were proposed; and then as we proceeded through the diagnosis, these solutions were tried with numerous experts at all levels while continuing the search for the additional critical problems. This two-level inquiry - problem identification and search for solutions - enabled the project to consider and test many alternatives in a short period of time.

By going out to the countryside frequently during these stages, the project was able to try out alternative solutions with local health workers and housewives. This complemented the information received from the Ministry of Health and INNE. It is important to receive information from other sectors of the country as messages are developed. Many of the proposed solutions implied an action in another sector, such as increasing planting of legumes requires the cooperation of the Ministry of Agriculture, if it were to be adopted on a large

scale. In addition, other ministries can provide a different perspective about the constraints to action that are not so obvious to a person looking at a problem from a nutritional or medical point of view.

During our first visit to Ecuador in April 1972, several problems were identified that were appropriate for nutrition education:

- Protein deficiency, with recommended increases in consumption of cui, a guinea pig-like animal commonly raised in the Sierra; in the consumption of eggs, and of legumes and quinoa, a pulse unique to the Sierra.
- Vitamin A deficiency with recommended increases in carrots, green vegetables, and other foods.
- Vitamin B₁₂ (riboflavin) with recommended increases in pulses, green vegetables, and cocoa.
- Goiter, with recommended increases in the consumption of iodized salt.
- Intestinal parasites, with a recommendation that all water for drinking should be boiled.

More than a year later when Mr. Manoff and Elbrun Revere returned to Ecuador, these choices had been revised and the following problems were decided upon in consultation with Ministry officials:

- Protein calorie malnutrition
- Early departure from breast-feeding (coastal area cities)
- Unsanitary drinking water
- Parasites, diarrhea, and other intestinal problems
- Iodine deficiency (in the Sierra)
- Vitamin A deficiency
- Vitamin B₁₂ deficiency

In the design of the messages which followed, the two last problems were eliminated from consideration.

Five problems were chosen, three of which were common to both the rural Sierra and the Coast, while iodine deficiency and cessation of breast-feeding were most severe in the Sierra and the Coast, respectively.

Since our experience in Ecuador, we have realized the importance of using more nonnutritional data, such as information on pricing, availability, and seasonality of foods or products that we are recommending for consumption.

The agricultural sector assessments that have been completed in more and more countries are invaluable sources of information.

B. IDENTIFY SITES FOR THE EXPERIMENT

The rural poor of Ecuador are less educated, more isolated from transportation, have less access to health, less education, less potable water services, and are less nourished than urban people. Yet, most rural families in Ecuador, even the most isolated Indian families, have radios.

Like other developing countries, Ecuador finds that delivering services to dispersed and isolated rural areas is expensive and problematical. Radio offers a unique means of reaching into the most remote villages, ignoring the lack of roads, the weather, and travel budgets.

One of the sites selected, Imbabura Province in the Sierra, is rural, with a large indigenous population whose first language is Quechua. To communicate with the indigenous people, we used Quechua in the messages.

The province has a population of 220,000 of which 60% live in rural areas. Much of the land is owned by a few large landowners, but there are many small scale farmers who own or rent small parcels of land. The most important crops are corn, beans, potatoes, barley, quinoa, and vegetables. These foods are the staples for the low-income rural families. Milk, meat, eggs, and fish are rarely consumed by the target group.

In Manabi Province there had already been an important rural health program, and our project would be a complement to their work. Manabi was selected because of the opportunity for close-by, well-supervised assistance from the staff of the Ministry of Health in the area. The assistance and cooperation by the Regional Health Office in Manabi were excellent.

The Government and USAID concurred in the selection of Manabi and Imbabura Provinces for the sites. They also realized that because of the participation of some of the more powerful regional stations, more than the populations of these two areas would benefit from the project.

C. OBJECTIVES

From the analysis of the nutrition problems, the INNE nutritionists and we selected several as priorities. Then causes of each problem were discussed; we could not conduct extensive analysis of each since we were limited in both time and money. In Ecuador, as in most countries,

there is a shortage of reliable data about causes of problems, but no shortage of descriptive information. These discussions would help us to select the behavioral, knowledge, and attitude change objectives as well as form the basis of information on which the scripts would be written.

The counsel of the nutrition experts formed one source of information for selecting objectives. They also considered what was realistic to expect from the target group given their living conditions. We believe that the messages must have only demands for actions that can be realized by the target group in their present circumstances, without more income, without more land for planting. The sources for information about these constraints came from our interviews with numerous people in Quito and from our observations and interviews in the countryside.

The objectives of the campaign were as follows:

- Protein-Caloria Malnutrition

- Increase the frequency with which beans and other low-cost sources of protein are served.
- Increase the knowledge about which foods are sources of protein.
- Increase the knowledge about the function of protein in the body.

- Early Departure from Breast-Feeding

- Increase the status of breast-feeding among low-income mothers as compared with giving other milk to their babies.
- Increase the recognition of the valuable attributes of breast milk as compared with other types of milk.
- Increase the knowledge about the steps for preparing other kinds of milk.

- Unsanitary Drinking Water

- Increase the incidence and frequency of boiling drinking water for the family.
- Increase the understanding that drinking unboiled water can result in illness.
- Increase the number of families who consider their drinking water to be contaminated or not pure.

- Increase the number of families that cover their drinking water.
- Parasites, Diarrhea, and Other Intestinal Problems
 - Increase the frequency of adults and children that wash their hands after using the latrine, before eating or preparing food.
 - Increase use of soap when washing hands.
 - Increase the number of respondents who understand that washing hands may kill parasites and will help to avoid illnesses.
- Iodized Salt
 - Increase the frequency of purchasing iodized salt.
 - Increase the number of respondents who understand the cause of goiter.
 - Increase the number of respondents who know that iodized salt is sold only in a distinctive package.
 - Increase the number of respondents who understand that goiter is a serious illness.

Some of the objectives were not confronted directly in the messages so that they would be acceptable to the vast audiences. For example, it may have been preferable to state that all water must be boiled, but in certain urban areas the water is considered by both citizens and health officials to be potable and drinkable. It was not possible also to ask some personal questions of the interviewees that would have determined with greater accuracy the achievement of the objectives.

D. WRITING AND CREATING

The scripts were written by Richard K. Manoff during a two-week visit at the beginning of the project. They were revised after the copy testing. We worked closely with the INNE staff in writing the messages to assure their technical accuracy and to get their opinions about the acceptability of the messages by the target group.

The scripts were approved at the technical level by the nutritionists and health officials. They were then given higher acknowledgement by the Minister of Health himself.

The scripts for each message are presented in a soap opera format, with a young mother with a sick or underweight infant coming to see the doctor. He listens to her describe the symptoms and he gives her advice. At the end of each message INNE is credited as sponsor.

E. PRODUCTION

All radio production was done in Ecuador, under the supervision of the local representative of Manoff International Inc. High quality was reached without the use of imported high-cost directors and engineers.

INNE personnel were used for the radio spots to have realistic dialogues between a mother and a doctor. An original piece of guitar music was used for the Spanish records. The Quechua versions used Otavaleño Indian teachers from Imbabura with a traditional Imbabura melody for background music.

Production of the spots for the cinema and television was a different matter. We used local equipment, our own television/film producer, Wayne Lachman, and a local cameraman and sound crew. The film was finished in New York.

The radio spots were pressed into discs, one spot per side, and distributed to the stations. Use of discs required their periodic replacement, but this also meant an opportunity for our local director to visit the stations.

