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FINAL EVALUATION
OF THE
NATIONAL NUTRITION IMPROVEMENT PROJECT

PROJECT 511-0468

Covering the period October 1, 1979 - May 31, 1982

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TABLE OF CONTENTS

	<u>Page</u>
I. SUMMARY.....	1
II. PROJECT DESCRIPTION.....	3
A. Financial History.....	3
B. Evaluation Methodology.....	4
III. PROJECT COMPONENTS.....	5
A. Institutional Development.....	5
1. National Food and Nutrition System.....	5
2. Department of Food and Nutrition.....	12
3. The National Institute of Food and Nutrition.....	17
4. Departmental Development Corporations.....	20
B. Training	23
1. Overseas.....	23
2. In-country.....	24
C. Basic Studies.....	28
D. Experimental Projects.....	31
E. Technical Assistance.....	34
1. Long Term.....	34
2. Short Term.....	35
F. Recommendations on formulation of Nutrition Policies...	36
IV. RECOMMENDATIONS: FUTURE INTERVENTIONS.....	39
V. SUGGESTED IMPROVEMENTS ON MANAGEMENT OF HFHS.....	41
VI. RECOMMENDATION REGARDING LOCATION OF THE NATIONAL INSTITUTE OF FOOD AND NUTRITION WITHIN THE NATIONAL FOOD AND NUTRITION SYSTEM.....	43

ATTACHMENTS

Chart I.	Institutional Organization and Hierarchical Order of the NFNS.....	7
Chart II.	Organizational Chart: MPC.....	16
Chart III.	Organizational Chart: INAN.....	22
Chart IV.	Basic Studies.....	29
Chart V.	Experimental Projects.....	32
Annex 1	Nutrition Status of the Bolivian Population Study....	47
Annex 2	Prevalence of Goiter in School Populations Study.....	57
Annex 3	Present Status of Breast Feeding in Urban Areas of Bolivia Study.....	70
Annex 4	Minimal Cost Regional Diets Study.....	77
Annex 5	Food Habits and Certain Cultural Patterns of Weaning Foods, Breast Feeding, Diarrhoea and Goiter Study...	80
Annex 6	Diagnostic Study of Food and Nutrition Status of the Population of Pando.....	82
Annex 7	Study on Goiter, Habits of Salt Consumption and Radio Listening Patterns.....	86
Annex 8	Good mother: Mass Media Nutritio. Education Project.	90
Annex 9	Promotion of Iodized Salt Project.....	95
Annex 10	Analysis and Experimental Treatment of Anemia Project	97
Annex 11	Incorporation of Nutrition Education in Primary School Curriculum Project.....	99
Annex 12	Promotion, Production and Consumption of Tarhui in the Altiplano and Valley areas Project.....	101

	<u>Page</u>	
Annex 13	Nutrition Improvement Through Appropriate Technology: Small Fisheries Project.....	104
Annex 14	Rabbit Husbandry Project.....	107
Annex 15	Guinea Pig Husbandry Project.....	109
Annex 16	Law Decree No. 15596.....	110
Annex 17	Law Decree No. 16756.....	118

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FINAL EVALUATION OF THE NUTRITION IMPROVEMENT PROJECT No. 511-0468

I. SUMMARY

The National Improvement Project began on September 30, 1976, was extended in 1978, 1979, and 1981 and concluded on May 31, 1982. The Project Goal was to improve the nutritional status of the poor people of Bolivia, particularly children under six and pregnant and lactating mothers. The Purpose was to establish a multi-sectoral planning, implementing, monitoring and evaluation system for the GOB's National Food and Nutrition PLAN (NFNP) at the national and departmental levels, under the direction of the Ministry of Planning and Coordination (MPC).

In order to achieve the Project Purpose, initial project efforts concentrated heavily on the establishment of a Food and Nutrition Department (now DAN), responsible for the formulation of nutrition policies within the MPC (1976); a National Food and Nutrition Institute (INAN), responsible for carrying out nutrition research (established by Supreme Decree N°15996 on June 27, 1978); and a National Food and Nutrition System (NFNS, established by Supreme Decree N° 16756 on July 11, 1979).

With the establishment of the above nutrition framework, Project efforts during the final phase of the Project (July 1979-May 31, 1982) concentrated on: 1) implementing a series of Basic Studies and Experimental Projects to analyze the extent of Bolivia's nutrition problems and develop strategies to resolve them; 2) assuring permanent GOB financing for INAN, which had

begun to function in July, 1979 with Title III funds; and 3) designing and implementing in-country training activities in support of the Basic Studies and Experimental Projects.

Project inputs included extensive long and short term technical assistance; support for Studies and Experimental Projects; training; vehicles and equipment.

Major accomplishments include the fact that by May 31, 1982, the NFNS was a legally established framework for multi-sectoral nutrition planning, implementing, monitoring and evaluation activities; DAN and INAN were institutionalized, fully staffed and functioning entities with defined administrative and financial procedures; GOB financing for INAN had been obtained as of January, 1982; and ten nutrition Studies and three Experimental Projects had been completed by DAN and INAN, utilizing a multi-sectoral approach, with the assistance of many national and regional entities. Study results have permitted the identification of Bolivia's major nutrition problems as endemic Goiter, infant chronic malnutrition and the need to take actions to prevent the decline of Breast Feeding. Experimental Project activities have resulted in the establishment of a National Campaign to Combat Goiter, currently headed by the Director of the Division of Nutrition of the Ministry of Public Health and Social Welfare (MPS/SP), with activities and committees in all nine departments; a mass media nutrition education campaign; the incorporation of nutrition education in the primary school curriculum; and expanded production and processing of tarhui for human consumption.

Project achievements are remarkable, considering that there were eight changes of government during the life of the Project, that normal US/Bolivia relations were suspended for approximately one year following the July, 1980 Coup, and that the economical situation was one of the worst in the history of Bolivia, seriously affecting the GOB's ability to maintain the level of existing services.

While project accomplishments are notable, continuity of the entire structure established under the Nutrition Improvement Project will be endangered unless immediate actions are taken to: 1) strengthen the role of DAN within the MFC and the NFNS; 2) actualize nutrition policies and develop a functional mechanism within the NFNS through which all nutrition activities are coordinated; 3) assure the continued semi-autonomous status of IHAN; and 4) develop policies and programs utilizing the information provided by the Studies and Experimental Projects which actually begin to address Bolivia's nutrition problems.

II. PROJECT DESCRIPTION

A. Financial History

The Nutrition Improvement Grant began in September 1976 as a two-year project, with USAID and GOB contributions of \$ 500,000 and \$366,277 respectively. The project was amended on August 11, 1978, increasing USAID funds by \$140,000 for a total of \$640,000. On July 13, 1979, the project was extended through September 30, 1981; USAID funds increased by \$940,000 for a total of \$1,580,000; and GOB support

increased by \$1,000,000 from the PL 480 Title III program and \$380,000 from the National Treasury. Project funding was used to finance training, technical assistance, vehicles, equipment, and local support for Basic Studies and Experimental Projects. Title III funds were used to establish INAN (i.e., pay operating costs, etc.), and to finance selected Experimental Projects. National Treasury funds financed DAN, with whom all of the above agreements were signed, and later, INAN (as of January 1, 1982).

On September 29, 1981, the project was extended an additional eight months to May 31, 1982, in order to complete Basic Studies and Experimental Projects, with no additional funding required.

B. Evaluation Methodology

This report constitutes the final evaluation of the Nutrition Improvement Project and concentrates on the period encompassing October, 1979 through May 31, 1982.

Two previous evaluations were made of the Project. The first, covering the period January, 79 - June, 80, was conducted by Ms. Hope Sukin, Office of Nutrition, AID/Washington; Mr. Patrick Marnane, Personal Service Contractor; and five representatives of DAN and INAN. The second evaluation was conducted by the office of Health and Humanitarian Assistance, USAID/Bolivia, and covered the period 1/79 - 6/80.

The purpose of the final evaluation is to assess the achievements of the Project Components (Institutional Development, Training Basic Studies, Experimental Projects and Technical Assistance) in relation to Project expectations and to offer recommendations on future interventions, the location of INAN within the NFNS and improvements on management of the NFNS.

Data collection techniques included: 1) site visits to Trinidad, Santa Cruz, Cochabamba, Sucre and Tarija to interview Departmental Development Corporation (DDC) Project Managers and officials responsible for implementing Experimental Projects (Tahui and Small Fisheries); training participants; implementers of the Mass Media and Iodized Salt Experimental Projects, and participants in the Nutrition Status Survey Basic Study (nutritionists, nurses, and auxiliary personnel) of the Health Units (Unidades Sanitarias) of the MPS/SP; meetings with officials of DAN, INAN, and the Maternal/Infant and Nutrition Divisions of the MPS/SP; extensive review of Project Documents; and interviews with the long term technical advisor and USAID Project Management.

Evaluation activities were conducted between June 2, and August 10, 1982.

III. PROJECT COMPONENTS

A. Institutional Development

1. National Food and Nutrition System

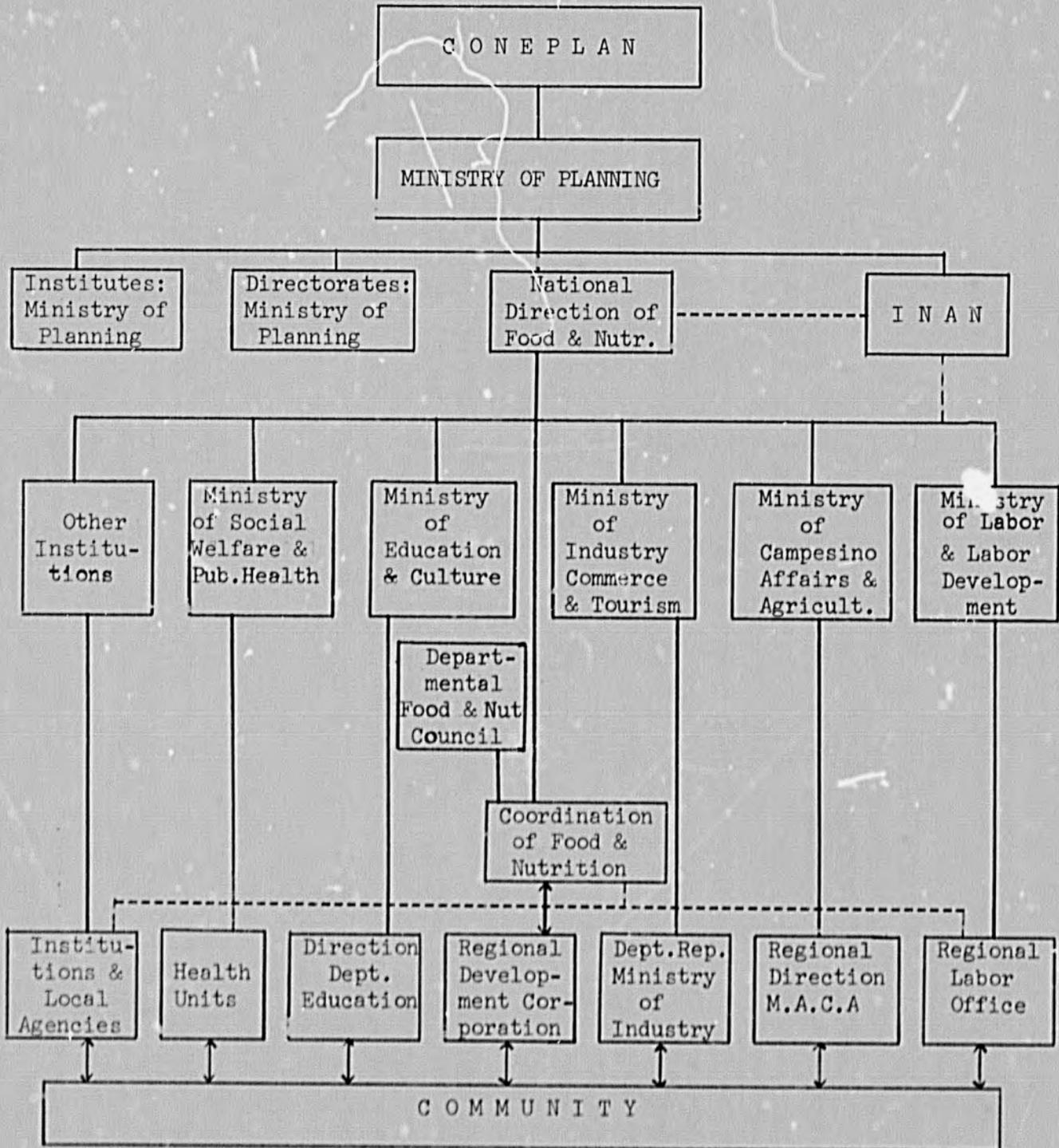
A legally based, conceptual, political and institutional structure

for dealing with Bolivia's food and nutrition problems now exists in the National Food and Nutrition System (NFNS), which can be considered a direct result of the Nutrition Improvement Project. The institutionalization of the NFNS partially fulfills the ambitious project purpose of establishing a multi-sectoral planning, implementing, monitoring and evaluation system for the GOB's National Food and Nutrition Plan at the national and departmental levels under the direction of the Ministry of Planning and Coordination (MPC). (See Chart 1). The project selected the MPC as the focus of its activities because it considered that true multi-sectoral work could be accomplished only from that vantage point, and not from one of the member parts, i.e., Health.

Major groundwork leading to the establishment of the NFNS, prior to October 1979, includes:

1. The 1975 USAID/Bolivia Health and Nutrition Assessment identifying the need to establish an institutional framework for implementing a national nutrition program and the subsequent USAID Nutrition Improvement Project which began in 1976;
2. The inclusion of the GOB National Food and Nutrition Plan in the 1976-1980 "Five Year Development Plan" as an independent sector for the first time;
3. The formation of a Food and Nutrition Technical Group (FNTG) in 1976, within the MPC, responsible for the formulation of

CHART I
INSTITUTIONAL ORGANIZATION AND HIERARCHICAL ORDER OF
THE NATIONAL FOOD AND NUTRITION SYSTEM



Ref.: _____ HierarchyCoordination

nutrition policies, and its institutionalization as the Directorate of Food and Nutrition. Later, in January, 1981, this group became the Department of Food and Nutrition (DAN);

4. The establishment of the National Institute of Food and Nutrition (INAN) by Supreme Decree No. 15996 on June 27, 1978, responsible for carrying out nutrition research (See Annex 17);
and
5. The establishment of the NFNS by Supreme Decree No. 16756 on July 11, 1979 (See Annex 16).

The principal objective of the NFNS is to establish a system which will address Bolivia's food and nutrition problems in a coordinated, multisectoral manner, utilizing national and regional organizations (both public and private) to plan, promote and execute programs and projects with potential nutrition impact.

Participating entities of the System as defined in the Decree, include:

1. The National Council of Economy and Planning (CONEPLAN) as the maximum decision making authority within the System;
2. The MEC, through the Department of Food and Nutrition as the normative, coordinating and supervising organism of the System;

3. INAN as the principal technical and research arm of the System;
4. The Ministry of Finance, through the sectoral entities and Departmental Development Corporation (DDCs) as the financial controller of resources necessary for the System's operation;
5. The sectoral entities; Ministries of Campesino Affairs and Agriculture (MACA), Social Welfare and Public Health (MPS/SP), Education and Culture (MEC), Industry, Commerce and Tourism (MICT), and Labor Development (MTDL);
6. The regional entities: Departmental Development Corporations, and all entities that participate in the future; and
7. Departmental Councils of Food and Nutrition, the Maximum decision making entities of the System at the Departmental level.

In addition to the legal establishment of the NFNS, major functional accomplishments to May 31, 1982, consist of: 1) the establishment of DAN as coordinator of the System; 2) INAN to conduct research and pilot nutrition interventions on the causes, types, and location of malnutrition, and 3) the formation of multisectoral committees which address specific food and nutrition problems, such as the Mass Media Nutrition Education Committee, the Nutrition Education School Curriculum Committee, and the National Goiter Prevention Committee.

One problem facing the NFNS is that while the National Economic and Planning Council (CONEPLAN) is named by the Decree as the highest decision making level of the NFNS, it has not functioned as such to date, and there is a pressing need to establish an alternative to CONEPLAN, within the NFNS, which will fulfill this role.