F. MEDIA PLAN

The lack of audience data made sophisticated media planning unnecessary and impossible. When we were planning the campaign, all we had were some estimates by local health officials, field workers, and station owners about the most popular stations and listening times.

Since we were not buying spots, we would not expect the stations to guarantee scheduling only at the prime listening times. We accepted "run of station" scheduling, or at the pleasure of the manager. Furthermore, we did not exclude stations in the experimental regions from participation even though their programming might have little appeal to our target audience. When the program began, there was a blanket appeal to all the stations for their collaboration.

This approach of accepting "run of station" scheduling, asking for a frequency of at least 10 spots per day per message, per station, though accepting more, and including all stations regardless of their penetration of the target, is different from the carefully calculated media plans of commercial advertising. Nevertheless, this was the most appropriate approach for the first project in Ecuador.

In addition to the radio and limited use of television and cinema on the Coast, we assisted INNE to develop some posters and a logo for the campaign. An excellent local graphics artist designed posters for each of the messages and a logo that can be used in future campaigns.

No study was done on the impact of the posters nor on their distribution, but as we were conducting interviews in the experimental sites, we noticed posters in most of the hospitals and health posts.

G. RESEARCH AND MONITORING ACTIVITIES

This project contemplated several data-gathering procedures that would assist us to document the effect of the messages on the target group and the cost of producing the effect. In addition, we conducted field interviews to test the messages before they were broadcast. Additional information about Effectiveness Tracking is found in Section Two of this report, "Summary of Findings".

SECTION TWO

I. GENERAL STATEMENT OF RESEARCH DESIGN

A. THE ROLE OF RESEARCH IN THE PROJECT

The role of research in developing and evaluating the mass media nutrition education program in Ecuador was aimed at two objectives:

- Refining the Design: to make sure that the messages were coherent, meaningful, and motivating. Hence the copy test of the original and revised messages.
- Interpreting the Effect: to be able to evaluate the impact of the campaign on three different target audiences.

The investigation undertaken to help interpret the effect was an Awareness, Attitude, and Behavior Tracking Study which was conducted in three waves, over a period of one and one-half years. It is the principal basis of all information on the effect of the program.

B. PURPOSE OF AWARENESS, ATTITUDE, AND BEHAVIOR TRACKING STUDY

1. Objectives of Research

The overall objectives of this research were to provide data for evaluating the effectiveness of the mass media nutrition education program and for modifying the program while it was in progress. The approach established benchmark measures of nutrition awareness, attitudes, and practices specifically related to the priority subjects of the campaign, and followed, at 6 and 12-month intervals, the changes in these attitudes and practices.

Specifically, the research objectives determined -

- awareness of the nutrition messages
- awareness of the subjects and advice covered in the messages
- attitudes toward the message recommendations
- practices related to the messages
- media habits
- demographic profile

2. Background

A radio-based mass media nutrition education program began broadcasting in two regions of Ecuador during February 1974. Advertising techniques were used to promote health and nutrition practices throughout the coastal province of Manabi and the Andean province of Imbabura.

The specific messages were developed with the cooperation of Ecuadorean nutritionists. Message subjects were selected on the basis of health and nutrition priorities. The advice in the messages was aimed at improving nutritional practice without requiring additional resources in the family or community. Nutrition, health, service, and government agencies reviewed the messages for correctness of the advice and conformity to established directives. Then the messages were tested among people in the respective target audiences for coherence, believability, and persuasiveness. The revised messages were retested prior to being produced in final form.

Because this education program employs advertising techniques, it was appropriate to employ an advertising effectiveness test design. The test design established awareness, attitudes, and, to a lesser extent, behavior as the criteria for success. These are the same criteria used to evaluate any "advertising" which introduces a new idea (product).

C. EFFECTIVENESS TRACKING

It is generally conceded that there are several consecutive steps in changing a behavior pattern:

- Problem Awareness

Awareness of a problem or shortcoming of current behavior.

- Solution Awareness

Awareness of one or more alternative behavior patterns which allegedly would solve or contribute to the solution of the known problem.

- Solution Trial

Experimentation with these solution alternatives. This can be actual experimentation in cases where the behavior would be ongoing (such as food habits) or philosophical in cases where the behavior would be at one point in time (such as getting a vaccination).

= Satisfaction

The new behavior alternative is adjudged to contribute significantly if not entirely to solving the problem and does not appear to create any new problems.

- Changed Behavior

The new behavior is adopted on an ongoing or one-point-in-time basis.

In tracking through time the degree to which the target audience goes through these steps, a velocity of change is established. It has been assumed that the mass media reach and frequency technique will probably affect social patterns in Ecuador in the same way it has been known to affect commercial consumption patterns, and social patterns in other countries.

However, the amount of time needed to change a social behavior in Ecuador was not known. Nor were all the pitfalls that might work against a behavior change known. For example, the advertising technique could be extremely effective in imparting awareness and belief that iodized salt is better because it prevents goiters. However, if there were no iodized salt available or it costs too much, then people would not be able to change their behavior. So that while the communication could be successful, it would be possible to result in no changed behavior.

The study design provided for measuring the velocity of change as well as for uncovering any impediments to the anticipated change. An additional measure of success was to be available for the iodized salt message because it involved a commercial product. Factory shipment data before and after the campaign were to be supplied by the salt companies as an indication of the effectiveness of the salt message. An increase in iodized salt consumption would be reflective of success.

II. METHODOLOGY

A. PRE-POST MEASUREMENTS

Three waves of interviewing were conducted. The first wave was implemented in February 1974 before the messages went on-air. It constituted the base or benchmark measure. Subsequent measures

were made 6 to 12 months after the start of "advertising"
(November 1974 and May 1975).

1. Sample Size

For each wave a total of 1,200 personal interviews were planned.
The completion rate was as follows:

TABLE 1
COMPLETION RATE FOR INTERVIEWS

	<u>Coastal</u> <u>Mestizos</u>	<u>Sierra</u>	
		<u>Mestizos</u>	<u>Indigenous</u>
Wave 3	192	149	145
Wave 2	601	437	161
Wave 1	600	452	145

Samples were cut to minimal sizes in Wave 3 due to budget considerations.

2. Sample Site Selection

There were two general areas of research: urban and rural in both Imbabura and Manabi provinces. In both areas sampling procedures were designed to make the sample representative of the province and region where testing was to take place. The findings of the surveys, however, are not projectable to the region or the province.

Urban areas were considered cities of more than 8,000 inhabitants. The rural areas consisted of communities with less than 250 families.

The research design called for representative sampling points on the Coast and in the Sierra. The design was as follows:

TABLE 2
RESEARCH DESIGN

<u>Region</u>	<u>Category</u>	<u>No. of</u> <u>Points</u>	<u>No. of</u> <u>Interviews</u>	<u>Total</u>
Sierra	Rural Mestizo	5	30	150
	Rural Indigenous	5	30	150
	Urban Mestizo	6	50	300
Coast	Rural Mestizo	6	50	300
	Urban Mestizo	6	50	300
		28		1,200

-18-

In the Sierra, all sample points were selected by a committee from the Ministry of Health in Imbabura, personnel from INNE, and the Manoff International representative. They were chosen to be representative of the region and to be a cross section of typical towns and cities in the Imbabura Province.

On the Coast, sample points were selected by the Ministry of Health for Manabi Province. Again, due care was given to select points that represented a sample of common characteristics for that region. In all cases, sample points were selected by Ministry of Health and INNE officials, with Manoff International representative concurrence.

Maps were secured for all urban sites and drawn for all rural communities chosen. Reconnaissance trips were made in advance to sample communities to plan the research, and to elicit key governmental authority support in conducting the research. These trips were used to determine and obtain data on housing so that adequate household samples could be drawn.

3. Respondent Selection

Using the maps, household surveys were conducted in every fourth house from a predetermined starting point. The interviewers were assigned specific block or areas to cover by the supervisor of the research.

The female head of house was in all cases sought as the respondent. However, it was expected that when other family members were present, particularly the husband, their opinions were sought and integrated into the interview summary. The interviewers conducted the interviews in a conversational manner using only a guide list of questions, but not filling in answers during the interview. This was to allow interviewers to probe extensively and challenge and doublecheck respondents' first answers due to a very strong "yea" - saying tendency among the target audience. All answers were recorded on portable tape recorders in full view and with the permission of the interviewees. This allowed for a more conversational tone to all interviews.

4. Interviewers

All interviewers were trained and supervised by the field team of Louis Sabia and Hector Ordoñez, who in turn reported to Donald Swanson, the local Manoff International coordinator at INNE.

Interviewers were recruited from local service and health organizations.

Long training sessions were held with the interviewers to go over all working plans before actually conducting research. Many hours of instruction in research techniques were required to get Ministry of Health officials to levels in which they could conduct research within reasonable conditions of confidence. This was required because most interviewers had not conducted market surveys in the past. Quechua-speaking interviewers were specially recruited and trained for interviewing the Indians. The field team was also responsible for translating the questionnaire into Quechua and validation of all of the interviewers' materials.

5. Pretest of Procedures and Questionnaire

After pretesting with several alternative procedures, it was decided to record on tapes all interviews. The reasons for the tape recording of the interviews was to be less intimidating to the respondent than filling out forms in front of others and to provide 100% validation and also to allow the supervisor a chance to review the interview to keep track of the quality of the fieldwork.

Interviewers went into the field armed with tape recorders, cassette tapes, and a question guide. After introducing themselves appropriately, interviewers placed the tape recorder in front of the respondents and began the interview. In all instances, interviewers received permission to tape the answers and openly stated their mission to ask certain questions about their health and food habits. In no circumstances did interviewers record answers without permission nor pretend that they were not recording. This is made clear due to some unfortunate circumstances in which social scientists have wrongly portrayed who they are and have taped interviews without the knowledge or permission of the respondents.

6. The Interview and Question Areas

Each interview consisted of approximately 70 questions. After introductions, interviews usually lasted about 15-20 minutes. They were conversational, relaxed, and in most cases enjoyable for both interviewer and respondent.

Interviewers recorded the name of the person interviewed, the sample point, the date of interview, and the interview number in a "control notebook". The interview was also identified by the same number on the tape. It would subsequently be transferred to the questionnaire score sheet using the interview number and the control notebook for triple-checking to assure that the correct answers were being recorded.

Interviewers were originally instructed to fill out a sample point description prior to entering an area. The purpose of this was primarily to get an indication of business activity and available facilities of the various sample points. They were then to ask each respondent questions

on the various message areas. Originally there were many questions for which there were to be two answers. The first was to be what the respondent claimed; the second answer was to be what the interviewer felt was the "true" answer.

It was felt that there would be many instances where a respondent would claim to do things because they were too proud or afraid to admit the truth. By having two answer possibilities it was hoped that the tendency to exaggerate could at least be accounted for.

This procedure was abandoned after pre-testing of the instruments as it was felt that the procedure was too complicated and would be quite difficult to implement.

7. Data Processing

After all interviews were completed, interviews from tapes were duly recorded on the questionnaire sheets. This required listening to all interviews for the second time. While this process took extra time, it assured more accuracy in recording the data. Each interviewer tabulated his/her own interviews.

Final questionnaire sheets were reviewed and verified by Manoff International representatives. They were turned over to an Ecuadorean key-punch company for transfer to computer cards. Those cards were verified and sent to New York for data processing.

The complete interviews were edited, coded, and transferred to IBM cards by Jim Foley in Ecuador who, in turn, reported to Don Swanson.

One set (a duplicate) of the cleaned IBM cards was forwarded to Elbrun Revere in New York for data processing by TCA (Trehella, Cohen and Arbuckle).

B. SUPPLEMENTARY RESEARCH TO HELP CORROBORATE TRACKING STUDY

A series of research projects were developed to be conducted in conjunction with the Awareness, Attitude, and Behavior Change Tracking Study. They were:

- Sample point : description study to outline the availability of food stores, health care centers, type of economic activity, source of water, etc., of each sample point.
- a collection and analysis of salt shipment data into the area of Imbabura and Pichincha.
- Media monitoring study to help estimate the amount of exposure each message had by each station over the period of the broadcast.

- Multipliers study to help determine the effect of the messages on local health and nutrition workers who would, in effect, be in a position to expand upon the radio messages and multiply their effectiveness.

However, with the exception of the salt shipment data, these projects were not conducted with sufficient rigor in the field to warrant their inclusion in the findings of the study. They have given us, however, strong impressions that tend to support our findings from the household interviews.

III. SUMMARY OF FINDINGS

A. A POINT OF VIEW

Some of the results of findings are limited even though serious efforts were made to assure maximum validity and reliability of information received. In many ways the project helped all concerned to understand the difficult processes of conducting a mass media nutrition campaign and helped us learn how to improve our efforts in the future. The analysis takes the approach of learning about what happened in Ecuador and how this learning can be applied to a nation-wide program in Ecuador and other mass media programs in other countries.

B. COMPARISON OF WAVE ONE AND WAVE THREE

Throughout the analysis Wave One and Wave Three results are usually compared. This is because in most cases while both Wave Two and Wave Three results represent significant increases along the lines recommended by the messages, the Wave Two levels are usually higher than Wave Three.

Since the reason for the decrease cannot be completely documented, but is consistent across measures, it was felt that comparing figures obtained at similar times of the year and analysing the less "successful" results would be less confusing.

One possible reason for a falling off from Wave Two to Wave Three is a lowering of message exposure. The effects of advertising follow its exposure and resemble the classic learning curve. The result of lowering the pressure or frequency of a message is to reverse the learning and allow forgetfulness to take its place. While the media monitoring cannot be used to evaluate the R/F of the program, those involved with the program at the stations admit to a noticeable decline in airing messages between Waves Two and Three as compared to Waves One and Two. Theoretically, if the pressure had been maintained, there would have been an increase from Wave Two to Wave Three.

Another factor compounding the apparent decline was the fact that, in Wave Three, interviewers were more experienced in probing and eliminating answers which were not exactly true but which the respondents thought the interviewers wanted to hear.

C. LIMITATIONS

Some limitations occurred in the research as they do in almost all kinds of studies of this type. Some could be solved in the field but others were deficiencies that could not be solved without additional time and budgetary resources.

To put the limitations in a proper perspective, it should be fully understood that the proposed research program was an extensive attempt to contact the rural poor and elicit information, their knowledge, attitudes, and behavior. While the project fell short of our own high expectations and hopes of maintaining quality, marketing study standards, the study is one of the first of its kind and of considerable importance.