At the regional level, Food and Nutrition Councils were established as stipulated in the Project Agreement; Nutrition Coordinators hired for all nine Departments; and agreements signed between the MPC and DDCs. The Councils have subsequently dissolved in favor of more functional specific project related committees (see above); and the Nutrition Coordinator position no longer exists as such, having been revised to that of an MPC representative at the Departmental level. Only two such positions were filled at the time of this writing. Low salaries, political influence in the selection process and difficulty in obtaining qualified personnel were cited as the primary reasons for the demise of the Nutrition Coordinator position.

As a result of the Basic Studies and Experimental Projects carried out under the Nutrition Improvement Project by DAN and INAN, and their presentation and discussion at the National Nutrition Conference in May, 1982, an increased awareness of nutrition problems now exists at the national and regional levels, as well as at high political levels.

The multisectoral approach to resolving nutrition problems utilized in all Grant and NFNS activities encompassed endeavors in the fields of communication, economics, sociology, agriculture, health, and education. Active participation was obtained from the line ministries (MPC, MEC, MACA, MPS/SP, MF), the National Institute of Cooperatives (INALCO), the National Institute of Statistics (INE), Social Security (CNSS), and Caritas at the national level; the DDCs, Universities, Health Units of the MPS/SP, and the Bolivian Institute of Agricultural Technology (IBTA) at the departmental level; and the Quimbabol and Sal La Uyunense Companies, producers of iodized salt, in the private sector.

Thus the anticipated project output of "the development of a structure at the national and departmental levels designed to foster intersectoral coordination" does exist. However, while cooperation has been forthcoming from the sectoral entities making up the NFNS, cohesiveness is tenuous at best, and an established, coordinated mechanism for participation in the System does not exist at this time. In its absence, duplication and fragmentation of efforts are beginning to occur. The lack of both aggressive leadership and financial incentives are seen as barriers to DAN's assuming the leadership role defined in the decree establishing the NFNS. Definite strengthening of the System by upgrading the status and overall coordinating

authority of DAN, and finding an alternative to CONEPLAN, will be required in the immediate future if the NFNS is to function as originally planned.

DAN favors the establishment of a National Nutrition Council which would be under CONEPLAN and above DAN within the NFNS, and consist of representatives of the System's participating entities. DAN is currently attempting to establish such a council.

2. Department of Food and Nutrition (DAN)

According to the Decree establishing the NFNS, the MPC, through the Department of Food and Nutrition is responsible for formulating multisectoral food and nutrition policies and defining programmatic priorities. Due to insufficient information on the magnitude of nutrition problems in Bolivia, DAN has been unable to carry out this mandate. In order to fill the information gap and separate research from policy formulation, INAN was established to carry out nutrition research, while DAN concentrated on planning, organizing and directing nutrition activities and interventions.

A certain amount of role confusion resulted from the fact that DAN could not originally carry out its defined functions, as well as from the fact that DAN is organizationally at the Department level, while INAN is a semi-autonomous institution within the MPC. (See Chart II). With a January, 1981 reorganization of the MPC,

DAN went from a Directorate to a Department, losing valuable prestige and authority, both sorely needed in its defined nutrition leadership role with other ministries. The decree establishing the NFNS, however, has not been revised to include this change.

DAN has acquired prestige from accomplishments achieved during the evaluation period, specifically from the role it played in the Mass Media Nutrition Education Project, and at the National Conference which presented the results of the Basic Studies and Experimental Projects. These accomplishments, however, created confusion as to DAN's exact role. Instead of coordinating activities, DAN was also an executor of specific activities. These activities trace their origin prior to 1979, when DAN was the only organized entity in the field.

DAN has demonstrated administrative and financial capabilities, and Project Management staff report that DAN was effective in managing the financial aspects of all the sub-projects it carried out. DAN completed annual operational plans and budgets for 1979, 1980-1981 and 82, and the establishment of the National Committee to Combat Goiter is a direct follow up of the 1980-81 operation plan. DAN has prioritized activities, and their 1982 Operation Plan includes programs directed towards: 1) strengthening the NFNS through a series of concrete actions; 2) Coordinating activities of the National Committee to Combat Goiter;

3) an institutional reorganization of donated food programs and a comparative analysis of the social-economic impact of these foods; 4) elaboration of food balance sheets with MACA; 5) coordinating activities of the Committee for Integrating Nutrition Education in School Curriculum; 6) furthering the Mass Media Nutrition Education Campaign, and 7) coordinating the Treatment of Anemia Project.

Constraints to DAN's overall development include four changes in government during the evaluation period, resulting in continual replacement of high level project officials, including three MFC Ministers and four DAN directors.

Additionally, USAID/Bolivia, in response to AID/W guidance following the July, 1980 coup, reduced support to GOB institutions and short and long term project funded technical assistance. This resulted in the removal of one long term advisor and emphasized the completion of ongoing Basic Studies and Experimental Projects, and restricted technical assistance for GOB institutional development. This had a direct impact on DAN, as the remaining long term advisor was stretched to the limit and could not spend, nor was he allowed to spend, the time DAN would have liked on their institutional development.

Problems with AID procurement procedures and resulting delays plagued both DAN and INZN throughout the implementation period, and both

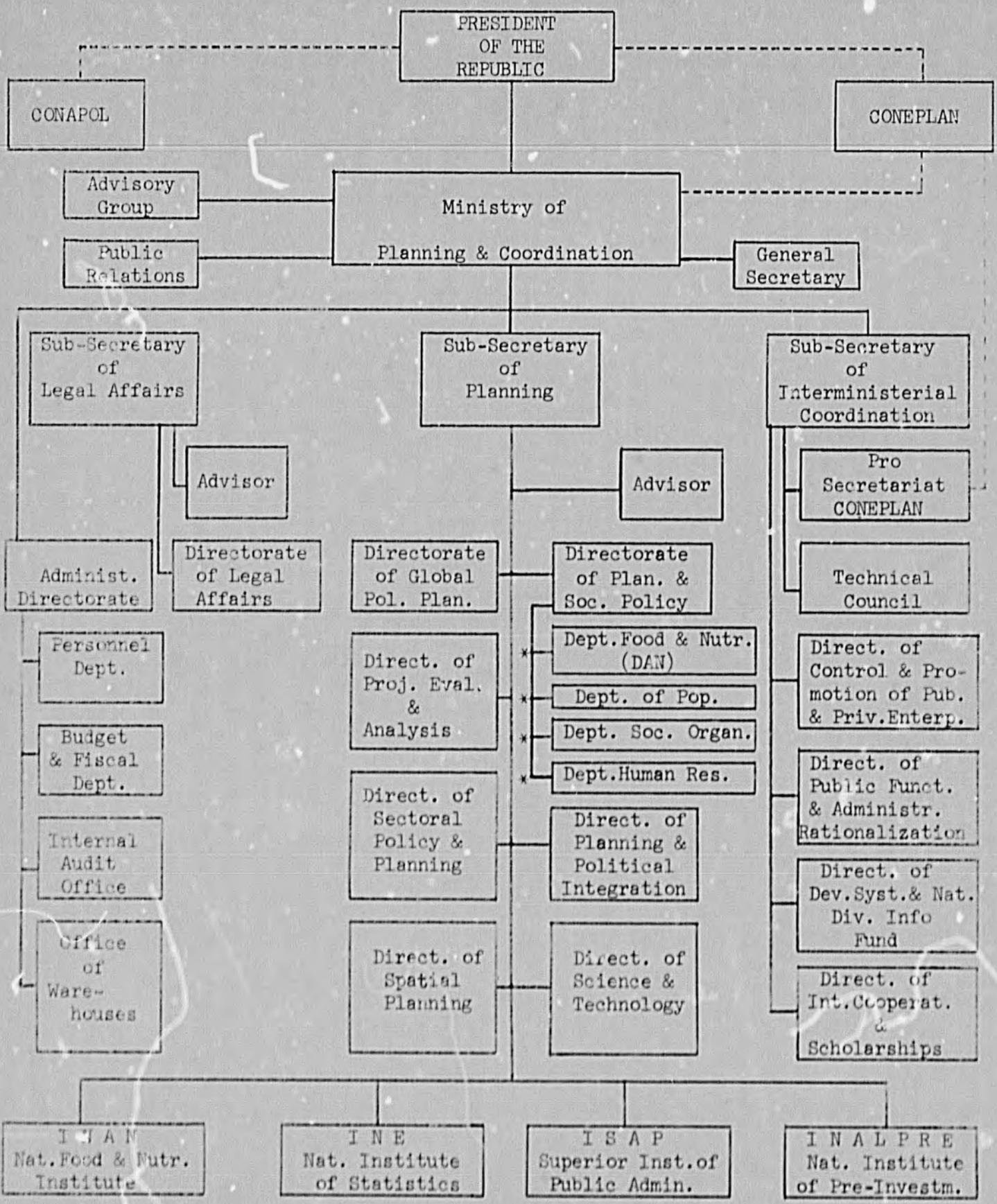
organizations strongly recommend revised procedures and/or additional assistance and cooperation from the Procurement Office.

At the completion of the grant, DAN consisted of a technical multidisciplinary team of two economists, two nutritionists, an agronomist, sociologist, and food technologist, which reflects the overall multirectoral planning philosophy of the NFNS and the Nutrition Improvement Project Agreement. However, low salaries and potential political changes remain a threat to staff continuity.

The financial future of DAN is not totally assured. While it is presently covered in the national budget, the range of activities and level of participation will depend in part on DAN's ability to attract additional international funding, as well as their success in achieving increased support and backing within the MPC.

In summary, with the completion and publication of the Nutrition Improvement Project and Title III funded Studies and Experimental Projects, DAN now has an information base from which it can form nutrition policies and action plans, as anticipated in the Project Agreement. It is, however, viewed by other Ministries as lacking in authority, and it must strengthen its leadership role within the NFNS if it is to actualize policies and coordinate nutrition activities and interventions at the national and departmental levels.

CHART II
MINISTRY OF PLANNING AND COORDINATION



* inserted

3. The National Institute of Food and Nutrition (INAN)

Established by Supreme Decree in June, 1978, INAN began to function in June, 1979 as the nutrition research arm of the NFNS. As a decentralized, semi-autonomous institution of the MPC, with clearly defined functions, INAN has made substantial progress in conducting nutrition studies and training personnel of the health (MPS/SP), education (MEC), agriculture (MACA), and development (DDCs) sectors.

Structurally, INAN consists of four departments: 1) Research; 2) Training and Dissemination; 3) Experimental Projects and Studies; and 4) Complimentary Foods; and two support divisions including Statistics and Analysis, and Publications. (See Chart III). Title III funds were used to finance INAN's operating and personnel expenses from July, 1979 through December, 1981, in order to strengthen the organizational development component of the Project by establishing INAN as a key institution within the NFNS; and to enable INAN to implement Project funded Studies and Experimental Projects, as well as a number of projects financed by Title III. INAN, with AID's assistance, was able to obtain GOB funding for 1982. The Institution has followed a planned, if rapid growth, and has completed Operational Plans and budgets for 1980, 1981, and 1982. Their rapid institutional growth was questioned, however, by their funding agency (Title III) in its 1980 evaluation and, as recommended in the evaluation, INAN has gone from a staff of thirty (in 1981) to a current staff of twenty.

As with DAN, INAN's multisectoral approach to resolving nutrition problems has had the cooperation of many national, departmental, and private entities. Some participating entities expressed the desire to be included through the conclusion of project activities and the analysis of results, rather than just in the initial phase.

It was felt by some participants that INAN, in a desire to establish a respectable reputation, sought and received recognition for their accomplishments, but did not sufficiently acknowledge the collaboration of other participating entities.

If INAN is to continue receiving the active cooperation of the multisectoral entities within the System, it will be extremely important to consult with them about major project related decisions throughout the process of research and intervention activities.

During the evaluation period INAN successfully implemented three Experimental Projects (The Integration of Nutrition Education into School Curriculum, the Promotion and Marketing of Iodized Salt, and the Production and Promotion of Tarhui), as well as eight nutrition studies. (See chart IV and Chart V for final disposition of all Basic Studies and Experimental Projects).

Constraints hampering INAN's development include the fact that three months after its inception INAN was given the additional

responsibility by the MPC of managing the distribution of foods donated by the World Food Program. While INAN has managed to carry out its function as a technical institute, and at the same time oversee the Department of Complimentary Foods (DSF), the location of this distribution agency within INAN requires administrative and logistical support which could be better utilized in carrying out the objectives of the institution as originally perceived. Despite a GOB review of the DSF operation in 1980 and recommendations that it be transferred to another division of the MPC, it continues to be located in INAN.

Additionally, INAN had five directors during the evaluation period and has suffered from the general political and economic instability of the Country. Although they are now included in the GOB National Budget, there is no guarantee that they will continue to be, and they are already feeling the general GOB shortage of funds for staff travel, gasoline, per diem, etc., and the fact that the government is finding it economically difficult to maintain services. As with DAN, international funding assistance and/or providing research services to other entities for a fee will be required if INAN is to continue functioning at full potential. The Institution is currently exploring both funding possibilities.

INAN has, in its brief existence and despite the mentioned constraints, established itself as a respectable professional nutrition

research institute. As such, it has not escaped institutional jealousies and criticism. There are those who believe INAN should be placed within the MPS/SP as part of the Division of Nutrition, which is where nutrition activities originated before the establishment of the NFNS. If it is to remain a semi-autonomous nutrition research institute, INAN will need the support of the MPC and the cooperation of participating entities of the NFNS, some of which it will need to reinforce relationships with, if it is to maintain their cooperation.

4. Departmental Development Corporations

The basic role of the DDCs, who fall under the supervision of the MPC and under DAN for nutrition activities, is to coordinate regional development efforts and to promote economic and social development in the nine departments of Bolivia. Since 1978 they have had the legal responsibility for overall planning at the regional level. Within this context, the DDCs are responsible for proposing, coordinating and supervising nutrition activities at the departmental level and have been actively involved in the implementation of project and Title III funded Experimental Projects, including the Promotion of Iodized Salt; the Promotion and Production of Tarhui; Nutrition Improvement through Appropriate Technology; Small Fisheries; and Rabbit and Guinea Pig Husbandry.

The Project Agreement calls for Nutrition Coordinators to be assigned to the DDCs to organize and coordinate the development of food and nutrition plans at the departmental level, and with the DDCs, to prepare recommendations for submission to DAN for inclusion in annual national food and nutrition plans. Nutrition Coordinators were hired (three by the MPC and six by the DDCs) and assigned to the DDCs, but the position was altered in 1981 to that of an MPC representative at the departmental level, and only two such positions have been filled. The existence of the Coordinators within the DDCs and their attempts to form Departmental Nutrition Councils called attention to nutrition problems and the DDCs, for the first time in 1981, included nutrition activities in the plans they presented to the MPC.

Nutrition Councils were dropped in favor of more action oriented departmental committees, such as, the National Committee to Combat Goiter. While the committee members are basically the same, there is general agreement that the action oriented committees are more effective and more easily motivated.

Thus, while the structure of the NFNS at the departmental level has varied somewhat from the original decree and the Project Agreement, the DDCs have demonstrated the capability to play an active role in nutrition interventions at the departmental level, and have taken notice of nutrition problems as a result of project and Title

III funded activities. Limited funding is viewed as the major obstacle to sustained or expanded nutrition activities within the DDCs.

B. Training

1. Overseas

The Project Agreement calls for third country short term training for eight senior level staff members of DAN, INAN, and sectoral Ministry working groups, to improve their ability to implement the NFNS; and for three faculty members of three universities (Cochabamba, La Paz and Sucre) to receive long term third country nutrition training for approximately twelve months each.

The \$95,000 allocated in the 1979 Project agreement for overseas training was reduced to \$23,017 due to under-utilization of the component, and funds were transferred to other areas such as Support for Basic Studies. Of the \$23,017 allocated for overseas training, only \$5,105 was used to finance the following:

- 1) Thirty-five days of training for the Tarhui Project Manager (see Experimental Projects) in Chile and Peru in the production, processing and utilization of Tarhui, in April and May, 1981; and
- 2) Eighteen days training in May, 1982 for the Small Fisheries Project Manager (see Experimental Projects) in Lima and Iquitos,

Peru in a program designed by the Peruvian "Institute of the Sea" in project design and evaluation, methods of capture, and handling and preservation of fish.