A few of these limitations are detailed as follows:

1. Limitations of the Questionnaire

As was mentioned above, the original questionnaire to be used in the Awareness, Attitude, and Behavior Change Tracking Study had to be curtailed because certain questions were deemed to be quite sensitive to the Ecuadorean audience. Because of this curtailing, the revised questionnaire lacked many measurement devices that were essential for testing attitude and behavior changes. Some demographic questions, referrant behavior questions of neighbors, and direct questions of a somewhat personal nature were eliminated and limited the ability to evaluate effectively some aspects of the project.

2. Limitations of Interviewers

The INNE personnel and Ministry of Health workers in Manabi Province performed admirably in the three waves of the research. Yet, none of these researchers had prior experience in conducting market research studies nor this type of interview in which precision is required over a long period of time.

As a direct result of inexperience, interviewers did not always ask the questions in the same way, or probe the same amount, or cross-examine respondents to get at the real answer. These problems were compounded by not having uniform codes for transferring responses from tapes to the tabulation sheets. Some interviewers changed from wave to wave causing uneven questioning and answers. With experience from Wave

One, the interviewing accurateness and supervision improved meaning that there was more probing in the latter research waves. Finally, because of initial confusion, some interviewers did not record multiple answers nor record "other" answers by respondents.

3. Translations

The original questionnaire was written in English by market study specialists from Manoff International. Some of the preciseness and shades of meaning were not transferred when translated into Spanish and Quechua. For example, one original English question asked "Do you wash your hands? but this was transferred into Spanish and Quechua as "Should you wash your hands?"

4. Incomplete Supplementary Research Projects

Some supplementary research projects were planned to complement the Awareness Attitude, and Behavior Tracking Study. These included collecting data on salt shipments to Imbabura Province, getting crop prices and production data in Manabi and Imbabura, following through on a media monitoring plan, and collecting key informant interview information from health and nutrition officials in the provinces. Except for the salt shipment data collection, the other supplementary research projects were not followed through in a satisfactory manner. Therefore, it was not possible to utilize these additional sources of information for assessing results of the project. The principal reason for incompleteness was lack of personnel and resources to complete these studies. Even the key informant study conducted during Wave Three was not sufficient because of differences of interviewing techniques used in the different provinces, thereby negating its usefulness in providing a basis for comparison.

Without these additional studies it was not possible to have concrete numerical data to substantiate findings from the tracking study.

D. THE TARGET AUDIENCE

While it was not possible to gather specific demographic and lifestyle data, there are certain characteristics of the populations in both Manabi and Imbabura Provinces that can be stated. This will help the reader visualize the groups and understand the differences between each group.

The Manabians on the Ecuadorean coast appear to be more affluent, better educated, and more economically involved than the two groups in Imbabura Province. Manabi Province has one of the more established health delivery systems in Ecuador. The people of Manabi not only have radios but in the neighborhood of 10% of them have access to television. It should be noted that on the coast, messages were broadcast both on radio and in

about 25 cinema houses in the province. We also tried to get the nutrition spots placed on the provincial TV station but for various reasons this was not possible. While there was no attempt to measure the difference in effect of the different media, it is axiomatic that television is more effective than radio. The messages were recorded and broadcast in the coastal Spanish dialect and included messages on protein, boiling water, washing hands, and breast feeding.

The mestizo population in Imbabura Province were less affluent, less educated, and less economically involved than the Manabians. The health delivery system in that province is less well established than in Manabi. Television reception was not sufficient to warrant a television campaign; however, ownership of radios was widespread. Messages were broadcast to this group in the Sierra Spanish accent and covered the themes of protein foods, boiling water, washing of hands, and iodized salt.

The indigenous population in Imbabura Province was the least affluent of the three target groups. This group has little access to health care services and less own radios. Messages were broadcast in Quechua so that this group could hear the messages in their native language. While many indigenous in Imbabura understand Spanish, and therefore would receive the messages also in Spanish on the radio, it was felt that the messages would probably be more meaningful if broadcasted in Quechua.

E. MESSAGE PENETRATION

1. Radio Ownership or Access to a Working Radio Was the Key to Whether or Not a Person Was Aware of the Message

Most Mestizos had access to a working radio, and most heard the messages.

Among the Indians, there were fewer radios and, therefore, there was less message awareness. Awareness of the messages among those with radios was similar to the Mestizos' awareness.

TABLE 3

% WITH ACCESS TO A WORKING RADIO BY WAVE THREE

Coastal Mestizos	83%
Sierra Mestizos	85%
Indians	64%

2. The Patterns of Awareness and Claimed Behavior Change in the Data as Well as Other Factors Suggest That There Was a Letup in the Number of Times Each Message Was Aired Between Waves Two and Three and, Therefore, a Decline in Message Effectiveness from Wave Two to Wave Three

An attempt was made to have each participating station air each message at least ten times a day and rotate the messages so that each message wave would be aired equally. Accordingly, over time and repeated exposure the target audience would learn the advice in the message.

The messages were duplicated and distributed, one message per side of a 45 RPM record so as to avoid always playing the first band of a longer playing record and to encourage the desired rotation. Because the records were all worn when the project coordinator visited the stations and managers claimed that they were rotating the messages, it is assumed that the messages were aired at similar rates at least within any given target audience.

The media monitoring was not sufficiently well executed to be useful in verifying the frequency with which the messages were aired by the various stations over the period of the program. However, examination of the station records by the local project coordinator and the perceptions of those involved in the project in Ecuador suggest that enthusiasm for the campaign waned at the station level. As time passed, the spots were aired less frequently and it required more and more effort to obtain spots from some stations.

Most measures of awareness, attitude change, and claimed behavior adoption were highest or more positive in terms of conforming to the message advice in Wave Two, and declined in Wave Three to levels that while they were above those in Wave One, were significantly below those in Wave Two. This pattern is the opposite of a learning pattern and typically occurs when, in the commercial world, advertising is withdrawn or diminished for a specific product. The data results are unclear because the interviewing procedures were more rigid and the interviewers more experienced in Wave Three than Wave Two, which led to more precise answers in Wave Three. For example, in Wave Two if respondents said they boiled their water all the time, they were not cross-examined. In Wave Three, many such "all the time" answers turned out to be "occasionally" or "only for coffee".

3. It Should Be Noted that Throughout the Analysis, Comparisons Are Made Between Wave One and Wave Three Data

Although Wave Two data often suggest that the messages were most effective midcampaign, it is felt that the more modest Wave Three "success" is easier to understand because it was not influenced by seasonal differences and the data were more precisely gathered.

4. Awareness

Message Awareness Tests indicate that the messages reached into a majority of the households in both Provinces, achieving a penetration in 15 months that would be enviable in most commercial campaigns and certainly greater than conventional face-to-face educational campaigns.

In the following table we have presented the reach of the message into all households, including those without radios. Since the test for awareness required that respondents had to say they were aware of a message on protein, salt, boiling water, etc., and then recall some specific aspect of the message, our data indicate a proven awareness. Non-radio households could have learned from listening with their neighbors or from conversations with their friends.

If the data were presented only for radio households, the percentages would be higher, but the number of households would have been lower.

These data have been projected to the levels of the Provinces. While our sampling procedures do not allow us to draw these kinds of conclusions since we oversampled the rural areas and low-income population, we have presented these projections to illustrate the powerful reach that a radio reach and frequency campaign can have. Even if the "aware households" were reduced by 50%, we would have achieved awareness and, as we show later, knowledge and behavior changes among larger sectors of the population than conventional nutrition programs can claim.

TABLE 4

**PROVEN AWARENESS OF MESSAGES: PROJECTED TO TOTAL HOUSEHOLDS
IN THE PROVINCES (BASE: TOTAL HOUSEHOLDS)**

	<u>COASTAL MESTIZOS</u>		<u>SIERRA MESTIZOS</u>		<u>SIERRA INDIANS</u>	
	<u>%</u>	<u>Households (in 000's)</u>	<u>%</u>	<u>Households (in 000's)</u>	<u>%</u>	<u>Households (in 000's)</u>
Protein	52%	104	49%	8.0	38%	10.3
Boiling water	63%	126	60%	9.8	47%	12.7
Washing Hands	57%	114	61%	10.0	60%	16.3
Lactation	68%	136	-	-	-	-
Salt	-	-	41%	6.7	19%	5.1

5. Knowledge

As a result of each message, the respondents improved their knowledge about the subjects in ways designed by the messages.

This accomplishment is illustrated by the following tables taken from the data relating to protein sources. One of the purposes of the messages was to teach the people the foods in which proteins were found, and to encourage them to consider legumes as an important source of protein, instead of just foods of animal origin. In one sense, this is expecting a change in attitude rather than a change in knowledge because we wanted them to give to legumes the high status customarily reserved for beef, eggs, milk, etc. We were able to attribute a strong change in attitude/knowledge about legumes among all three groups.

In the first table below we have presented the data as percentages of those aware and not aware of the messages in the third wave and compared their answers with those of all respondents in the first wave of interviews, conducted before the broadcasts began.

In the second table, the data are presented in terms of the populations in the provinces that we might reasonably assume responded in a similar way as our respondents. Through this projection, one can realize the magnitude of the education task that was performed by the message.

TABLE 5

PERCEPTION OF WHICH FOODS ARE PROTEINS/RICH IN PROTEINS BY AWARENESS OF THE MESSAGE

	COASTAL			SIERRA					
	MESTIZOS			MESTIZOS			INDIGENOUS		
	Wave Three			Wave Three			Wave Three		
	Not	Wave		Not	Wave		Not	Wave	
	Aware	Aware	One	Aware	Aware	One	Aware	Aware	One
Foods of Animal									
Origin (milk,									
meat, eggs)	71%	44%	14%	52%	31%	15%	52%	30%	1%
Legumes	42%	23%	1%	54%	29%	4%	46%	26%	1%
Incorrect	45%	16%	6%	40%	46%	18%	45%	16%	3%
Don't Know	11%	46%	80%	16%	53%	76%	20%	43%	95%

TABLE 6
PERCEPTION OF WHICH FOODS ARE PROTEINS/RICH IN PROTEIN,
COMPARING THOSE AWARE/UNAWARE OF THE MESSAGE; RESULTS
PROJECTED TO ALL RADIO HOUSEHOLD IN THE PROVINCES
(Thousand Households)

	COASTAL MESTIZOS			SIERRA MESTIZOS			SIERRA INDIGENOUS		
	WAVE THREE			WAVE THREE			WAVE THREE		
	Aware ¹	Not Aware ²	Wave ONE ³	Aware ¹	Not Aware ²	Wave ONE ³	Aware ¹	Not Aware ²	Wave ONE ³
Animal Origin	73.9	42.1	28.0	4.5	2.3	2.4	7.1	3.9	0.5
Legumes	43.7	22.0	2.0	4.7	2.2	0.6	6.3	3.4	0.5
Incorrect	46.8	15.3	12.0	3.4	3.5	2.9	6.2	2.0	0.8
Don't Know	11.4	44.0	160.0	1.4	4.0	12.4	2.7	6.2	25.8

Base: ¹Aware households

²Total households less aware households

³Total households

This table suggests that the messages may have been responsible for teaching more than 20,000 households in Manabi Province alone that legumes were a source of protein. The impact on the Indian families is even greater when one sees the lack of knowledge about legumes that existed at the beginning of the project compared with their ability to respond at the end of the test period.

6. Attitude Change

The message was directly responsible for changing people's attitudes about mother's milk being better than powdered or cow's milk.

In Ecuador, as in many countries, there is an increasing tendency among urban and more affluent mothers to switch from breast-feeding to bottled or powdered milk. This has had detrimental effects on the health of the children. While this appeared to be a problem in both Sierra and Coastal cities, it was also beginning to be a common behavior among the mothers in rural coastal Manabi.

Commercial milk and infant formula manufacturers are heavy advertisers in Ecuador through the media most used by our target group. Our campaign would be the first attempt to use the radio in a systematic way to change the attitudes of mothers toward breast-feeding.

The messages about boiling water or washing hands did not have to overcome the influence of the radio advertisements about not boiling the water or the value of dirty hands, but the message about breast-feeding was directly confronting bottle-feeding as the most modern way to feed the baby, the most convenient, and certainly as a safe method.

In the first table below we have presented the data in terms of the percentages of respondents in each category who selected each type of milk as best. The second table converts these data to numbers of households.

TABLE 7

CHANGES IN PERCEPTIONS ABOUT MOTHER'S MILK

	<u>COASTAL MESTIZOS</u>		
	<u>Wave Three</u>		<u>Wave</u>
	<u>Aware</u>	<u>Not Aware</u>	<u>One</u>
<u>Perception of Which Milk is Best</u>			
Mother's milk	73%	47%	30%
Fresh/cow's milk	21%	28%	47%
Powdered milk	5%	17%	16%
Other	-	3%	1%
Don't know	1%	7%	7%

TABLE 8

CHANGES IN PERCEPTIONS ABOUT MOTHER'S MILK
PROJECTED TO TOTAL HOUSEHOLDS IN MANABI
(Thousand Households)

	<u>COASTAL MESTIZOS</u>		<u>Wave</u>
	<u>Wave Three</u>		<u>One</u>
	<u>Aware</u>	<u>Not Aware</u>	
<u>Perception of Which Milk is Best</u>			
Mother's milk	115.0	19.6	60
Fresh/cow's milk	33.0	11.7	94
Powdered Milk	7.9	7.1	32
Other	-	1.2	2
Don't know	1.5	2.9	14

7. Behavior Change

The iodized salt message was the most successful in achieving behavior change. We documented dramatic shifts among both Mestizos and Indians in claiming to use iodized salt.

In each message area except breast-feeding, we accepted behavior change objectives. We recognized at the outset of the project that changing behavior was the final step in a sequence beginning with awareness of the problem. However, at that time we did not know the time required for an individual in Ecuador to pass through these phases.

We were also aware that between increased awareness, knowledge, and changed attitudes and changed behavior is an interval into which many other variables may intrude. For example, we found that in the case of boiling water, we were successful in changing knowledge about the cause of illness being attributed to contaminated water, but because of the scarcity of water in some areas, or its high cost, and the rising cost of fuel, we were unsuccessful in changing their habits of not boiling water.

In the salt campaign we overcame many of these troublesome influences by working with the only iodized salt manufacturer in Ecuador, ECUSAL, an affiliate of Morton Salt Inc. Since we were in essence advertising their product for them, we wanted to be certain that they would respond to the increased demand in the Sierra if it appeared.

In our conversations with them, they pledged their willingness to cooperate by assuring that warehouses would be responsive to any increased sales. In addition, they promised to give us access to their sales data for the period, so that we could corroborate claimed behavior changes by consumers with information about sales in the region.