The under utilization of the Overseas training component was due to political instability, university closures, and continual personnel changes, making it difficult to select candidates and schedule their training in a timely manner. Furthermore, it was the policy of the Mission following the July 1980 Military coup, to not fund international training for members of the GOB which included most of the counterparts in this project. This restriction was eventually lifted for persons who were considered technicians associated with semi-autonomous entities (i.e., the DDCs).

2. In-Country Training

The 1979 Project Agreement states that the Nutrition Improvement Grant will provide assistance in developing and financing in-country training programs at the national and departmental levels to assure that adequately trained personnel are available to work with the NFNS, and allocated \$10,000 in Project Agreement Amendment N° 1, dated April 10, 1980, for in-country travel and per diem for training activities.

The July, 1980 Coup resulted in USAID/Bolivia's reducing overall project activities, including training. However, even with the

reduction of planned activities, substantial in-country training was accomplished, as discrete activities supporting the implementation of various Studies and Experimental Projects. The Project Agreement calls for three in-country training activities: 1) a Food and Nutrition Planning course for sectoral coordinators of technical working groups in MACA, MPS/SP, MEC and MICT; 2) a workshop for departmental Food and Nutrition Coordinators; and 3) Nutrition courses for primary and secondary school educators.

Of the planned in-country training activities, the National Nutrition Planning Course for sectoral coordinators was not carried out, as it was deemed unfeasible due to continuous personnel changes; the workshop for Nutrition Coordinators was held and reported in a previous evaluation; and the nutrition courses for primary and secondary school educators are reported in # 3 below.

In-country training from October 1979-May 31, 1982 consisted of the following:

- 1) The NFIG of the MPC organized a workshop for fifty-two representatives of thirteen national and international Private Voluntary Organizations (PVO's) in October, 1979 to provide orientation to the PVO's on the GOB's nutrition infrastructure and recently established NENS;

- 2) DAN organized a five day seminar on Title II Subsidiary Foods in January-February, 1980 for seventy-four representatives of the national and international food distribution agencies operating in Bolivia, to develop and apply standard procedures for designing and implementing supplementary feeding programs.
- 3) INAN, in collaboration with the MPS/SP, MPC, and MEC supervised the training of 1,240 school directors, supervisors and urban and rural teachers between June, 1980 and May, 1982 covering all nine departments, in the use of nutrition education materials, for inclusion in the elementary school curriculum;
- 4) INAN coordinated the training of thirty professionals of the MPS/SP, MACA, MPC, MEC, Caritas and Health Units of the MPS/SP for three weeks in May-June, 1981 on how to gather reliable first hand data from urban and rural areas included in the defined random sample of the Nutrition Status Survey;
- 5) The MPS/SP sponsored a national Breast Feeding Workshop in June 1981 at which the Grant funded Breast Feeding Study was presented and discussed;
- 6) INAN coordinated three weeks of training for nine health professionals in September, 1981 in La Paz on standardizing techniques of thyroid palpation;
- 7) DAN trained seventy-seven community leaders, auxiliary nurses, nutritionists, community workers and Caritas personnel in all

three zones of the Country between June, 1981 and January, 1982 as part of the interpersonal education component of the Mass Media Nutrition Education Project; and held a workshop for radio administrators and press, radio and T.V. representatives in 1980 to explain the objectives of the Mass Media Project;

- 8) INAN coordinated the training of approximately one thousand individuals (nurses, nutritionists, auxiliary nurses, auxiliary nutritionists, religious workers, extension agents, teachers, and community workers) in the use of Goiter prevention and treatment materials. Team taught by a social communicator, a nutritionist and sociologist or psychologist, the training was conducted in two day, sixteen hour courses in the departments of La Paz, Chuquisaca, Beni and Pando, utilizing flip charts, posters, pamphlets and puppet shows;
- 9) DAN and INAN co-sponsored a national conference in May, 1982 for two hundred and fifty national and regional participants to present and discuss the results of Grant and Title III funded Basic Studies and Experimental Projects and to make recommendations for adopting national policies for same; and
- 10) The Health Unit of the MPS/SP in Santa Cruz, with the cooperation of DAN and INAN, held a five day seminar on the techniques of recognizing and preventing Goiter for medical and paramedical personnel, local officials, teachers, Red Cross, MACA and LDC employees in May, 1982.

C. Basic Studies

In order to analyze the extent of Bolivia's nutrition problems, and develop strategies to address the problems, a total of twelve basic studies were undertaken as part of the Nutrition Improvement Project (4 during the original Agreement and eight during the 1979 Extension, even though the Project Agreement only called for five). Of the twelve, two were eliminated, and ten completed; two prior to, and eight during, the evaluation period (See Chart IV).

Of the estimated \$153,000 budgeted in the 1979 Project Agreement, \$288,413 was actually allocated as "Support for Studies". \$255,151 (78%) was expended or committed by May 31, 1982.

The successful completion and publication of the Basic Studies (described in Annexes 1-7) has made a substantial contribution to filling the previously existing nutrition information gap. It is now imperative that the Study conclusions and recommendations be translated into effective actions by the NFNS through DAN; policy makers, planners and decision makers in the principal ministries; technical personnel; and community workers, which actually address and prioritize nutrition problems. As a result of the Studies and their discussion at the National Seminar, it is evident that endemic Goiter, infant malnutrition (especially in the Altiplano), and Avitaminosis A in the Llano area are all problems which need to be given high priority in nutrition

CHART IV
BASIC STUDIES

T i t l e	Incorporated	Funding	Implementing Agency	Final Status
1. Food Gap Study	Original Agreement	Grant	DAN	Completed
2. Relation between Nut. Status and Productivity among small farmers	Original agreement	Grant	DAN	Completed
3. Food Assistance	Original agreement	Grant	DAN	Completed
4. Milk Production, Processing, Distribution and Consumption	Original agreement Total budgeted for above	<u>Grant</u> \$36,000	—	Eliminated during imp. proces. (by 1979)
5. Food Consumption Survey in Rural and Urban Areas - Changed to "Nutrition Status of the Bolivian Population" in Impl. Letter #4, 3/5/81.	1979 Extension	Grant *\$51,495 Title III *\$44,000	INAN	Published 1981
6. **Prevalence of Goiter in School population	1979 Extension	Financed under Nut. Status Study	INAN	Published 1981
7. Current Practices and Trends in Breast Feeding and Weaning in Marginal Urban Areas. Published title "Present Status of Breast Feeding in urban areas of Bolivia".	1979 Extension	Grant *\$13,510 Title III *\$6,768	INAN	Published 1980
8. Determination of Minimum Cost Regional Diets. Published Title "Minimal Cost Regional Diets".	1979 Extension	Grant *\$4,983	INAN	Published 1982 but not distributed

Title	Incorporated	Funding	Implementing Agency	Final Status
9. Food Habits Study. Published Title "Food Habits and Certain Cultural Patterns of Weaning Foods, Breast Feeding, Diarrhoea and Goiter".	1979 Extension	Grant *\$10,000	DAN	Published 1981
10. Comparative Evaluation of Nutrition Interventions	1979 Extension	---	---	Eliminated Imp. Letter 4 March 5, 1981
** 11. Diagnostic Study of Food and Nutrition Status of the Population of the Dept. of Pando	1979 Extension	*\$ 969.00	INAN	Published 1980
** 12. Study on Goiter, Habits of Salt Consumption and Radio listening Patterns.	1979 Extension	Financed as part of Iodized salt Exp. Project	INAN	Published 1980

* Actually disbursed

** Does not appear in 1979 project agreement, as this was a new activity incorporated under the Nutritional Status Study.

activities. USAID should support future activities in these priority areas, as well as efforts to prevent the decline of breast feeding.

D. Experimental Projects

Experimental Projects were included in the Nutrition Improvement Grant in order to test specific nutrition interventions on a limited scale prior to initiating efforts on a national basis. Of the four projects in the original Agreement, three were carried into the 1979 Extension, and one was eliminated in implementation prior to 1979. Ten additional Title III funded Experimental Projects were added in the 1979 Project Agreement, for a total of 13. Of these, five were eliminated when project expectations were deemed to be overly ambitious (e.g., limited staff for carrying out such a large number of Projects); four were continuing with GOB support at the conclusion of the Project; one was suspended; and three successfully completed by May 31, 1982. (See Chart V).

Principal inputs to the Experimental Projects and Basic Studies include (in addition to local support), long term technical assistance; training; four vehicles (delivered in April 1981 to INAN and three DDCs); and laboratory equipment for the Analysis and Experimental Treatment of Anemia Project.

CHART V

EXPERIMENTAL PROJECTS

<u>Title</u>	<u>Incorporated</u>	<u>Funding</u>	<u>Implementing Agency</u>	<u>Final Status</u>
1. Use of Mass Media in Nutrition Education Published as "Good Mother: Mass Media Nutrition Education"	Original agreement	Grant *\$40,037	DAN	Published May, 1982
2. Level of Iodine required in Salt for Human Consumption - Changed to "Promotion and Marketing of Iodized Salt" in 1979 extension and to "Promotion of Iodized Salt" in Impl. Letter N°4 of March 5, 1981.	Original agreement	Grant *\$36,140	INAN	Synthesis presented at Nat. Seminar in May, 1982
3. Height and Weight Surveys of Children 14 and under in rural and urban areas.	Original agreement	_____	_____	Eliminated during Impl. process (by 1979)
4. Prevalence of Nutritional Anemias in Pregnant Women changed to "Analysis and Experimental Treatment of Anemias" in Impl. Letter N°4 of March, 1981.	Original agreement	Grant *\$82,340	San Simon University	ongoing
5. Incorporating Nutrition activities in Rural Health Service	1979 Extension	_____	_____	Eliminated in Impl. Letter # 8 Dec. 15, 1981
6. Nutrition Recuperation	1979 Extension	_____	_____	Eliminated in Impl. Letter # 8 Dec. 15, 1981
7. Integration of Nutritional activities and Criteria into Integrated Rural Development Program.	1979 Extension	_____	_____	Eliminated in Impl. Letter # 8 Dec. 15, 1981
8. Incorporation of Nutrition Education into Primary and Secondary School Curricula.	1979 Extension	Grant *\$4,853 Title III \$15,334.00	INAN/MEC	Published 1981

Title	Incorporated	Funding	Implementing Agency	Final Status
9. Exper. Center for the Industrial Processing and commercialization of Quinoa	1979 Extension	_____	_____	Eliminated in Impl.Letter # 8, Dec. 15, 1981
10. Promotion of the Production and Consumption of Tarhui in the Altiplano and Valley areas	1979 Extension	Title III *\$28,775	INAN/ CORDECO	Ongoing
11. Nutrition Improvement through Appropriate Technology: small fisheries	1979 Extension	Title III *\$8,638	INAN/ CORDEBENI	Suspended Nov. 1981
12. Analysis of Nutrition Content of Bolivian Foods	1979 Extension	_____	_____	Eliminated in Impl.Letter # 8 Dec. 15, 1981
13. Rabbit Husbandry	1979 Extension	Title III *\$22,760	INAN/ CORDECO	Ongoing
14. Guinea Pig Husbandry	1979 Extension	Title III *\$21,625	INAN/ CORDECO	Ongoing

* Actually disbursed

Of the Experimental Projects implemented under the Nutrition Improvement Grant, the Mass Media, Promotion of Iodized Salt, Nutrition Education in School Curriculum and Tarhui Projects can be considered as the most successful.

These projects successfully tested specific nutrition interventions and provided a basis for expansion of nutrition interventions at the national level. (See Annexes 8-15 for Project descriptions):

E. Technical Assistance

Technical Assistance played a major role in the Nutrition Improvement Grant, and the \$504,268 actually spent on technical assistance represents 54% of the 1979 \$940,000 Project Extension.

1. Long Term Technical Assistance

The Project Agreement states that technical assistance will focus on the organizational development of INAN, the TGFN (now DAN), sector working groups and DDCs. In actuality, due to the July 1980 Coup, and subsequent reduction in Project activities, long term technical assistance (LT/TA) from August, 1980 through May 31, 1982 concentrated on the completion of Project-funded Basic Studies and Experimental Projects, and discontinued LT/TA to DAN and the NFNS for organizational development, policy design and operational plans.

Since INAN was responsible for implementing 12 (80%) of the Basic Studies and Experimental Projects, this institution benefited most from LT/TA.

The reduction in LT/TA for organizational development was felt most by DAN, and impacted negatively on project implementation as a whole.

The Project Agreement calls for 54 person/months of LT/TA by September 30, 1980, and despite the removal of one long-term advisor (the Project Agreement called for two) following the 1980 Coup, 53 person/months (98%) were provided through May 31, 1982 (which includes the eight month extension).

Future USAID nutrition activities in Bolivia, and specifically LT/TA, should concentrate on policy development as a natural follow-up to the activities carried out in the Nutrition Improvement Project.

2. Short Term Technical Assistance

Short Term technical assistance (ST/TA) was provided for carrying out the design, implementation and evaluation of Studies and Experimental Projects and for the formulation, implementation and evaluation of training courses. As with LT/TA, the July, 1980 Coup reduced planned activities, and

ST/TA was not provided for policy definition, and organizational development and planning, as foreseen in the Project Agreement, and was actually cancelled for seven months between August, 1980 and February, 1981.

Of the 16 person/months planned in the Project Agreement, 10 (63%) were completed.

A total of 15 short-term consultants (some Centrally funded), made a valuable contribution to Project achievements. While the proportion of Project funds devoted to technical assistance does appear extremely high, there is little doubt that the expertise was necessary and that the majority of assistance provided was of high caliber.

F. Recommendations on Formulation of Nutrition Policies

The Project Agreement anticipated Project Outputs as:

1. **Organizational Development:** The development of a structure at the national and departmental levels designed to foster intersectoral coordination; the establishment of a standardizing system, a methodology for program presentation, review and decision making for nutrition-related services and infrastructure and a standardization of budgetary programming for nutrition purposes.

2. **Baseline Studies:** The collection and analysis of data to design and strengthen an information subsystem.
3. **Training:** The establishment of an action plan at the national and departmental levels to develop the human resource base for carrying out nutrition activities.
4. **Policy Development:** The preparation of policies and action plans at the national and departmental levels based on the results and experiences of 1, 2 and 3 above.

At the Project's Completion, "a methodology for program presentation, review and decision making for nutrition-related services and infrastructure and a standardization of budgetary programming for nutrition purposes" had not been achieved.

Both DAN and INAN have developed annual operational plans and budgets for the past three years, but the fact that both agencies independently and simultaneously submitted proposals to USAID for funding of iodized salt projects in 1982 clearly demonstrates the lack of a coordinated mechanism for presenting nutrition projects for fund seeking.

The "preparation of policies and action plans at the national and departmental levels based on the results of the above", was not

realized during the life of the Project. However, it is important to mention that while policies have not been formulated, the Experimental Projects have resulted in concrete actions to combat Goiter (through a national committee which oversees regional committees in all nine departments; to institutionalize nutrition education in school curriculum (coordinated by a national committee): to expand activities of the Mass Media Nutrition Education Project; and to expand the production and processing of Tarhui for human consumption.

The National Nutrition Seminar of May, 1982 supported and expanded Study and Experimental Project recommendations, all of which provide a basis for policy formulation and the development of action plans.

It is now imperative that DAN fulfill its mandate within the NFNS, build on the momentum generated by the National Seminar, and dedicate itself to the development and actualization of policies resulting from the Studies and Experimental Projects. In order to do so, DAN must align itself with the political process, as well as generate general public awareness of priority nutrition problems.

It is important that DAN select and formulate policies for a realistic number of prioritized activities and interventions and that they show short-term results. DAN's coordination of nutrition activities with line ministries, DDCs and other entities interested

in nutrition problems is essential, if they are to have a voice in proposed nutrition research and activities, thus assuring responsiveness to the country's needs.

IV. RECOMMENDATIONS: FUTURE INTERVENTIONS

With the conclusion of the Basic Studies and Experimental Projects financed under the Nutrition Improvement Project, extensive recommendations now exist on possible nutrition interventions. Given the economic situation of the Country, it is crucial, now that data exist on Bolivia's nutrition problems, that immediate interventions address priority nutrition problems in the most economical way possible.

Studies and experimental Projects conducted under the Project identify priority nutrition problems as endemic Goiter, infant malnutrition, and the need to initiate activities to prevent the decline of breast feeding.

The National Nutrition Seminar of May, 1982 supported and expanded the recommendations of the Basic Studies and Experimental Projects, which address these priority areas.

Future nutrition interventions should include support of the Basic Studies and Experimental Project recommendations (see Annexes 1-7), and specifically, interventions which:

- A. Create a national awareness of the problem of endemic Goiter and the need to consume iodized salt;

- B. Support activities of the National Committee to Combat Goiter and the nine Departmental sub-committees;
- C. Expand production of materials developed under the Mass Media Nutrition Education Project, and their utilization in health and nutrition auxiliary training programs;
- D. Support activities directed at integrating nutrition education in the school curriculum; efforts to expand the program to the Secondary and Normal school levels; and the publication and dissemination of sufficient materials for all levels;
- E. Expand the Tarnui Project to other suitable areas; and
- F. Promote the establishment of a national committee in support of breast feeding, and the design of policies and formal and non-formal education programs which support breast feeding.

In addition to specific interventions which support the recommendations of the Basic Studies and Experimental Projects, if the framework and institutional achievements accomplished under the Nutrition Improvement Project are to survive, interventions must be undertaken to:

- A. Establish a mechanism within the NFHS, and specifically within DAN, for coordinating nutrition interventions at the national and departmental levels and for establishing nutrition policies; and

- B. Develop an elemental, low cost nutrition surveillance system, under the direction of INAN, with collaboration of all entities of the NFNS, in order to maintain up-to-date information on the nutritional status of Bolivia's infant population.

V. SUGGESTED IMPROVEMENTS ON MANAGEMENT OF NATIONAL FOOD AND NUTRITION SYSTEM

The following recommendations are made for improved management of the NFNS:

1. The establishment of a mechanism by DAN for coordinating ongoing and proposed nutrition activities of INAN, line ministries, DDCs and all other entities involved in nutrition programs and interventions;
2. The utilization by DAN of data and recommendations obtained from the Basic Studies and Experimental Projects in the development of policies of selected, prioritized nutrition problems;
3. A publicity campaign by DAN to generate awareness of priority nutrition problems and obtain public support for their solution;
4. An intensive campaign by DAN to align itself with political processes and powers, so that it can opportunely promote its policy recommendations and enhance its financial situation;
5. The establishment of a functionable alternative to COMEPLAN, such as a National Nutrition Council, with representative membership of the

MPC, MPS/SP, MEC, MACA, MIN/FIN, as the maximum decision-making level of the NFNS;

6. The strengthening of DAN within the MPC so that it can realistically fulfill the leadership role assigned to it in the NFNS;
7. A firm stand by the MPC on the location of INAN, supporting its status as a semi-autonomous institution within the MPC;
8. The removal of the DSF from INAN and its relocation to another entity better suited to its purpose;
9. A clearer delineation of responsibilities of both DAN and INAN, as DAN should now fully assume a coordinating role, responsible for policy formulation, planning, fund raising and obtaining the necessary political support for seeing programs and policies through completion; and INAN should dedicate itself to research, while the line ministries and DDCs assume implementation responsibilities;
10. INAN should carefully analyze its relationship with other ministries and enhance it by involving the ministries and other entities involved in project or study implementation in the major decisions relating to same;
11. INAN should assure the recognition of participating ministries and entities in all publicity related to accomplishments;

12. INAN should maintain closer contact with DDCs involved in implementing Experimental Projects, provide administrative training and follow up on voucher and reporting requirements, and evaluate all initiated Projects within a reasonable period of time.

VI. RECOMMENDATION REGARDING LOCATION OF THE NATIONAL FOOD AND NUTRITION SYSTEM

INAN was established by Supreme Decree No. 15996 on June 27, 1978 as a decentralized, semi-autonomous Institute of the MPC. The Institute was created to determine the magnitude, causes and consequences of Bolivia's food and nutrition problems, as the existing information vacuum resulted in the impossibility of planning or developing policies to address these problems.

In its brief existence (INAN began to function with Title III funds in July, 1979), the Institute has shown great potential, notably for its contribution to the completion of a series of Basic Studies and Experimental Pilot Projects implemented under the Nutrition Improvement Project.

While INAN was established as a semi-autonomous institute of the MPC, reoccurring efforts have been initiated to transfer it to a line ministry, and specifically, as a dependency of the MPS/SP.

Given the fact that INAN was created following an extensive evaluative process which determined the need for such a research entity; that principal authorities of the MPC, MICT, MPS/SP, MACA and MTDL, made the

determination which resulted in the decree establishing INAN, and that a March, 1981 evaluation by the MPC reviewed and reaffirmed the necessity of the semi-autonomous status of INAN within the MPC; it would be beneficial to the overall operation of the NFNS to resolve this issue once and for all, by reaffirming the permanent status of INAN as a decentralized, semi-autonomous institute within the MPC.

The following reasons support this recommendation:

- 1) INAN consists of a multi-disciplinary team of proven experience, which fills a previously existing vacuum and is capable of providing scientific orientation and technical assistance to different sectors and national programs. This is more easily accomplished as a semi-autonomous institute;
- 2) The effectiveness of INAN's actions and accomplishments to date are due in part to administrative and budgetary flexibility, (e.g., the administrative freedom to make implementation decisions, reassign personnel when needed, etc.);
- 3) Without a separate budget, INAN might be restricted more to pure research, whereas its activities presently encompass data collection, field experimentation, data processing, evaluations and publications, etc., and

- 4) The final purpose of the research conducted by INAN is to orient policies which lead to the development of multi-sectoral programs which address Bolivia's nutrition problems. As such, the location of INAN within the MEC lends itself to a closer alignment with DAN, also of the MEC, which is responsible for utilizing the information and recommendations of INAN in formulating nutrition policies and coordinating programs at the national and departmental levels.

Annexes

The following annexes, prepared by the author, contain summaries of the Basic Studies and Experimental Projects initiated under National Nutrition Improvement Project 511-0468. The Conclusions were summarized from original Studies and Project documents and are not repeated in their entirety. The Recommendations are translations (not prepared by the author) from original Study, Project and National Seminar (May, 1982) documents.

Annex 1

Nutrition Status of the Bolivian Population Study

Purpose: 1) Provide baseline data on the prevalence of protein/energy malnutrition and Vitamin A deficiency in Bolivian children; 2) provide information which will be useful in determining national and regional food and nutrition policies and programs; and 3) identify priority areas for future food and nutrition research.

The Study, published in 1981, was conducted by INAN with the collaboration of DAN, CNSS, MACA, MPS/SP, INE, San Simon University, DDCs, CENACO, Caritas, and CDC, and encompasses the three ecological areas of Bolivia: Altiplano, Llanos, and Valle.

Summarized conclusions showed:

- 1) The Prevalence of low growth rates in children was highest (23-57%) in children 12-23 months of age,
- 2) major prevalence of chronic malnutrition in children 12-23 months of age (the weaning period),
- 3) the prevalence of chronic malnutrition was found to be between 27.1% - 45.8% in urban areas and 35.1% - 56.3% in rural areas,
- 4) very low acute malnutrition in the areas studied, 0.0% - 1.2%;
- 5) nearly 50% of children under five in rural areas suffer from chronic malnutrition and the majority of these never obtain normal height;
- 6) approximately 2/8,000 rural children under five suffer from chronic malnutrition;

- 7) chronic malnutrition of children 6-11 months of age was found to be 10 - 23% in the six areas studied; and
- 8) the prevalence of chronic malnutrition in children 48 - 59 months of age is 40 - 50%

The results of the Nutrition Status Study have proven to be valuable as they provide planners and decision makers with previously unavailable information at the national level necessary for developing and executing policies and programs directed toward Bolivia's infant population, the most vulnerable to malnutrition; as well as providing baseline data which can be used to measure advances achieved through future nutrition policies and interventions. This Study, of which 800 copies have been published and distributed, can be considered one of INAN's most valuable contributions, both to Bolivia and to the NENS, and is acclaimed by Nutritionists assigned to MPS/SP Health Units as their most valuable weapon in knowing where to attack chronic malnutrition. The Study was presented and discussed at the May, 1982 National Seminar.

Translation of Study Recommendations:

1. Chronic Malnutrition

Considering the magnitude of the chronic malnutrition problem in Bolivia, the programs oriented towards its solution should have priority within the developmental policies of the country.

A. Agricultural Sector

Two key approaches are recommended for the formulation of an agricultural policy oriented to the solution of the chronic malnutrition problem. First, the possibility of developing a program whose principal objective would consist of the production of a group of basic foods for national consumption should be considered. Second, a program oriented to stimulating the production of "commercialized agriculture" should be developed.

The first approach would consist of the development of a policy stimulating the production of a few basic foods, selected on the basis of major national consumption, production costs, final cost to the consumer and nutritional value in the family diet. The key to this policy is to concentrate major governmental efforts of the agricultural sector on the production of these foods (between 6 and 8), so that the majority of the population, especially the low income, could have access to at least these basic foods. Therefore, it is proposed that emphasis be given to the credit and technological resource of a basic infrastructure necessary for the commercialization and production of these selected foods.

The farmer's accessibility to these resources would be promoted either through a cooperative system or by simplifying the procedures and conditions required for participation of the medium and small farmer.

The second approach would consist of the selection and promotion of crops and other agricultural products which offer favorable perspectives for high

productivity and competitive prices for the national producer in international markets. The increase in the farmer's income would allow him the alternative of obtaining a basic diet and improving his nutritional status. These alternatives are not necessarily exclusive, since they could be applied in different ways and in different regions of the country. However, to reach a final decision, it would be beneficial to conduct a multiple analysis taking into account economic, agricultural and nutritional criteria.

B. Industrial - Nutrition Sector

It is recommended to support the effective implementation of the "Substitution and Wheat Fortification Composite Flours" Project as an important strategy to reduce the prevalence of chronic malnutrition in the country for the following reasons: a) the proposed composite flours will improve the nutritional qualities of those flours utilized in the manufacture of bread and pastas, which are in great demand with low income urban populations, b) the partial substitution of wheat flour with other flours (rice, corn and soya) will help the country reduce wheat importation, which Bolivia will have difficulty procuring in favorable economic terms; c) the greater demand for national products this project would generate would represent increases in income and better nutrition for the farmers.

C. Educational Sector

The formal education programs of the Ministry of Education, as well as other non-formal education programs which are carried out by different sectors (agriculture, health and industry), should promote major consumption and utilization of the mentioned basic agricultural products which will be

accessible to the population.

Assuming that the chronic malnutrition problems detected in Bolivian children between 6 and 59 months of age reflect inadequate patterns of weaning habits and nutrition after weaning, some basic diets for children should be designed and disseminated. These diets could use the selected foods of the agriculture policy as a basis, but also include other native or regional low cost foods of high nutritional value, so mothers can prepare the foods at home.

Nutrition education should be complemented with educational campaigns on breast-feeding, weaning foods, diarrhoea, goiter, rural sanitation and personal hygiene. It is important to point out the need for utilization of mass media communication, which can reach both literate and illiterate populations.

D. Health Sector

The best strategy the health sector can contribute to lessening the prevalence of chronic malnutrition and to improving the general health status in children of rural, urban and low income areas, is the adoption and implementation of a primary health care system, through which major coverage of the population at risk can be obtained. Also more preventive and curative low cost services would be obtained, which would permit wider community participation. Within this integrated plan of primary health services, it is recommended that the following basic services be included: 1) prevention and treatment of communicable diseases; 2) maternal care; 3) infant health and nutrition; and

4) rural sanitation. These services, proposed as basic ones, do not eliminate other types of health care which could be added to the health sector in accordance with national, regional and local requirements.

E. Research

The data obtained in this study lead to the conclusion that a significant biologic relation exists between chronic malnutrition and morbidity and mortality in children under 5 years of age. Because of the high prevalence of chronic malnutrition found in Bolivia, it would be convenient to explore, through a specific research study, the consequences of this type of malnutrition related to the physical and mental development of children and its impact on morbidity and mortality.

Since the major prevalence of chronic malnutrition was detected in the Altiplano region, as compared to the other two regions of the country, it is recommended that priority be given to all the previously mentioned policies and their application in this region. However, in the long run, it is recommended to study the possibility of adopting an integrated policy which would permit the relocation of the rural Altiplano population to other areas of the country which have greater potential for agricultural productivity. To this effect, and for the adoption of a definite strategy, other related factors should be considered, such as the geo-political interests of the country or those related to the interests of productivity and exploitation of other non-agricultural resources that exist in the Altiplano region.

Given the low prevalence of acute malnutrition found in the country, and the

possibility that it is only seasonal, it is recommended that a similar study be conducted during the season when fewer agricultural products are available, in the months of November and December. While it would be preferable to replicate the study nationally, it is recommended for replication in at least one of the studied regions, for example the Altiplano.

2. Breast-feeding

It is proposed that a national policy be developed and put into practice which will promote increased prevalence and duration of breast-feeding in areas where adequate levels were not found, and which will maintain the actual ones in areas where prevalence is considered acceptable.

A strategy could be oriented towards the promotion of breast-feeding in the "social groups of reference" and "prestige" for mothers coming from the various regions and ethnic groups of the country. For example: mothers coming from a high class level and who live in urban areas or mothers of prestige living within the different national ethnic groups.

The promotion of breast-feeding programs should be addressed to groups of young mothers and those living in the Llanos Region, where relative low breast feeding prevalence was found.

Considering the critical importance of adequate weaning practices for maintaining good health status of the child, a sub-program divided in two stages is recommended: a) the development of a research study which will identify and elaborate patterns and regional economic diets of

weaning foods for pre-school children; and b) using these basic patterns, education campaigns should be promoted in favor of a better nutrition component.

3. Morbidity and Mortality

Due to the detected high prevalence of morbidity and mortality, it is recommended that priority attention be given to preventive programs and to health promotion for children. Again, a primary health care system should be considered as the most effective strategy for obtaining this purpose.

While the overall program of primary health care is being carried out, the numerous organized groups in the different sectors can be utilized to promote preventive activities through health campaigns, rural sanitation and nutrition. For example: mother's clubs, parent's associations, cooperatives, etc.

The health sector should give major priority to public health, especially as it relates to the formation of human resources at all levels; beginning with public health specialists, auxiliaries, health promoters and other paramedical personnel.

Since diarrhoea and its consequences are the major causes of morbidity and mortality of young children, the implementation of a preventive program with national coverage is recommended. This preventive program will consist of the utilization of "Suero Casero" for treatment of the

Oral Rehydration Solution (ORS) of the OMS/UNICEF. Diarrhoea is not the cause of morbidity and mortality per se, rather the consequence of dehydration; thus the oral rehydration solution is the best preventive measure for diarrhoeal problems.

Translation of National Seminar Recommendations:

1. Considering the magnitude of the food and nutrition problems in the country, evidenced through different research works submitted in the Seminar, the Government should grant priority to National food and nutrition policies of the National Food and Nutrition System, the entity responsible for their effective coordination.
2. It is necessary to establish multisectorial Regional Committees responsible for:
 - a) Coordination with the National Food and Nutrition System.
 - b) The detection of regional problems.
 - c) The implementation of departmental programs and projects.
3. All food and nutrition research should respond to the information requirements of the country, in order to serve as a basis for the definition of programs and projects feasible for implementation.
4. A multisectorial surveillance system should be created using resources available in the various sectors, strengthening them and making them adequate to the social and economic realities of the country.
5. The Ministry of Agriculture and Rural Affairs (MACA) should define its food production policy, selecting 5 or 6 nationally consumed basic foods, bearing in mind their nutritional value, consumption habits and low cost.