Imbabura Mestizos had a fairly high awareness that refined salt was the best quality and a high usage of refined salt prior to the message. However, the effect of the message was to cause them to discriminate between ordinary refined salt and iodized refined salt. Prior to the message, only 5% used iodized salt, but by Wave Three 98% of those aware of the message used iodized salt. As previously noted, among the Imbabura Mestizos there had never been any confusion as to which salt was iodized; they just didn't know that iodization was important. Among the Indians, however, the shift to using iodized salt was less dramatic. The reason for the difference is that the Indians had to learn which salt was iodized. Since there is a pattern of shifting to white, to refined, and to iodized which is white and refined, it is probable that the learning process was piecemeal and that many Indians switched to types of salt they thought were iodized.

TABLE 9

CLASS OF SALT USED

	SIERRA					
	MESTIZOS			INDIGENOUS		
	Wave Three			Wave Three		
	Aware	Not Aware	Wave One	Aware	Not Aware	Wave One
Use Coarse Salt (net)	2%	3%	9%	29%	54%	66%
Red	-	1%	-	7%	9%	39%
White	2%	2%	9%	21%	45%	27%
Use Refined Salt (Net)	100%	97%	83%	68%	55%	17%
Refined	2%	7%	84%	14%	36%	11%
Iodized	98%	90%	5%	54%	19%	5%

In the following table these findings are projected to the levels of total households in the Province of Imbabura. There is an impressive number of households whose increased consumption of salt can be attributed to the messages broadcast over the radio.

Data from salt company's shipments of salt to the region confirmed the increased demand for iodized salt in the test region. At the outset of the campaign salt was being illegally exported to Colombia from Imbabura Province, giving the impression of higher sales than actually occurred. By the end of the test period this flow had been reversed and sales of ECUSAL had even increased. Their sales together with the contraband Colombian salt indicated an even higher consumption of iodized salt.

TABLE 10
CLASS OF SALT USED
(Thousands households)

	SIERRA MESTIZOS			SIERRA INDIGENOUS		
	Wave Three Aware	Not Aware	Wave One	Wave Three Aware	Not Aware	Wave One
Use Coarse Salt						
Red	-	0.08	-	0.36	1.9	10.6
White	0.15	0.16	1.4	1.09	9.8	7.2
<hr/>						
Use Refined Salt						
Refined	0.15	0.59	13.7	0.73	7.81	2.9
Iodized	7.0	7.60	0.8	2.87	4.15	1.3

APPENDIX I

Some Conclusions Drawn by Manoff International, Inc. from This Study

1. The protein message was very successful among all three groups for changing awareness and knowledge about the value of proteins. (See Tables 4, 5, 11, 12)*
2. The (protein) message was very successful in changing attitudes about legumes from a common staple, and in some instances "indian food" to an elevated position of a protein food source. (See Tables 5, 6).
3. The (protein) message was only marginally successful in changing behavior, probably because overall economic influences are more important than are wants (See Tables 13, 14, 15).
4. The message on boiling water was very effective in teaching those who did not previously know, particularly the indians, about the dangers of "bichos" or germs and the importance of boiling water to destroy them. However, it did not successfully communicate that the listeners' water might be contaminated. (See Tables 16, 17, 18).
5. In all three groups, people learned that bichos caused sickness, that they came from dirty water and dirty food, and that they can be destroyed by boiling water, washing your hands and being clean. (See Tables 17, 18).
6. Among the mestizos, there were no positive changes in boiling habits, although the Sierra mestizos did claim to increase their tendency to store their water in covered pots, which was also part of the message advice. (See Table 19).
7. The washing-the-hands message was remembered by all three target groups and was very successful in changing people's reasons for washing their hands from cosmetics to health. (See Tables 20, 21)
8. While people changed their reason for washing their hands, the line of questioning was insufficient to determine whether any behavior change took place or not (See Tables 22, 23).
9. The mother's milk message which was aired only on the coast was successful in gaining high awareness and dramatically changing people's perceptions about mother's milk being best. The message was directly responsible for changing people's perceptions about mother's milk being better than powdered or cow's milk. (See Tables 7, 8, 24, 25).
10. There is an indication that breast-feeding increased (18% in Wave One to 25% in Wave Three) over the course of the message campaign...(but) because the question was not correctly administered, the results may be misleading.

*Tables 11 through 28 found in Appendix III)

11. The iodized salt message was aired only in the Sierra but to both the mestizos and the indians. It was successful in gaining awareness among both the indians and mestizos, and educating both groups as to why iodized salt was important, and informing the indians as to the dangers of goiter and which salt is iodized. (See Tables 26, 27, 28).
12. There were dramatic shifts among both mestizos and indians in claiming to use iodized salt (See Tables 9, 10). Both the respondents' perceptions of increased availability of iodized salt and the salt company data on sales increases substantiate the claimed increase in usage of iodized salt.

APPENDIX II

Some Recommendations Made by Manoff International, Inc. based on this Study

1. If the program of short messages is to continue in Ecuador, we recommend the development of a new message which would place even more emphasis on legumes as protein sources. Secondly, the message should stress the importance of some protein at each meal.
2. The most critical idea about water, namely that the listeners' water was contaminated, was not communicated because it was not specifically stated (in the-boil-your-water message) that all water was contaminated. Copy testing can be utilized to predict such communication failures. An alternate message which would have avoided a loophole and probably would have been politically acceptable would have been: "All babies under two years old need to have their drinking water boiled to prevent sickness."
3. If the program were to continue, the message on washing hands should probably be continued either in its current form or perhaps focusing more on the two most important ideas: (1) the use of soap; and (2) washing before touching anything that goes in your mouth.
4. The breast-feeding message should be aired again in urban areas where the problem, according to Ecuadorian nutritionists, exists most specifically. The message could probably be strengthened by stating a specific amount of time during which breast-feeding should be continued. Measures of intent to breast-feed the next child and experience with feeding last child would probably yield meaningful results.
5. If the iodized salt campaign were to be continued, it would be recommended that the messages be continued only for the indians.

APPENDIX III

TABLE - 11

INFORMATION RECALLED FROM PROTEIN MESSAGE BY
 WAVE THREE AMONG THOSE AWARE OF THE MESSAGE

<u>Unaided Recall of Message Saying:</u>	<u>Coastal Mestizos</u>	<u>Sierra</u>	
		<u>Mestizos</u>	<u>Indians</u>
Proteins are found in specific foods (legumes, quinoa, chocho, lentejas, meat, fish, milk, eggs)	87%	100%	77%
Something special that many foods have	2%	5%	21%
Each child should receive a protein food every day	6%	5%	14%
Children who eat proteins will be strong and intelligent	6%	6%	11%

PERCEPTION OF HOW PROTEINS ARE USED

	COASTAL MESTIZOS			SIERRA					
				MESTIZOS			INDIGENOUS		
	Have Three	Not	Wave	Have Three	Not	Wave	Have Three	Not	Wave
	Aware	Aware	One	Aware	Aware	One	Aware	Aware	One
Feeds and Reinforces Body/Gives Calories/ Gives Energy/To Grow/Firm Muscles	83%	50%	10%	78%	46%	15%	81%	40%	-
Prevent Illness/ To Live	+1%	-	2%	+15%	+5%	4%	19%	12%	1%
Other	-	-	*	-	+1%	*	2%	-1%	4%
Don't Know	22%	55%	88%	23%	51%	83%	21%	52%	95%

* Less than 0.5%.