6. Among the recommendations which should be raised at the Government level, we have the following:

- a) To improve the existing system of land tenancy in coordination with MACA.
- b) Coordination of Food and Nutrition Programs and the National Integrated Rural Development Program.
- c) To establish actions with sectors involved in environmental pollution problems to prevent health related problems.
- d) A larger participation of Universities in food and nutrition programs and projects being developed by the various sectors.
- e) To improve the nutritional status of the school population, school breakfast and/or lunch programs should be strengthened, both in urban and rural areas.
- f) The various sectors developing programs related to food and nutrition should use a community participation methodology.

Annex 2

Prevalence of Goiter in School Populations Study

Purpose: 1) Determine the prevalence of Goiter in the school population of Bolivia; 2) provide valid statistical data on grade and type of Goiter by sex, age, department and geographic area; 3) identify the zones of major Goiter endemia for adopting immediate programs and interventions for its reduction; and 4) provide a research base for facilitating the establishment of policies and activities of, and establish a surveillance and evaluation system for, the National Committee for Combating Goiter. The Study, originally planned as part of the Nutrition Status Survey, was financed with funds from the same and conducted by INAN, with assistance from Dr. Antonio Pardo Subieta and the Research Department of the Universidad Mayor de San Francisco Xavier of Chuquisaca, and personnel from INE, CCSS, MACA, DAN and the MPS/SP, and included representative school populations in both urban and rural zones of all nine departments.

Summarized conclusions indicated that Goiter:

- 1) Exists in all nine departments;
- 2) almost always appears in zones where water, land and food are low in iodine content;
- 3) prevalence in the school population is 60.8%, making Bolivia one of the countries in South America of highest Goiter endemia;
- 4) is found more in females over 12 (65.8%) than in males of the same age, and that females show more advanced stages of the disease;

- 5) is found to be more prevalent in the Department of Chuquisaca (74.7%);
and
6) is most prevalent in rural areas with populations of less than 2,000
(65.5%).

The Goiter Prevalence Study is important as the first national research conducted on Goiter, one of the major nutrition and health problems affecting urban and rural populations of all socio-economic levels of Bolivia. Knowledge on the magnitude and dimensions of the problem did not previously exist and the study makes a definite contribution by providing an information base from which programs and interventions can and are being implemented for its eradication. The Study was presented and discussed at the May 1982 National Seminar.

Translation of Study Recommendations:

The seriousness and consequences of the high prevalence of endemic goiter detected through this study, make it imperative that the country be fully aware of the problem and decide to attack it in depth, through an integral strategy involving a large portion of the public sector and some private agencies capable of contributing in a significant manner to a final eradication of this disease.

Due to the heterogeneous, ethnologic, ecologic and socio-economic characteristics of the different groups affected by endemic goiter in the country, it is necessary to adopt different supplementary solution mechanisms

adequated to the needs and possibilities of each group. Therefore, it is recommended that the following policies and interventions be adopted:

1. At the educational level

To start a permanent interpersonal and mass educational campaign which will allow the entire population to perceive the magnitude, causes and consequences of goiter and the means presently existing within the reach of the people for its prevention and treatment. This campaign should make broad use of educational materials already designed and tested in the country by the mass media Nutrition Education Experimental Program (MPC), and by IRAN. For free broadcasting of these materials, the Government can make use of Supreme Decree N°09740 (Art. 67, paragraph C) of June 2, 1971, as a legal instrument in favor of educational programs for the common welfare. The use of graphic materials for interpersonal education implies the motivation, commitment and decision of the health sector and all those ministries and national and regional entities which, in one way or another, are in touch with the community and implement educational activities (medical and paramedic personnel, extensionists, promoters, social workers, teachers, presidents of Mothers' Clubs, and Private Voluntary Organizations personnel).

The educational campaign should demand from all iodized salt producers in the country a permanent share of their net profits, to be assigned within their own activities to activities regarding education, promotion, and market expansion.

2. Different strategies and coverage for specific population sectors

- Considering that iodized salt represents one of the most effective and least expensive solutions tested all over the world in the struggle against endemic goiter, and the broad present availability of this product at the national level, it is proposed that the Government expedite its expanded production and marketing, encouraging competition among the producers in order to accomplish good productivity and low costs for the final consumer. This strategy should be simultaneously orientated to the principal cities and urban centers of the country, and in rural areas, to those areas showing larger endemicity.

3. At the legal level

A progressive emphasis should be given to the implementation of legislation in effect establishing the prohibition of the marketing of common salt (excluding industrial non-feeding uses) in the entire country (Decree Law 08338 of April 17, 1968; Departmental and Municipal Resolutions of 1980 and 1981). However, this implementation should be carried out in a controlled way, taking into consideration the existing situation of the various campesino sectors producing common salt, and promoting their incursion and competition in the iodized salt market through associated cooperatives which would facilitate the use of appropriate technology for the iodizations of the product.

4. At financial level

- The problem of goiter deserves priority allocation of resources existing in the public health sector and other social programs. A certain portion of the resources previously allocated to the health sector under the PL 480-Title III Program should be reallocated in

support of goiter eradication programs.

- The Nation should request financial support from international agencies, requesting a joint effort.

5. At the institutional level

- The National Program to combat Goiter promoted by the Food and Nutrition Department (MPC) early in 1980 should be granted larger political, technical and financial support regarding the support which has been granted so far at the national level.

- The recently created Departmental Committees to combat Goiter should generate inter- and regional dynamics and supplement those initiatives and local resources with efforts implemented at the national level.

- Regional medical schools, and other entities training human resources for the health sector, should provide more training on the physiopathology of goiter and its treatment and prophylaxis.

6. At the research level

- A goiter control and surveillance system should be established, including paramedic personnel and the community in order to inform and motivate the people to take initiatives and decisions for the eradication of goiter.

- As there are now several salts branded as "iodized", it is necessary that INIASA start a periodic system of sampling and quality control at the consumer level, using standards proposed by the office of norms and technology under the MITC.

- The above strategy may represent, in the short and long run, the main point for the protection of a large segment of the population.

However, there are two large social groups which will have to be reached through immediate actions of a different nature:

(1) those population centers settled around salt deposits consuming their own production at the family level, and (2) populations settled in proven high endemicity areas. Both groups will require immediate specific interventions to prevent physical deterioration caused by goiter. For them, the design of a biannual distribution program is proposed for the provision of oral iodized oil (pills), seeking financial resources from international agencies cooperating in these areas. In the meantime, permanent campaigns could be promoted, funded by the Government, for the distribution of iodine solutions, to be diluted in water, through schools for the school population and through health centers to pregnant women, as both groups are the most vulnerable to goiter.

- On the other hand, the compulsory addition of iodized salt should be propitiated for food assistance programs, state and private general stores, and consumption cooperatives.

Translation of National Seminar Recommendations and Conclusions:

1. The study on "Prevalence of Goiter in School Populations", submitted by INAN, has clearly shown that this disease is one of the most endemic problems suffered by our population.
2. Within national food and nutrition policies dealing with deficiency diseases, the struggle against endemic goiter should receive first priority because of the following reasons: a) magnitude of the problem;

b) biologic, economic and social consequences on the entire population;
and c) relative feasibility of solution,

Additionally, each department should establish its own regional priorities for the progress of programs according to the areas showing higher prevalence.

3. The responsibility for the promotion and coordination of actions which make effective such priorities should fall at the central level in the National Committee to Combat Goiter and at the regional level in The Departmental Committees. These organizations should be, in turn, within the National Food and Nutrition System.

The National Committee to Combat Goiter should perform, among others, the following immediate activities:

- Preparation of a frame of reference for the functioning of Departmental Committees;
- Design of a short and mid-term operative program and search of national and international financing for its implementation;
- Orientation of a broad national information and awareness campaign at all political and technical levels in the country regarding goiter and the need to look for its eradication.
- Maintenance of permanent contact with Departmental Committees and the provision of information and technical assistance to them as much as possible. A bimonthly letter should be produced and distributed to up-date information for regional levels regarding progress of all activities.

In turn, the Departmental Committees should establish Technical Commissions with specific functions clearly defined and coordinated among themselves. For instance, an Epidemiologic Commission in charge of selecting priority work areas, training on palpation and diagnosis of goiter, and evaluation of impact; a Legal Commission for the effective enactment of legal dispositions on commercialization of iodine salt; an Education Commission for the promotion of campaigns, and a Financing Commission for obtaining local funds for the agreed upon interventions.

In addition they should promote the establishment of Voluntary Committees for the struggle against goiter at the provincial and community levels, looking for maximum use of organized groups and natural leaders.

4. The entire country must be made aware of the problem of goiter and the need for its prevention through the consumption of iodized salt. This campaign should be promoted through the formal education system and through informal education mechanisms.

Social communication includes radio, press, television. The individuals in charge of these could be motivated through an invitation to participate in Departmental Committees. Supreme Decree No.09740 (art. 67, paragraph C) of June 2, 1971, could be used demanding the free broadcasting of 90 second educational messages for the common welfare.

The cooperation of religious, civic, scientific, union and cultural

Institutions should be sought in this national effort.

5. Several measures should be taken to expand the availability and consumption of iodized salt, which represents one of the most effective and economic vehicles for the reduction of goiter.

5.1. Legal

- Promotion of an effective application of Law Decree 08338, of April 22, 1968, prohibiting the commercialization of common salt for human consumption and of Departmental and Municipal resolutions enacted at the departmental level in 1980 and 1981.

The application of the Decree must be supplemented with other financing, technological and technical assistance dispositions which allow the producers of common salt to compete in the iodized salt market.

5.2. Financial

- An administrative mechanism should be established permitting the collection of the 1.5% royalty on the production of salt in the country for interventions oriented to the reduction of goiter, in accordance with the previously mentioned Decree.

- The Development Corporations should make a basic financial contribution for departmental activities in the campaign against goiter.

- Cooperation of, and donations from, international institutions sponsoring health and child protection programs, such as UNICEF, U.N. World Food Council, etc., should be requested.

5.3. Technology

Provision of information and technical assistance to small producers for the use of appropriate low cost technologies for the iodization

of salt, for instance, through cooperative production organizations. This requires feasibility studies which could be funded by INALPRE.

6. The present cost of iodized salt is a limiting factor for its mass consumption by low income groups. Adequate mechanisms should be explored to place such cost slightly above the cost of common salt.
7. The so called "direct interventions" should be applied as priorities in the following areas:
 - (a) Areas of higher endemicity in each department, (b) areas where, for various reasons, the practice of iodized salt consumption is not applicable; and towards those groups most vulnerable to goiter:
 - (1) pregnant and lactating women as a direct measure for prevention of goiter and cretinism, (2) school populations in general and particularly those children above 12 years of age of both sexes.

In general, the selection of one or another direct intervention strategy should be made considering regional and local characteristics and needs, in accordance with customs and cultural patterns, as well as with the means and available resources for each case. Regarding each proposed intervention the following is suggested:

- a) Injectable iodized oil: Notwithstanding the preventive advantages of this product, it is possible that it will find resistance because of its application method and high cost.
- b) Oral iodized oil: With similar advantages, it would not face resistance, but it also has a high cost. The feasibility of its

local production could be explored for its free distribution, seeking financial support from donating international entities.

c) Potassium iodide solution: It is one of the most advantageous and convenient, due to its availability, even in rural areas, and low cost. This intervention is more feasible for application at the school level.

d) Lugol: The Ministry of Public Health will introduce this product as a means of preventing goiter and cretinism in endemic areas. An evaluation of its acceptance and results should be made.

The experimental intervention carried out in Pando could be applicable in those Departments and zones not producing salt, particularly in Beni and Santa Cruz, providing that access for introducing the product to the market can be controlled. This recommendation is also applicable to private and state institutions with shops, grocery stores and consumption cooperatives including food factories.

The experience carried out in Chuquisaca with the application of potassium iodide solution at the school level can be applied at the national level, after training teachers and health promoters.

8. To achieve larger community participation in the campaign against goiter, an active participative educational methodology is recommended. Teachers, the Church, health personnel and other social promotion institutions working in marginal urban and rural areas

should participate in this effort to generate awareness of the problem at the community level and to stimulate effective and dynamic actions by the beneficiaries themselves.

9. In order to obtain a progressive integration of common salt producers into a mid and short-term strategy for the production of iodized salt and their competition within this market, it is recommended that University cooperation be stimulated through technological research and technical assistance to the producers, besides the financial and technological measures already mentioned. A council of Iodized Salt Producers could be organized in the future.
10. The following practical measures are recommended to establish a permanent Evaluation and Follow-up System on the prevalence of goiter:
 - a) Training and standardization of health, medical and paramedical personnel at the regional and goiter diagnosis level. Agricultural extension teachers, promoters, etc. should be trained on ocular diagnosis of visible degrees of goiter, without a demand for training on palpation itself.
 - b) The information gathered at the local level should be used to motivate and generate actions against goiter within the community itself. Second, this information should be centralized at the Departmental Committee level to be sent to the National Committee. The system being designed by the Nutrition Division of the Ministry of Public Health could be used for this second phase.

The use of a single clinical filing card containing information

on the individual examined should be established. The filing cards, with cumulative records for schools, should include one column for identification and diagnosis of goiter.

Annex 3

Present Status of Breast Feeding in Urban Areas of Bolivia Study

Purpose: 1) Define the actual breast feeding practices in urban areas of Bolivia; and 2) contribute to the formulation of policies and the planning of educational programs directed towards promoting breast-feeding, in all socio-economic levels of the Bolivian population.

The Study, published in 1981, was conducted by INAN in cooperation with the Maternal Infant Division of the MPS/SP, in the three urban cities of La Paz, Sucre and Trinidad. The Project Agreement specified the study areas as La Paz, Santa Cruz and Cochabamba, but was revised in PIL No.4, dated March 5, 1981, to the above.

Findings were presented at a National Breast Feeding Workshop in June, 1981 and the Study was presented and discussed at the National Seminar held in May, 1982.

Major conclusions indicate:

1. All three socio-economic levels researched show a decline in breast feeding;
2. the decline of breast feeding is most obvious in the medium-high socio-economic level of the three cities surveyed;
3. contrary to the initial hypothesis that the more developed urban area of La Paz would show less duration of breast feeding, the opposite was

- found to be the case and Trinidad, the least developed of the three cities studied, showed the shortest duration;
4. the socio-economic level of the mother is the most influential factor in determining the duration of breast feeding;
 5. the mother's level of education is important and decline in duration of nursing time has an inverse relation to the level of education;
 6. health teams appear to be contributing favorably to the promotion of longer breast feeding; and
 7. the duration of breast feeding in Bolivia is higher than that found in other countries having conducted similar studies.

Based on the premise that breast feeding is nutritionally better for infants; that it provides certain immunizations against infectious diseases; that there is less frequency of morbidity in breast fed infants, and that it involves no monetary expense to the family, the Study makes a valuable contribution by creating awareness of the importance of breast feeding and of the need to adopt concrete policies and actions to impede its decline. Four hundred copies of the Study have been published and distributed.

Translation of Study Recommendations

1. It is well recognized that adequate nutrition during infancy is essential for the growth and development of children and because of the incipient decline of breast feeding that exists in Bolivia, it is recommended that priority attention be given to the planning

and execution of legal, institutional, commercial, medical and nutritional policies in order to promote and protect the practice of breast feeding, especially in the urban areas.

2. A promotional Breast Feeding Committee should be created with participation of the following ministries: Planning and Coordination; Social Welfare and Public Health; Education and Culture; and Industry, Commerce and Tourism; in addition to other institutions and Voluntary Associations interested in the problem. This Committee will be in charge of promotion, coordination and supervision, and will evaluate programs and actions taken at national and regional levels which will be oriented, specifically, to protect the practice in those areas where the study has identified adequate levels and to promote it in areas where a declining tendency has been found.
3. Design and execute education programs oriented towards providing information on breast feeding, which will include high decision making levels of the Government, middle class, high income, health professionals (general physicians, pediatricians, obstetricians, nurses, auxiliary personnel), school teachers, parents and students in general.
4. The education of the public will be a priority responsibility of the health sector through its different services, and will offer information on: a) the advantages of breast feeding and the risk of bottle feeding; the importance of the duration of the breast feeding - at least 12 months in the urban areas and 18 months in the rural areas; c) the technical and practical aspects of breast feeding, including: anatomy, pre and post natal care; d) low cost diets for mothers; and

- e) weaning foods for children.
5. It is necessary to provide scientific information and to train health personnel in universities and training schools, as well as in workshops, on breast feeding and its importance to the child's health. Medical personnel should know with precision the specific cases where they have to prescribe substitutes for breast feeding -- when the mother is severely ill, for orphaned or abandoned children, and other special circumstances.
 6. Prohibit the use of commercial advertisements for the different types of milks or other products which pretend to be substitutes for breast feeding.
 7. Obtain the good will of the mass media communications systems, especially newspapers, in order to avoid diffusion, publication or comments which refer favorably to the utilization of lacteous products.
 8. Prohibit the introduction and promotion of artificial milks through health services, hospitals and health units, in urban and rural areas.
 9. In compliance with the law, the creation of children's nurseries should be promoted for children up to one year of age, in factories and business, so mothers can feed their children during work-hours.
 10. A permanent campaign should be developed throughout the country on the motivation and education of breast feeding for Bolivian mothers at all levels, utilizing the mass media communication system with the support of other interpersonal educational materials already designed through the Mass Media Nutrition Education Project.
 11. The education campaigns should be utilized in a systematic way, by

established community organizations in the country such as mothers' clubs, parent's organizations, cooperatives, etc. in such a way that the educational process would obtain its own dynamism.

12. The personnel in charge of pre-natal control in hospitals, health centers, and health posts should inform and motivate women in favour of breast feeding, seeking the participation of all community women that have previously nursed their children and therefore are favorably motivated toward this practice.
13. In order to establish a mother/child contact immediately after childbirth, it is recommended that the utilization of sweet water or other milks, as substitutes for breast feeding, should be avoided in the health centers.
14. Prohibit the use of contraceptives containing estrogen during the nine months after childbirth because estrogen inhibits milk secretion.
15. Mothers should be encouraged to feed their children at least 8 times a day during the first month of life.
16. Disseminate the information obtained in the Breast Feeding Study in Bolivia through the Medical Associations of Obstetrics, Pediatrics and Public Health, Professional and other social and cultural associations with a capacity for diffusion.
17. Finally, it is recommended to request the Government of Bolivia to implement the "International Code for the Commercialization of Processed foods for Children", approved by the World Health Organization in Geneva, during Meeting No. 34, held in May, 1981, and approved by the representatives of our country.

Translation of National Seminar Recommendations:

The following are the recommendations of the various work teams, according to their priority and importance:

1. To create a multisectorial National Committee and Regional Committees for the promotion of Breast Feeding.
2. The coordination of such Committees should be governed by the National Food and Nutrition System, under the Ministry of Planning and Coordination. The Ministry of Public Health and Social Welfare (MPH/SW) will be in charge of implementation.
3. To design policies directed at the promotion of breast feeding, taking into account the recommendations of the Breast Feeding Seminar sponsored by the Ministry of Public Health and Social Welfare in 1981, with emphasis on the following topics:
 - a) Elaboration of norms for breast feeding and supplementary feeding based on national research, unifying criteria;
 - b) Repercussions of labor conditions on breast feeding mothers;
 - c) Approval of the international commercialization code on substitutes for maternal milk;
 - d) Elaboration of norms for educational programs in support of breast feeding, using:
 - the formal system (Universities, Normal Schools, and School Education)
 - An informal system (Mass Media, social groups, etc.)
4. Promotion of conferences, seminars, and discussions of the health sector for the diffusion and orientation of the advantages of breast feeding.

5. To precipitate research on factors influencing the decrease in breast feeding.

- Supplementary feeding
- Nutritional condition of the mother
- Family income
- Strategies to increase agricultural production
- Improvement of sanitation

6. To make effective mother/child rooming-in within the hospital system.

Annex 4

Minimal Cost Regional Diets Study

Purpose : Develop low cost regional diets which fulfill minimal caloric and nutrient requirements.

The Study, published in 1982, was conducted by INAN in collaboration with the Division of Nutrition and Health Units of the MPS/SP, in the cities of La Paz, Cochabamba and Santa Cruz.

Conclusions include:

- 1) the most frequently consumed foods of the Altiplano and Valies regions rarely include milk and fruits;
- 2) the Llanos region demonstrates more consumption of protein foods than the other two regions;
- 3) the typical family consists of 6 members;
- 4) typical diets of the families who participated in the study do not meet caloric and protein requirements; show high consumption of foods with high carbohydrate content; and low consumption of animal protein, due to their high cost;
- 5) the average cost of a rational diet which covers the requirements of a typical family and utilizes regional low cost high nutrient foods fluctuates around 145.75 pesos per day and 4,372 pesos per month;
- 6) the results of the study can serve as reference for the sector

responsible for salary planning.

Unfortunately, the data presented in the Study shows that the official minimum salary will not cover a family's basic nutritional requirements, even if spent in its totality on food, let alone other necessities; thus the Study is viewed as politically explosive and has not been distributed to date.

Translation of Study Recommendations:

1. Diets should be subject to periodic adjustments and react to the cyclical changes in the supply and cost of food.
2. The second phase of the project should be carried out, analyzing the supply and cost of foods of mass consumption and good nutritional value, in each selected region, during a three year period. Simultaneous with the analysis of one food product, the analysis of another which could substitute for it should be made for educational purposes.
3. INAN should implement a systematic updating of the cost of foods so that the relevant sectors can have this information in a timely manner.
4. Promotion programs for regional food products of high nutritional value should be intensified in coordination with the Development Corporations.
5. Given the heterogeneous characteristics of the departments in our country, it is recommended that the Study be expanded to the departmental level.

6. These results should be diffused by relevant organizations for nutrition education purposes, so that the target population is aware of high nutritional food products in their region, their consumption, and how to feed their families at low cost.
7. The most adequate organizations for this type of education are the Mother's Clubs, which serve as multipliers for diffusion to the community.
8. Proposals to specialized technical organizations for the implementation of studies on internal agricultural costs, particularly those showing more frequent consumption patterns, in order to determine the involvement of middlemen in the structuration of costs, submitting solutions for lowering costs at the market level.

Annex 5

Food Habits and Certain Cultural Patterns of Weaning Foods, Breast Feeding, Diarrhoea and Goiter Study

Purpose: To obtain basic information on the food habits, beliefs and taboos of the nutritionally most vulnerable groups regarding breast feeding, weaning foods, infant diarrhoea and endemic Goiter.

The research conducted by DAN in communities of the three principal geographic areas of the Country was planned as the basis for designing the educational strategy of the Mass Media Nutrition Education Project. Upon completion, it was determined that the data provided an important information base for health and nutrition personnel, and was subsequently published.

General Conclusions include:

- 1) breast feeding continues in rural areas for over one year, especially in the Altiplano and Valle areas;
- 2) weaning foods for children 6-18 months have the following characteristics:
 - a) Altiplano: Tubers and cereals, low consumption of legumes, meat, cheese, eggs, vegetables or fruits;
 - b) Valle: rice soup, pastas, tea, coffee, yuca, corn, meat, egg, and fruits;

- c) Llanos: rice soup, pastas, tea, coffee, bread, meat, egg, fruit and vegetables;
- 3) confirmation of other studies that diarrhoea is one of principal causes of infant mortality;
 - 4) confirmation of the presence of endemic Goiter and the lack of knowledge of its consequences; and
 - 5) the existance of local radio audiences and absence of a national audience.

The Study cannot be considered statistically representative of the national reality, nor of the three larger ecological regions, as the observations are only valid for the selected communities. However, it does include valuable information for those interested in food and nutrition problems and responsible for initiating educational programs to that effect. Three hundred and fifty copies of the Study have been published and distributed.

Annex 6

Diagnostic Study of Food and Nutrition Status of the Population of the
Department of Pando Study

Purpose: 1) determine food and nutrition level of the population of Pando and identify conditional factors; 2) determine the relationship between nutritional status and mental development; 3) determine the prevalence of endemic Goiter; and 4) provide necessary baseline information for developing food and nutrition policies and programs for the Department of Pando.

The Study, INAN's first publication (1980), was conducted with assistance from the Development Corporation of Pando, the Health Unit of the MPS/SP of Pando, and Project Concern.

Conclusions provide data on population; agriculture production; nutritional status; calorie and nutrient consumption; typical menus and major foods consumed; food habits; and prevalence of Goiter.

The Study, in addition to providing extensive information on the Department of Pando which will be useful in planning and program development, was valuable to INAN as it tested and refined the methodology to be applied in the National Nutrition Survey.

Translation of Study Recommendations :

This diagnosis is a baseline study of food and nutrition aspects in

the Department of Pando, to be used for providing ideas for the orientation of future activities. These activities should be planned in two ways:

- 1) Deepening of the subject by trying to improve and precisely clarify those aspects now pointed out in a general diagnosis. The absence of some important indicators, for instance, the prevalence of nutritional anemias, are the subject of other INAN projects and they are not included in this study to avoid duplication of efforts. Most of the points discussed deserve more thorough research, and, therefore, the formulation of new studies which make specific use of the outlines resulting from this project.
- 2) The statements included here should be channeled, and should result in plans and concrete policies which search and orient solutions for each problem in an integral context, as the only valid and possible outcome for the food and nutrition problem. This is where its usefulness is placed.

Under these considerations, the following **immediate recommendations** for action are proposed:

The socio-economic development of the region should be promoted in a sustained manner. The solution of food and nutrition problems should be included within the context of this development, which in its first phase should include the improvement of roads and the integration of Pando with the rest of the country. With the same objective, livestock and agricultural activities should be promoted, stimulating an intensive

and diversified cultivation of these types of products. The expansion of regional markets and their extension to national markets will be, on the other hand, the best stimulus.

The diversification of food products should be promoted as a function of the needs of the people, making them adequate to climatic and geographic possibilities. It is necessary to initiate or promote certain types of crops for improving and varying diets, while reducing costs at the same time. Fresh vegetables, garden products, some cereals and legumes should be considered within this perspective. Likewise, dairy products should be promoted. All these products are commercial and are addressed to improve the diets of the people. However, the promotion of some of them should be directed towards industrialization in order to create work opportunities and to increase regional benefits. This should include products such as chestnuts, rubber, soy, cocoa, beans, rice, yuca, corn, etc. Also livestock and poultry activities in the region should be promoted.

Formal and informal educational aspects should be given attention in order to gain a conscious participation of the population in departmental development programs, to provide elements to offset Brazilian influence, and to achieve the understanding of the people of their own family and personal problems among which food and nutrition problems are most important. Within the educational context, priority should be given to health education, and within it, nutrition education

is important. In this context, the expansion of health services dealing with primary and preventive medicine should be investigated with the nutrition problems, particularly those of higher prevalence, as one of the priorities. In the case of goiter, a general campaign is needed to promote the consumption of iodized salt, a product not existing in the region.

Relevant organizations should be in charge of the campaign against malnutrition, and this should be curative and mainly preventive. With this in mind, nutritional surveillance should be considered.

Sanitation measures are vitally important for improving the health and nutrition status of the population. Infectious diseases and malnutrition are interacting, causing a deterioration of health conditions, particularly in children, most noticeable in a tropical region such as Pando. The expansion and installation of latrines, sewer systems and potable water have direct repercussions of the nutritional status of the population.

The measures taken regarding economy, agriculture and commerce will also have repercussions on nutrition through the improvement and change of dietetic patterns. These will be strengthened through educational measures. Harmful customs and habits must be discussed and opposed. On the other hand, helpful traditional or acquired customs should be promoted and expanded throughout the rest of the country. This is the case, for instance, of the heavy consumption of beans coming from Brazil, of high nutritional value.

Annex 7

Study on Goiter, Habits of Salt Consumption and Radio Listening Patterns

Purpose: 1) Determine presence of Goiter in the northeast zone of La Paz; 2) identify purchasing and consumption habits of salt and iodized salt at the family level; 3) determine literacy level of study population; and 4) identify radio listening habits.

INAN conducted this study, with the assistance of twenty sociology students, in the barrios of Munaypata and El Tejar in the city of La Paz, as the first phase of its "Promotion of Iodized Salt" Experimental Project in 1979. The study included 400 families, or approximately 10% of 4,200 families known to inhabit the area.

Conclusions indicate that:

- 1) the percentage of Goiter found in the population of northeast La Paz is 47%;
- 2) women have higher percentages of Goiter than men and severer cases;
- 3) 38% of the school population (5 to 14 years) was found to have Goiter;
- 4) 80% of the population was unaware of the existence of iodized salt and do not consume it;
- 5) predominant salt consumption is ground salt (63%) and granulated salt (32%). Only 5% consume block salt;

- 6) 39% of mothers are illiterate;
- 7) the radio stations with largest audiences are Nueva America (30%) and Altiplano (23%); the preferred hours were: morning (31%) and mid day (30%); most popular programs were: informational (41%) and novels (21%).

The experience gained from the study was valuable to INAN, and affected future project activities by recommending that Goiter diagnostic activities be conducted by professional medical personnel, final year medical students, or personnel from the health sector.

Translation of Study Recommendations:

1. From the methodological point of view, and taking into account the implementation of possible similar surveys in other regions of the country, the following is recommended:
 - Diagnosis of goiter should be made, inasmuch as possible, by professional personnel (professionals or senior medical students) or other health sector professionals.
 - Prior to the diagnosis a standardization of the classification given to different sizes of thyroid glands should be secured by all personnel participating in the study.
 - Future research should be preferably orientated to school populations because of their high risk, feasibility of prevention, more accessibility and easier follow-up.
2. The following are recommendations derived from the analysis of the study:

- To attack endemic goiter in the region it will be necessary to initiate campaigns which simultaneously educate the population on the magnitude of the problem and promote the consumption of iodized salt as a solution.
- The educational messages could use diagnostic data collected in the area, particularly those concerning school populations. Specifically, it could be said that one out of three children in the area suffers from goiter.
- The educational program should clearly state that iodized salt prevents the appearance of goiter in children and can stop the growth process of the thyroid gland, both in children and adults already suffering from goiter, but cannot eliminate such growth once the hypertrophy has reached a certain condition.
- The educational program should be careful not to give the impression that iodized salt can be used in addition to common salt, but exclusively as a substitute for it. On the other hand, people must be warned that iodized salt should be used in exactly the same proportion as the present consumption of common salt, without increments.
- In view of the high percentage of illiteracy in the area (particularly among mothers), the education and promotion campaign should emphasize the use of non-written materials, such as radio messages or other graphic materials of easier comprehension.
- The broad radio audience existing in the country, makes advisable intensive use of this instrument. The information on larger audi-

ence schedules (morning and noontime) and best liked programs should be taken into account for the corresponding programming. On the other hand, considering that the main objective group should be the group formed of mothers, given their role in family feeding and health aspects, soap opera broadcasting schedules deserve special attention.

- The high percentage of population using ground salt in bags or at least granulated (95% in total) could help in principle the promotion of iodized salt regarding its refining, purity and quality. However, to assist its marketing, its pricing and/or quantity patterns prevalent in these markets amounting to \$b.1 or \$b. 5 could also be adopted.
- The distribution or marketing of iodized salt in the area must be oriented primarily and preferably towards the market, where 44% of the population buys their salt and, second, towards shops in the area (37% of the demand). In third place (17%) are the "mobile posts". It could be recommended, however, to combine the location of "mobile posts" in the market for exclusive sale of iodized salt with special promotion of the product and advertising notices.

Annex 8

Good Mother: Mass Media Nutrition Education Project

Purpose: 1) Demonstrate the effectiveness of mass media communication in changing food and nutrition habits by going from the knowledge acquisition phase to one of changing attitudes in food and nutrition habits in rural populations; 2) design, produce, experiment, and adapt educational materials in a non-formal education methodology in order to propose a model for food and nutrition education in the country; 3) design and propose a scheme for the institutionalization of a mass media food and nutrition program at the national level with active and permanent participation of diverse national sectors or the government and other private and voluntary entities of health, agriculture, education and community development which deal with the problem.

The Mass Media Nutrition Education Experimental Project was implemented by DAN, with cooperation from the Maternal-Infant and Nutrition Divisions and Health Units of the MPS/SP; Caritas; and the Bolivia/Britannica Project in Aymara, Quechua and Spanish speaking rural communities of the three ecological regions. The Project Agreement included La Paz and Oruro as the pilot project areas, but was revised to include Chuquisaca, Tarija, Beni and Pando in PH No. 4, dated March 5, 1981.