TABLE - 13

TYPICAL DIETS

	AVERAGE NUMBER OF TIMES EACH FOOD IS SERVED PER MONTH IN WAVE THREE					
	<u>Coast</u>		<u>Sierra</u>		<u>INDIGENOUS</u>	
Daily (20+ times a month)	Sugar	30	Fats	30	Fats	29
	Cereal	29	Sugar	29	Sugar	22
	Fats	29	Tubers	27	Tubers	20
	Fruits	22	Cereal	27		
	Milk	21	Milk	21		
	Eggs	20				
Occasionally (almost every other day)	Tubers	17	Fruits	17	Vegetables	17
	Legumes	17	Legumes	17	Legumes	16
	Meat	16	Vegetables	15	Cereals	15
	Fish	16	Eggs	12		
	Vegetables	14	Meat	12		
Once a week or less (5 or less times a month)			Fish	1	Fruits	6
					Meat	5
					Milk	5
					Eggs	5
					Fish	1

TABLE - 14

CHANGE IN WHAT FOODS ARE EATEN

	<u>CHANGE IN ACCEPTABILITY OF SELECTED FOODS</u>					
	<u>COAST</u>		<u>SIERRA</u>		<u>INDIGENOUS</u>	
	<i>Change from</i>		<i>Change from</i>		<i>Change from</i>	
	<i>Wave 3</i>	<i>Wave 1</i>	<i>Wave 3</i>	<i>Wave 1</i>	<i>Wave 3</i>	<i>Wave 1</i>
Base: Total Sample	%	%	%	%	%	%
<u>Food</u>						
Milk & milk products	99%	+1%	97%	+1%	90%	+4%
Eggs	99%	+1%	91%	-5%	86%	+9%
Meat	100%	±0%	97%	-1%	96%	+2%
Fish	100%	+1%	62%	+12%	54%	+4%
Legumes	99%	+2%	98%	-2%	99%	±0%
Cereals	100%	±0%	100%	±0%	100%	+1%
Tubers	99%	±0%	99%	-1%	99%	±0%
Fruits	99%	+2%	96%	-2%	93%	+1%
Vegetables	92%	-5%	95%	-5%	96%	-3%
Fats	100%	±0%	99%	±0%	97%	-3%
Sugars	100%	±0%	100%	±0%	99%	±0%

TABLE - 15

SUMMARY OF CHANGES IN MEAN MONTHLY FREQUENCY OF SERVING
SELECTED FOODS, WAVE ONE VERSUS WAVE THREE

COASTAL MESTIZOS												SIERRA MESTIZOS												INDIGENOUS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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+1.40%	+1.16%	+5.74%	+0.10%	+1.40%	+8.07%	-0.21%	-4.65%	+8.73%	+2.34%	+0.24%	+0.05%	+3.45%	+4.95%	+4.60%	+1.05%	0.71	17.22	+3.54%	+2.06%	2.18	+3.87%	+2.05%	2.00	+1.39%	+2.17%	-0.01%	0.71	+4.80%	+5.43%	10.87	-2.02%	-1.66%	16.40	+1.71%	-2.90%	20.84	+4.74%	+1.37%	3.39	-0.56%	-4.40%	19.41	+2.13%	+0.73%	27.87	+14.23%	+9.72%	10.57																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Sugars	Fats	Vegetables	Fruits	Tubers	Cereals	Legumes	Fish	Meat	Eggs	Milk & Milk Products																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

* Statistically significant change at the 95% confidence level.

** Average number of times each food is served per month in Wave One.

TABLE - 16

INFORMATION RECALLED FROM BOILING WATER MESSAGE BY
WAVE THREE AMONG THOSE AWARE OF THE MESSAGE

<i>Unaided Recall of Message Saying:</i>	<i>COASTAL</i>	<i>SIERRA</i>	
	<u>MESTIZOS</u>	<u>MESTIZOS</u>	<u>INDIGENOS</u>
Boiling kills bichos	65%	57%	50%
Water should be boiled, cooled, and stored in a covered container	22%	54%	48%
Water is bad when it has biochos	10%	19%	20%
It is better to boil water than to have sickness and death	9%	16%	26%

TABLE- 17

SUMMARY OF CHANGES IN KNOWLEDGE ABOUT BICHOS

	COASTAL MESTIZOS			SIERRA					
	MESTIZOS		Wave One	MESTIZOS			INDIGENOS		
	Wave Three Aware	Not Aware		Wave Three Aware	Not Aware	Wave One	Wave Three Aware	Not Aware	
<u>What Bichos Are:</u>									
Do not know what biochos do	10%	24%	17%	4%	14%	14%	16%	45%	
Believe they cause sickness/are prejudicial to health & cause damage	90%	82%	76%	100%	83%	82%	78%	78%	
<u>How They Enter the Body:</u>									
Do not know how biochos enter the body	12%	31%	19%	5%	21%	18%	26%	60%	
From dirty water	29%	29%	37%	54%	45%	49%	42%	28%	
From hands to food	30%	15%	25%	22%	17%	34%	22%	9%	
Unwashed foods	29%	15%	11%	47%	31%	16%	17%	3%	
Uncleanliness	15%	15%	3%	19%	16%	6%	10%	3%	
<u>How They Are Destroyed:</u>									
Do not know how bichos are destroyed	15%	31%	12%	11%	17%	23%	18%	45%	
By boiling water	29%	17%	33%	51%	28%	31%	25%	8%	
By washing hands/with soap	29%	13%	9%	26%	14%	15%	10%	7%	
By being clean	24%	21%	23%	25%	25%	31%	13%	7%	
By going to doctor/ taking medicine	14%	24%	20%	13%	22%	15%	46%	43%	

SUMMARY OF CHANGES IN PERCEPTION OF QUALITY OF WATER

	COASTAL MESTIZOS			SIERRA					
	Wave Three		Wave One	MESTIZOS		Wave One	INDIGENOUS		Wave One
	Aware	Not Aware		Aware	Not Aware		Aware	Not Aware	
Water is:									
Good	60%	64%	76%	65%	64%	68%	71%	78%	75%
Regular	29%	24%	17%	8%	13%	3%	12%	9%	-
Bad	9%	7%	6%	24%	17%	29%	14%	12%	15%
Other/No Answer	2%	0%	1%	0%	0%	*	3%	1%	10%

* Less than 0.5%

TABLE - 19

**SUMMARY OF CLAIMED CHANGES IN HABITS
OF BOILING WATER BY WAVE THREE**

	COASTAL MESTIZOS			SIERPA					
	Change by Wave Three		Wave One	MESTIZOS			INDIGENOUS		
	Aware	Not Aware		Aware	Not Aware	Wave One	Aware	Not Aware	Wave One
<u>BOILING</u> <i>Base = Those Answering</i>									
Claim to boil drinking water	73%	65%	78%	30%	26%	29%	42%	45%	26%
Don't boil	27%	35%	22%	70%	74%	71%	58%	55%	74%
<u>FREQUENCY</u> <i>Base = Those Answering Who Boil</i>									
Always	81%	93%	81%	44%	46%	69%	62%	73%	32%
Occasionally/for tea or coffee	6%	7%	19%	52%	54%	28%	23%	27%	62%
Never	-	-	-	-	-	3%	-	-	-
<u>STORAGE</u> <i>Base = Total Sample</i>									
Preserve water	82%	80%	82%	70%	52%	47%	72%	75%	43%
covered pot	57%	60%	60%	59%	49%	34%	49%	50%	2%
uncovered	25%	20%	22%	12%	4%	13%	23%	25%	34%
Do not preserve water	3%	3%	8%	29%	45%	33%	14%	12%	30%
Other	15%	14%	4%	2%	3%	1%	9%	8%	-
Don't know/no answer	-	3%	6%	-	-	21%	6%	6%	28%