Summarized conclusions indicate that the project:

1. Demonstrated the effectiveness of using mass media communication

- in food and nutrition education;
2. Designed, produced and tested educational materials as well as an original methodology;
 3. serves as a model for non-formal and nutrition education;
 4. offers a proposal for its institutionalization; and
 5. obtained best results, both at operational level and in impact of educational campaigns, in the Valle region and the Department of Cochabamba.

The project, based on the findings of the Food Habits Study, developed materials in goiter, diarrhoea, nursing and the weaning period, and found interpersonal education to be the most effective of the strategies utilized. One important accomplishment of the Project was proving the feasibility of utilizing the existing legal provision that obligates radio stations to donate ninety seconds of each broadcast hour to educational announcements, as it is estimated that 85% of the population have access to radios. Project materials (i.e. posters and hand outs) are unique in that they utilize dress and environmental traits of each of the three ecological areas.

Training played an important role in the Mass Media Project (see Training, # 7), and the methodology is being replicated throughout Bolivia in Mothers' Clubs, nurse auxiliary training programs, and the Bolivia/Britanica auxiliary training program in Chuquisaca.

Project accomplishments are many, notably research, training, quality of educational materials, inter-sectoral coordination and dissemination of materials.

The Mass Media Nutritional Education Project can and should serve as a model for non-formal education projects in other sectors, as the methodology is flexible and can be adjusted to the individual needs of each institution.

The Project was presented and discussed at the May, 1982 National Seminar.

Translation of Project Recommendations:

1. Food and Nutrition Education should be a basic element in any multi-sectorial policy for the solution of food and nutrition problems.
2. The methodology adopted to put in practice a nutrition education program in any of the concerned sectors should start with social communication principles and education sciences, responding to the demands and contributions of other sciences and disciplines which may participate in the formulation of educational content (health, social and agricultural sciences).
3. To start an Informal Nutrition Education Program at the national level use should be made of the experiences and contributions of the "Good Mother" Experimental Project on Nutrition Education

through mass media Communication means regarding the conceptual approach methodology, educational materials, training system, follow-up, control and systematic evaluation, as well as institutional and human resources acquired through its application.

4. A systematic and permanent effort is required in order to achieve a successful program of significant impact. Therefore, it is recommended that this project become an institutionalized system including coordinated participation of all sectors and entities which in one way or another are in contact with the community and can implement educational activities in supplementary areas (health sector, agricultural sector, community development, educational sector, other private or voluntary agencies).
5. This national scheme should be decentralized in order to give it a broader administrative, methodological and operational function, assigning responsibilities for its operation at the departmental levels, with central level assistance and coordination.
6. For the implementation of interpersonal education activities it is not necessarily required to have personnel exclusively devoted to this task. It is rather recommended to use personnel who can integrate this type of education within their regular activities. Emphasis should be placed, however, on the use of "semiprofessional" personnel or promoters integrated into their work communities.

Translation of National Seminar Recommendations:

1. National education should be considered as a permanent process in the formation of Human Resources, considering it a responsibility of the entire community the implementation of policies and strategies for improving the nutritional condition of the people. Such policies and strategies should establish the most adequate learning methods, with informal education as one of the most effective means of achieving this objective.
2. In order to avoid a dispersion of efforts, food and nutrition activities and programs should be integrated through a centralizing entity, which should be the Ministry of Planning and Coordination.
3. To start an informal Nutritional Education Program at the national level, the experiences and contributions of the "Good Mother" Experimental Project on Nutritional Education through mass media Communication should be used regarding the conceptual approach, methodology, educational materials, training system, follow-up, control and systematic evaluation, as well as institutional and human resources acquired through its application.
4. The project should become a permanent and decentralized institutionalized system with assistance from and coordination with the central level. To this end, the Development Corporations should reactivate the Committees responsible for the socio-cultural aspects, giving them priority in their operational plans.

Annex 9

Promotion of Iodized Salt

Purpose: To explore the feasibility and impact of commercializing iodized salt as one of the least expensive, practical and effective strategies for combating endemic Goiter in different regions of the Country.

The Promotion of Iodized Salt Project was implemented by INAN, with cooperation from DAN and the Division of Nutrition and Health Units of the MPS/SP in coordination with and as an important element of activities of the National Program for Combating Goiter.

The Project consisted of four experimental sub-projects, including:

1) detecting the impact an educational campaign (radio, posters, stories and puppets) could have on the consumption habits of iodized salt in marginal populations of La Paz (see "Study on Goiter, Habits of Salt Consumption and Radio Listening Patterns", Basic Studies # 7); 2) commercialization and promotion of consumption of iodized salt in the Department of Beni; 3) commercialization and promotion of iodized salt in the Department of Pando; and 4) commercialization of iodized salt in the Department of Chuquisaca.

Training formed an important element in the Project (see In-Country Training, # 8); as did intense radio campaigns utilizing educational messages on the causes and consequences of Goiter, and the

necessity of consuming iodized salt for its prevention; the distribution of promotional posters on iodized salt in public places; and agreements with DDCs which authorized them to purchase iodized salt in large quantities and facilitate its commercialization.

The major problem facing increased consumption of iodized salt in some areas of the Country is the availability of iodine free block salt (in rural areas of Chuquisaca, for example) and the fact that iodized salt is more costly at a time when individual family resources are stretched to the limit. Actions must be taken at the national or regional level to make iodized salt financially feasible for low income families.

The Project was completed as planned, exceeding Project Agreement expectations by becoming an integral part of the National Campaign to Combat Goiter, and serving as a model for future planned interventions. A synthesis of the Project was presented and discussed at the May, 1982 National Seminar.

See "Prevalence of Goiter in School Populations" and Seminar Recommendations: Annex 2.

Annex 10

Analysis and Experimental Treatment of Anemia Project

Purpose: To determine the type and prevalence of anemia in Bolivia, explain etiology, and implement an experimental treatment for target groups.

This project is being implemented by San Simon University (PIL No. 4 dated March 5, 1981 revises the Project Agreement which called for the participation of three medical schools), and has been plagued by problems since its inception. Continual changes in Project personnel and university leadership; procurement delays; equipment (the gamma counter) arriving in inoperable condition and requiring time consuming repairs; less than adequate technical assistance; and technical errors all culminated in the Project not reaching completion by May 31, 1982.

When it was obvious that this project would not be completed within the Grant period, an agreement was reached between the University and MPC that the University would see the Project through completion. Subsequent personnel problems and changes; technical errors in Project administration; still inoperable equipment; the arrival of reagents which cannot be utilized before their expiration date; and a frustrating lack of concrete action on the part of university officials all leave completion of this Project very much in doubt.

Lessons learned should include serious consideration being given to future purchases of expensive equipment (\$25,279 for the gamma counter) which may require expensive and time consuming repairs, when results could be obtained by purchasing services from properly equipped laboratories.

Immediate attention should be given to determining the realistic feasibility of the University's completing the Project; and if the determination is negative, recouping the equipment for reassignment to another entity for completion of the Project or storage for future use.

Annex 11

Incorporation of Nutrition Education in Primary School Curriculum

Purpose: Contribute to an improved nutritional status of the Bolivian Population by providing practical scientific knowledge on food and nutrition in school curriculum.

This Experimental Project constitutes the first national nutrition education activity of its kind, and was implemented by INAN (financial and technical support) and MEC (executing agency), in cooperation with the MPS/SP and DAN. The project design called for designing, testing, evaluating and producing didactic material on food and nutrition for pre-school, elementary and intermediate levels. 10,000 copies of a teachers manual were published and distributed in 1981, one to each school throughout the country on a pilot basis; and approximately 1,240 school directors, supervisors, and urban and rural teachers received training in use of the manual (see In-Country Training, #3)

An evaluation of the Project is scheduled for November, 1982, and following revisions, 45,000 manuals are scheduled to be published (one for each pre-primary, primary and intermediate level teacher). Follow up visits to training recipients are scheduled to begin in July, by nutritionists of the MPS/SP and educators of MEC, and again in November to conduct the evaluation.

Future plans include expanding the project to include secondary and "Normal" (teacher preparation) schools. Activities will be coordinated by DAN and implemented by INAN and MEC, with participation of the existing interministerial technical committee, in accordance with a 1981 interministerial agreement.

Annex 12

Promotion, Production and Consumption of Tarhui in the Altiplano and Valley Areas

Purpose: To develop methodologies which permit greater production and consumption of Tarhui at the family level, in order to improve the nutritional status of rural population groups.

Although the production of Tarhui has taken place in Cochabamba since 1975, efforts were intensified and expanded with this Title III funded project, which began in 1980 with an official inter-institutional agreement between INAN and CORDECO, the implementing agency. Additional project participants include IBTA, the Cochabamba Health Unit of the MPS/SP, the Ecumenical Development Foundation (FEPADE), Caritas, and the Pairumani Technical Horticultural Center. Project activities include:

1. Promoting the production of Tarhui among small farmers in deprived areas;
2. processing Tarhui and commercialization of same;
3. nutrition education program promoting Tarhui utilization for human consumption.

Project results include:

1. The cultivation of 60 hectares of Tarhui by 300 families in 1980-81;

and 130 hectares by 500 families in 1981-82, in 30 communities of 4 provinces (Chapare, Quillacollo, Arani and Carrasco) of Cochabamba;

2. the installation of a Tarhui processing plant in Chimboco with a one ton daily processing capacity;
3. a nutrition education Tarhui promotion campaign implemented in cooperation with the Cochabamba Health Unit of the MPS/SP in urban and rural Mother's Clubs, which includes practical demonstrations on the preparation of recipes using Tarhui flour and nutrition talks using graphic materials. Tarhui flour, processed by Cordeco at the Chimboco plant, is sold at the Mother's Clubs in 400 and 800 gram bags.

Title III funding for the project ended in December, 1981, at which time CORDECO assumed total financial responsibility and gave the Tarhui Project priority status in its programming.

The Project Manager received thirty-five days training in Peru and Chile on the production, processing and utilization of Tarhui in May, 1981. (see overseas training # 1).

Future plans include increasing the number of hectares and small farmers included in the program; increased processing and commercialization of the product, expanding sales to commercialized flours, pastas, and animal feed; and increased nutrition education

and promotion activities.

The success of the Tarhui Project is due to the commitment, dedication and hard work of its Project Manager; to an active project committee (previously mentioned project participants) which meets regularly on a monthly basis; and to the fact that Tarhui is a traditional crop, an important factor in its acceptance.

One concern of project management is increasing the production capacity of the Chimboco processing plant, as the plant is rudimentary and will require improved cooking equipment for increased production. This would require additional funding, but given the achievements of the project to date, would appear to be warranted.

Annex 13

Nutrition Improvement Through Appropriate Technology: Small Fisheries Project

Purpose: to identify and promote appropriate technology interventions that have direct nutritional impact.

Of the three candidate pilot programs referred to in the Project Agreement, 1) reduction of post harvest losses and farm or village level grain storage; 2) formulation and production of weaning foods from locally available foods; and 3) small fisheries technology; only the latter was chosen for implementation.

The Small Fisheries Project was financed with Title III funds; coordinated by INAN and implemented by CORDEBENI. An inter-ministerial agreement was signed between INAN and CORDEBENI in March, 1980, and the project began in June of the same year.

Project accomplishments include:

1. The organization of a 56-member fisherman's cooperative in Puerto Barrador, in October, 1980;
2. The organization of a hygienic fish sales outlet;
3. The purchase of three freezers and scales for conserving and weighing fish; and

4. The purchase and distribution of 6 nets and 24 coolers to fisherman.

It was found in implementation that a planned educational component on the consumption of fish was unnecessary, as family consumption is traditional as long as accessibility could be guaranteed. Thus monies allotted for this component were used to hire an accountant to manage the purchase and sale of the product.

The project was discontinued in December of 1981, when it was determined that CORDEBENI did not have adequate storage facilities for preserving, nor sufficient funds for purchasing, the amount of fish it was offered on a daily basis.

Since the suspension of the project, fisherman have resumed selling their catch in the open market, and have retained the nets and coolers provided by the project. The freezers are stored at CORDEBENI.

Problems encountered in project management included delayed submission of vouchers by CORDEBENI, resulting in under utilization of project funds (\$31,695 was budgeted and only \$8,638 was actually spent); and the fact that the project manager was sent to Peru for 18 days training on the methods of capture, handling and preservation of fish in May, 1982, five months after CORDEBENI suspended the project.

None of the last four projects were evaluated by INAN as scheduled

(December, 1981), due to shortage of personnel (the Project Office was reduced from 4 employees to 1 in June, 1981). The projects were evaluated, however in April 1981 by Title III.

Annex 14

Rabbit Husbandry

Purpose: To improve the nutritional status of rural families by: 1) promoting the production of a nutritional, high protein, low cost food; 2) promoting the home consumption of same; and 3) increasing the income of participating families.

The project was initiated in 1979 following a feasibility study by CORDECO; was coordinated by INAN and implemented by CORDECO, with participation of the National Community Development Service and the Cochabamba Health Unit of the MPS/SP.

The project has evolved slowly since 1979. The first project director was removed early in 1980; the Viloma Grande Reproduction Center is in a state of disrepair; the project did not expand to the community level with the distribution of rabbits until June, 1981; and by completion of the Grant only 10 families (10%) had actually received and were reproducing rabbits.

Although CORDECO has included the project in its 1982 programming (Title III funding ended in December, 1981) and plans were made to transfer the Reproduction Center to Playa Ancho, serious questions exist as to its economic feasibility and nutritional impact.

Counting the 600 rabbits at the Reproduction Center and approximately 250 placed with families (an average of 25 per family) for a total of 850 rabbits, efforts to date (basic infrastructure, salaries, cages, etc.), make the cost of each rabbit approximately \$2,677.

Annex 15

Guinea Pig Husbandry

Purpose: Increase the consumption of animal protein in rural areas by increasing the production of guinea pigs.

The project was initiated in 1979 with an inter-institutional agreement between INAN (the coordinating entity) and CORDECO (executing agency). Participating institutions include the National Community Development Service and personnel of the Cochabamba Health Unit of the MPS/SP.

Implementation has been slow and to date the project has achieved only the following:

1. The development of an educational component (including radio announcements, posters, flip charts and stories);
2. the establishment of a reproduction center;
3. the planting of approximately 12 hectares for feed;
4. the purchase of breeding stock from Peru (January, 1982); and
5. inclusion of the program in CORDECO's 1982 programming.

At the end of Title III funding (December, 1981) guinea pigs had not yet been distributed to campesino families. However, the basic infrastructure has been established, a project manager is assigned to the project and it continues under CORDECO's direction.

Annex 16

TRANSLATION OF THE DECREE CREATING THE
NATIONAL FOOD AND NUTRITION INSTITUTE
GENERAL HUGO BANZER SUAREZ
PRESIDENT OF THE REPUBLIC

DECREE No.15596

WHEREAS:

The Five Year Economic Development Plan contemplates a Food and Nutrition Plan in order to accomplish a gradual social improvement raising the health standards of the country, reducing malnutrition through coordinated specific programs;

The Ministry of Planning and Coordination, in compliance with this policy, has organized a Technical Food and Nutrition Planning Group which has prepared a National Food and Nutrition Plan;

To comply with this Plan, it is necessary to create a research and support organization for those Ministries related with the field of food and nutrition. Such organization would be in charge of the promotion, coordination, advice and implementation of applied research and activities in biologic, economic and social areas;

It is a function of the Government to promote and coordinate social activities, joining human and economic resources, as well as the efficient coordination of specific works;

IN CABINET,

DECREES:

ARTICLE 1.- The National Food and Nutrition Institute is hereby created under the Ministry of Planning and Coordination.

ARTICLE 2.- The basic activities of INAN will be those of a multi-sectorial and multidisciplinary specialized entity, which will provide technical support to the national planning system in food and nutrition areas and will strengthen sectorial programs and projects related to delivery of services to the population regarding food and nutrition.

ARTICLE 3.- INAN will consist of a Directorate headed by the Ministers of Planning and Coordination, Agriculture and Rural Affairs, Public Health and Social Welfare, Industry, Commerce and Tourism, Education and Culture, and Labor. The President of the Directorate will be advised by the Subsecretary of Planning and the Chief of the Food and Nutrition Planning Team. Subsecretaries at the above Ministries will act as alternate members in the absence of their Ministers.

ARTICLE 4.- The objectives and functions of INAN are the following:

- a) Collection and analysis of information on the food and nutrition situation of the country as a baseline for the proposal of specific actions addressed to the solution of existing problems in this area.

- b) Development of an information system on food and nutrition problems and programs in coordination with the system and the National Information Development Bank (SYFNID), and establishment of an epidemiologic surveillance of the nutritional status of the population as a component of this system.
- c) Elaboration and compatibilization of Food Balance Sheets in cooperation with those Ministries related to the Food and Nutrition System, in order to establish future projections and targets regarding supply, demand and biologic use of foodstuffs in accordance with nutritional requirements of the population.
- d) Promotion, coordination, advice and implementation of applied or operational research on biologic, social and economic aspects of food and nutrition problems prevalent in Bolivia, in order to orient the programs towards their prevention and control.
- e) To promote and advise studies on the nutritional value of Bolivian food-stuffs and their improvement through new technologies, in coordination with the Science and Technology Directorate under the Ministry of Planning and Coordination.
- f) To promote, advise and cooperate with the various Ministries in the preparation and enactment of norms related to the teaching of nutrition and feeding.
- g) To advise, cooperate and carry out training programs for mid-level and assistant professional personnel on food and nutrition

- areas, in coordination with universities and other public and private institutions.
- h) To advise and cooperate with the Ministry of Planning and Coordination and sectorial Ministries on planning and development of food and nutrition projects in accordance with the National System of Projects.
 - i) To advise the Ministry of Public Health and Social Welfare on the establishment of norms for the organization and functioning of hospital feeding services, feeding standards for individuals and community groups and for institutions and public and private communities; and norms on organization and development of food and nutrition activities and projects performed by local health services.
 - j) To advise the Ministry of Public Health and Social Welfare and assist in the preparation and periodic review of the National Feeding Code.
 - k) To advise the Government on the adoption of a policy on multi-sectorial and bilateral technical and economic assistance provided to the country in support of food and nutrition programs, and to participate in the coordination and technical orientation of such programs.
 - l) To determine and recommend the most adequate procedures for the iodizing of salt; to advise QUIMBABOL in this respect and to

control the consumption of iodized salt by the Bolivian population in accordance with regulations in effect.

- m) To advise and provide technical assistance and eventually financial assistance to government and private entities on the identification, planning and development of specific projects which make accessible to the population highly nutritional-low cost food stuffs, using technologic and scientific accomplishments in this area, and to recommend the funding of such projects to the National Committee of Projects under the Ministry of Planning and Coordination.
- n) To explore new funding sources in private and public sectors and international entities and organizations for specific food and nutrition projects which might be implemented by INAN, sectorial Ministries or other government and private entities.
- ñ) To promote, coordinate, advise and perform national education programs through mass media communication, and to prepare, print and disseminate related education material, including manuals and guide lines on food and nutrition services and activities.
- o) To promote, coordinate, advise and implement applied nutrition programs, by itself and in coordination with sectorial programs under other Ministries and government and private entities, particularly programs addressed to the prevention and control of nutritional diseases in pregnant and breast feeding mothers, and children under 6 years in marginal groups of rural and urban populations,

such as Mothers' Clubs and Mothers' Centers.

- p) To advise and participate in the planning, coordination and implementation of food distribution programs in emergency or disaster situations, in coordination with the Civil Defense Board under the Ministry of Defense.
- q) To participate in the inter and intrasectorial coordination of development programs and projects related to food and nutrition through the organization of special teams involving technicians belonging to Ministries and other government and private agencies.
- r) To advise and participate in the evaluation of food and nutrition programs and projects to be implemented in the country and to present specific recommendations to concerned entities for re-orientation, as necessary.
- s) To serve as the main technical and scientific support for the Food and Nutrition Planning Team at the Directorate of Integrated Projects under the Ministry of Planning and Coordination.

ARTICLE 5.- INAN will be composed of a Directorate and a General Secretariat. The Directorate may have a legal advisor and eventually some other technical advisers. It will also have a Fiscal Control Office under the General Controller's Office. INAN will have three technical Departments: Research; Training and Publication; and Applied Nutrition Programs and Projects. It will have an Administrative

Department and two support units; Analysis and Statistics; and Publications, Audiovisual Aids and Library.

The Research Department will contain three teams:

- Epidemiologic and clinical studies, with one Clinical Studies on Nutrition Unit, preferably at university hospitals.
- Socio-economic and environmental studies.
- Laboratory studies.

The Training and Publication Department will have two teams:

- Training of human resources at professional, middle and auxiliary level.
- Community education and publication.

The Applied Nutrition Programs and Projects Department will have two teams:

- Special projects.
- Sectorial and multisectorial projects.

The Administrative Department will have four teams:

- Budget and finance
- Accounting
- Personnel
- Supplies and General Services.

ARTICLE 6.- Starting in 1979, the Food for Development Program (ALDE) will be incorporated into the Food and Nutrition Institute with its budget and equity, with INAN taking charge of its adscript functions.

ARTICLE 7.- A sale tax of 15% on common and iodized salt is hereby instituted, for the financing of INAN.

ARTICLE 8.- All provisions in conflict with this Supreme Decree are hereby revoked.

The Ministers of Planning and Coordination, Agriculture and Rural Affairs, Public Health and Social Welfare, Industry Commerce and Tourism, Education and Culture, Labor, and Finance are in charge of the implementation and compliance of this Supreme Decree.

Signed at the Government Palace in the city of La Paz, on June 27, 1978.

SIGNED: Gral. Hugo Banzer S. etc. etc. etc.

Annex 17

Translation of Law Decree No. 16756

WHEREAS:

The Government of Bolivia grants high priority to the solution of food and nutrition problems experienced by the Bolivian population;

The complexity of the existing relationship among multisectorial factors which determine the nutritional condition of the individual and the community, makes it necessary to focus the systems on the establishment of clear intersectorial coordination mechanisms.

The Ministry of Planning and Coordination, complying with this priority policy, organized in 1976 a Technical Team on Food and Nutrition Planning, through which a National Food and Nutrition Plan was prepared as well as a feasibility study for the functioning of the National Food and Nutrition Institute (INAN) created by Supreme Decree No. 15596 on June 27, 1978. Likewise, the required studies for the start up of the National Food and Nutrition System were prepared, as a necessary instrument to face in a coordinated and multisectorial manner those food and nutrition problems experienced by the Bolivian population.

On March 11-12, 1978, a Seminar took place in Achocalla on Food and Nutrition Planning, attended by representatives from the Ministries of Planning and Coordination; Agriculture and Rural Affairs; Public Health and Social Welfare; Education and Culture; Industry,

Commerce and Tourism; Labor; Finance; and The Public Administration Institute.

The Seminar performed a thorough analysis of food and nutrition problems, as well as their consequences on the economic and social development of the country, resulting in the agreement by all the participating sectors on the assignation of high priority to food and nutrition policies, at national and sectorial planning levels, as well as regarding the implementation of multisectorial, sectorial and regional programs and projects.

Therefore, it is the attribution of the Executive Power to approve the National Food and Nutrition System Law:

IN CABINET,

DECREES:

ARTICLE.- The National Food and Nutrition Systems Law is hereby approved in its four Titles, eight Chapters and fourteen Articles, in concurrence with the following text:

The Minister of Planning and Coordination of the Government of Bolivia is in charge of the implementation and compliance of this hereby Decreed Law.

Signed at the Government Palace in the city of La Paz, on July -----, 1979.

NATIONAL FOOD AND NUTRITION SYSTEM LAW

TITLE I

OBJECTIVES AND SCOPE

CHAPTER I

OBJECTIVES AND SCOPE OF THE LAW

ARTICLE 1. The objective of this law is to establish a National Food and Nutrition System, to face in a coordinated and multisectorial manner food and nutrition problems affecting the Bolivian population, in order to preserve human resources, a most important objective of the economic and social development of the country.

ARTICLE 2. The National Food and Nutrition System is composed of a group of state and community organizations which can promote and implement food and nutrition programs and projects. It covers the entire process of identification of plans, programs and projects involved, and their preparation, implementation, evaluation and control within the methodologies and guidelines which allow a functional, efficient and permanent linkage among the components of the System.

ARTICLE 3. The National Food and Nutrition System will closely coordinate its functions with the National Planning System and will be closely associated with the economic and social development objectives.

INSTITUTIONAL ORGANIZATION AND HIERARCHICAL
RELATIONSHIP OF THE NATIONAL FOOD AND
NUTRITION SYSTEM

CONEPLAN

MINISTRY OF PLANNING

Institutes	Directorates	National Food and				
Ministry of	Ministry of	Nutrition Directorate			INAN	
Planning	Planning					
Other Ins- titutions	Ministry of Public Health and Social Welfare	Ministry of Education and Culture	Ministry of Industry, Commerce and Tourism	Ministry of Agri- culture and Rural Affairs	Ministry of Labor	
		Food and Nutrition Departmental Council				
			Food and Nutrition Coordination			
Local Insti- tutions and Agencies	Sanitary Units	Departmental Directorate of Education	Regional Develop- ment Corpora- tions	Departmental Representa- tive Minis- try of Industry	Regional Directo- rate MACA	Regional Chief Office of Labor

COMMUNITY

Ref: _____ Hierarchy
----- Coordination

TITLE II

ORGANIZATION

CHAPTER I

SYSTEM'S INTEGRAL ORGANIZATIONS

ARTICLE 4. The following organizations are the integral components of the National Food and Nutrition System:

- a) The National Economic and Planning Council (CONEPLAN), which will be the highest decision making organization of the system.
- b) The Ministry of Planning and Coordination, through the Food and Nutrition Directorate, which will be the System's normative, coordinator and supervisory organization.
- c) The National Food and Nutrition Institute (INAN) which will provide the main technical and scientific support for the System.
- d) The Ministry of Finance which will be the organization that will collect, assign and control the funds required for the operation of the System through sectorial organizations such as INAN and the Regional Development Corporations.
- e) Sectorial organizations such as the Ministries of Agriculture and Rural Affairs, Public Health and Social Welfare, Education and Culture, Industry, Commerce and Tourism, and Labor.
- f) Regional organizations such as the Regional Development Corporations and all those organizations participating in the future.
- g) Departmental Food and Nutrition Councils, which will be the highest decision making organizations at the departmental level.

TITLE III

FUNCTIONS OF THE SYSTEM'S PARTICIPATING ORGANIZATIONS

CHAPTER I

NATIONAL ECONOMY AND PLANNING SYSTEM

ARTICLE 5. The National Economy and Planning System determines the general food and nutrition strategy and policy, approves the National Food and Nutrition Plan as a component of the National Development Plan and Annual Operational Plans, and approves investment plans related to food and nutrition programs and projects.

CHAPTER II

MINISTRY OF PLANNING AND COORDINATION

ARTICLE 6. The Ministry of Planning and Coordination, through the Food and Nutrition Directorate, will perform the following functions:

- a) Formulation and proposal of multisectoral programmatic Food and Nutrition policies and priorities to which the programs and projects of the National Food and Nutrition System should be adequated.
- b) Direction and coordination regarding preparation of national and regional food and nutrition plans, programs and projects and presentation to the decision making level for its study and approval.

- c) Proposal and promotion of new projects and interventions in accordance with the identification of food and nutrition problems in population groups requiring priority attention in this field.
- d) Organization, advise and coordination of national and regional implementation of intersectorial Food and Nutrition programs and projects.
- e) Execution of relevant procedures to accomplish an adequate allocation, flow, and timely use of required economic resources for the implementation of programs and projects.
- f) Participation in the technical, economic, financial and administrative evaluation on food and nutrition programs and projects, and proposal of required adjustments.
- g) To perform as Technical Secretariat at policy decision level for the National Food and Nutrition System.
- h) Acting as representative of the Ministry of Planning and Coordination regarding its relationship with national and international organizations providing technical or financial assistance to food and nutrition multisectorial national and regional programs.

CHAPTER III

MINISTRY OF FINANCE

ARTICLE 7. The functions of the Ministry of Finance, within the Food and Nutrition System, will be the following:

- a) Analysis of the required financial resources for priority food and nutrition programs and projects.
- b) Definition of funding sources and procedures for the hiring of internal and/or external credits as required.
- c) Control of resources provided by internal and external credits in order to secure that such resources be used strictly to accomplish the objectives to which they were assigned.

CHAPTER IV

NATIONAL FOOD AND NUTRITION INSTITUTE

ARTICLE 8. The National Food and Nutrition Institute (INAN), is the organization in charge of the direction and coordination of programs and projects on research activities, training of human resources and applied nutrition.

ARTICLE 9. As a component of the National Food and Nutrition System, INAN will perform the following functions:

- a) Collection of information and participation in the National Information System regarding food and nutrition aspects, in coordination with SYFNID.
- b) Preparation of food balance sheets with sectorial Ministries, and establishment of projections and future food supply and demand

targets adjusted to nutritional needs of the population.

- c) Coordination and implementation of applied operational research on food and nutrition problems for the orientation of programs.
- d) Formulation, coordination, supervision and evaluation of food assistance programs and projects and management of external donations in accordance with established agreements.
- e) Implementation of training programs for personnel at different levels in the food and nutrition field in coordination with various universities; coordination and implementation of national education programs through mass communication media, and distribution of educational material in this area.
- f) Advise and cooperate with the Ministry of Planning and Coordination and sectorial Ministries on planning and development of food and nutrition projects, in accordance with the National Food and Nutrition System.
- g) Advisory services on the policy of technical, economic and food assistance provided to the country in support of food and nutrition programs.
- h) Participation in the determination of norms and procedures in the food and nutrition field.
- i) Participation in the intersectorial coordination of food and nutrition programs and projects through special teams organized by the Food and Nutrition Directorate, with participation of sectorial and regional organizations.
- j) Acting as main technical and scientific support for the Food

and Nutrition Directorate under the Ministry of Planning and Coordination.

CHAPTER V

SECTORIAL ORGANIZATIONS

ARTICLE 10. The functions of sectorial organizations within the National Food and Nutrition System, will be as follows:

- a) Formulation and implementation of programs and projects related to production, distribution, consumption and biologic utilization of foodstuffs.
- b) Direction, supervision and evaluation of the implementation and initiation of food and nutrition projects.
- c) Proposal to CONEPLAN, through the Food and Nutrition Directorate under the Ministry of Planning and Coordination, of programs and projects as deemed necessary.

CHAPTER VI

DEPARTMENTAL FOOD AND NUTRITION COUNCILS

ARTICLE 11. The Departmental Food and Nutrition Councils, as components of the National Food and Nutrition System, will perform the following functions:

- a) Definition and approval of food and nutrition policies, plans and programs, within national outlines of economic and social development and those outlines established for departmental development.
- b) Proposal to the Directorates of the Regional Development Corporations and corresponding nation-sectorial authorities, regarding the adoption of mechanisms to make operational those plans and programs being adopted.
- c) Support and coordination regarding the formulation, funding, implementation and evaluation of programs and projects.
- d) Introduction of food and nutrition aspects into sectorial programs at the stage of programming and under implementation.
- e) Periodic evaluation of the implementation status and incidence of programs and projects and presentation of reports to Development Corporations and sectorial entities.
- f) Establishment, as deemed necessary, of specialized multisectorial commissions with participation of relevant institutions.

CHAPTER VII

REGIONAL DEVELOPMENT CORPORATIONS

ARTICLE 12. Within the National Food and Nutrition System, the Regional Development Corporations will perform the following functions:

- a) Promotion and coordination of the development, implementation and

evaluation of the National Food and Nutrition Plan, with regional unity under public and private sectorial organizations.

- b) Proposal of programs and projects as deemed necessary to the National Economic and Planning Council through the Food and Nutrition Directorate under the Ministry of Planning and Coordination.

TITLE IV

TEMPORARY REGULATIONS

SINGLE CHAPTER

LEGAL EFFECT OF THE LAW

ARTICLE 13. The regulations stated on all above articles will be in effect from this date.

ARTICLE 14. All regulations in conflict with this Decree Law are hereby revoked.