TABLE - 20

INFORMATION RECALLED FROM WASHING HANDS MESSAGE
BY WAVE THREE AMONG THOSE AWARE OF THE MESSAGE

	<u>COASTAL</u> <u>MESTIZOS</u>	<u>SIERRA</u> <u>MESTIZOS</u>	<u>INDIGENOUS</u>
<i>Unaided Recall of Message Saying:</i>			
You should wash your hands with soap and water	39%	45%	52%
You should wash your hands before eating and after using the latrine	41%	66%	49%
Your hands can carry bichos/be your enemy	12%	16%	10%
Bichos pass from hands to food/ can enter body	12%	13%	7%
Bichos can't be seen	2%	1%	1%
Bichos cause diarrhea	1%	-	1%
Better mothers raise better children	1%	3%	1%

TABLE - 21

SUMMARY OF CHANGES IN REASONS FOR WASHING HANDS

	COASTAL MESTIZOS			SIERRA MESTIZOS			SIERRA INDIGENOUS		
	Change by Wave Three		Wave One	Change by Wave Three		Wave One	Change by Wave Three		Wave One
	Aware	Not Aware		Aware	Not Aware		Aware	Not Aware	
REASONS FOR WASHING HANDS:									
To kill bichos	68%	52%	42%	52%	55%	36%	23%	3%	1%
To avoid sickness	5%	2%	4%	8%	11%	7%	9%	6%	-
To be clean	13%	20%	5%	30%	33%	5%	23%	36%	-
Because visibly dirty	26%	29%	48%	35%	33%	65%	53%	52%	88%
Other	-	-	*	2%	2%	1%	5%	9%	3%
Don't know	1%	1%	1%	1%	-	3%	6%	8%	6%

* Less than 0.5%

TABLE 22

**CLAIMED CHANGE IN OCCASIONS FOR ADULT WASHING
OF HANDS BY WAVE THREE**

	COASTAL MESTIZOS			SIERRA					
	Change by Wave Three		Wave One	MESTIZOS		Wave One	INDIGENOUS		Wave One
	Aware	Aware		Aware	Aware		Aware	Aware	
	Aware	Aware		Aware	Aware		Aware	Aware	
<i>Occasions for Adults Washing Hands:</i>									
Before cooking	13%	12%	9%	41%	40%	36%	13%	10%	31%
Before eating	54%	49%	24%	48%	51%	43%	31%	14%	10%
After the latrine	7%	5%	1%	12%	2%	2%	2%	-	-
When getting up	15%	17%	17%	14%	30%	14%	44%	47%	6%
When dirty	9%	5%	27%	45%	12%	34%	26%	19%	19%
All the time/every day	37%	45%	-	37%	35%	-	39%	47%	-
Other	6%	4%	9%	7%	13%	5%	8%	9%	13%
Don't know	-	-	*	1%	1%	-	-	-	2%

* Less than 0.5%

TABLE - 23

**CLAIMED CHANGE IN THE USE OF SOAP
BY WAVE THREE**

	COASTAL MESTIZOS			SIERRA					
	Changed by Wave Three		Wave One	MESTIZOS		Wave One	INDIGENOUS		Wave One
	Aware	Not Aware		Aware	Not Aware		Aware	Not Aware	
	Aware	Aware		Aware	Aware		Aware	Aware	
<i>Use of Soap:</i>									
To wash hands	57%	56%	41%	73%	54%	67%	48%	53%	14%
To kill microbes	1%	4%	1%	1%	3%	*	-	-	-

* Less than 0.5%

TABLE - 24

INFORMATION RECALLED FROM MOTHER'S MILK MESSAGE
BY WAVE THREE AMONG THOSE AWARE OF THE MESSAGE

	<u>Coastal Mestizos</u>
<i>Unaided Recall of Message Saying:</i>	
Mother's milk is the best in the world	83%
You should give the breast at least three times a day	13%
Mother's milk is always available/ never spoils/no need to boil it/ no need to refrigerate	28%
Other	6%

TABLE - 25

REASONS FOR CHANGES IN PERCEPTIONS
ABOUT MOTHER'S MILK

<u>Reason for Believing Mother's Milk Is Best</u>	<u>COASTAL MESTIZOS</u>		
	<u>Wave Three</u>		<u>Wave</u>
	<u>Aware</u>	<u>Not Aware</u>	<u>One</u>
<i>Convenience</i>	75%	11%	11%
No need to boil	41%	7%	1%
Doesn't spoil	20%	-	6%
Easy to get	14%	4%	4%
<i>Superiority</i>	37%	65%	73%
Feeds the child better	35%	61%	28%
Child doesn't get sick	2%	4%	44%
Cheaper	-	-	1%
<i>Other</i>	4%	4%	16%
<i>Don't know</i>	4%	18%	-

TABLE -- 26

INFORMATION RECALLED FROM IODIZED SALT MESSAGE
BY WAVE THREE AMONG THOSE AWARE OF THE MESSAGE

	SIERRA	
	<u>MESTIZOS</u>	<u>INDIGENOUS</u>
<u>Unaided Recall of Message Sample:</u>		
Iodized salt is good	45%	79%
You can avoid goiter by eating iodized salt	56%	7%
Lack of iodine produces goiter	18%	11%
Goiter in pregnant women can cause damage to the child before birth	16%	-
Goiter is a sickness	2%	14%
Iodized salt is white and comes in plastic bags	6%	11%

TABLE - 27

SUMMARY OF CHANGES IN KNOWLEDGE ABOUT GOITER

	SIERRA					
	MESTIZOS			INDIGENOUS		
	<i>Change by</i> <i>Wave Three</i>			<i>Change by</i> <i>Wave Three</i>		
	<i>Aware</i>	<i>Not</i> <i>Aware</i>	<i>Have</i> <i>One</i>	<i>Aware</i>	<i>Not</i> <i>Aware</i>	<i>Have</i> <i>One</i>
Believe goiter is a sickness	87%	74%	73%	54%	24%	16%
Causes sickness	42%	41%	49%	36%	14%	5%
Causes abnormal children	6%	5%	1%	4%	1%	2%
Goiter is caused by:						
Grain salt	40%	44%	15%	36%	18%	-
Salt	23%	32%	11%	23%	32%	1%
Lack of iodine	26%	6%	7%	4%	-	3%
Bad water	2%	4%	14%	7%	-	-
Too much salt	16%	22%	26%	7%	14%	-
Don't know	13%	18%	29%	11%	38%	53%

TABLE-28

CHANGES IN PERCEPTIONS OF WHICH SALT
IS IODIZED AND WHICH IS BEST*

	SIERRA					
	NESTLEES			INDIGENOUS		
	Wave Aware	Three Not Aware	Wave One	Wave Aware	Three Not Aware	Wave One
IODIZED SALT IS:						
Course (Net)	2%	1%	5%	7%	18%	16%
Refined (Net)	90%	73%	86%	53%	38%	32%
Refined	3%	5%	9%	14%	24%	10%
White Refined Salt that says "Iodized"	87%	68%	77%	39%	14%	22%
Don't know	10%	30%	9%	40%	47%	53%
BEST SALT IS:						
Course (Net)	2%	2%	9%	14%	36%	67%
Refined (Net)	98%	98%	85%	89%	60%	33%
Refined	5%	6%	80%	29%	33%	20%
Iodized	95%	92%	5%	64%	27%	14%

* Totals which exceed 100% are due to multiple responses.