MINSA-USAID
DECENTRALIZED HEALTH SERVICES PROJECT

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1995 ANNUAL REPORT

PROGRESS TOWARD THE GOALS OF THE DHS PROJECT

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EXECUTIVE SUMMARY

The Decentralized Health Services Project is ending its first full calendar year of execution. This report provides the most current data available on the goals of the principal Project indicators.

The team of consultants recognizes, that for the most part, Project indicators measure the level of efficiency of MINSA programs in which this Project and others are collaborating. Therefore, the accomplishments documented in this report are for the most part our counterparts' achievements with whom, not only us, but our colleagues in other agencies have been collaborating.

A little more than 35% of the time programmed for the execution of the DHS Project has elapsed as of the date of preparation of this report. As a rule, due to the time lapse normally taken for the beginning of any complex activity, it is expected that progress toward the final goals be less than the real time elapsed.

Impact indicators are not analyzed for lack of updated information; i.e., infant and maternal mortality rates and total fertility rate. Table 1: Output Indicators shows an estimate of progress from the baseline (0%) toward the final Project goals (100%), MINSA has achieved notable progress. There are outstanding advances, especially in maternal-child services, with the exception of post-natal controls in which an important improvement is expected with the implementation of the registry for pregnant women and prolonged post partum, and the organization of integrated health care clinics for women and children. The pace of training reached a level equal to the goals proposed for the Life of the Project. In general, production in the financial area and on information systems depends upon actions which are already in progress.

A similar situation is presented in Table 2: Purpose Indicators. In general terms, MINSA has made important progress, particularly in maternal-child services, including family planning, the EPI, and the supply of medicines for ARI, diarrhea and family planning. Progress in the financial indicators, generally relates to prior actions such as the implementation of the Financial Management System, which advanced substantially during 1995.

In Section II of this report, the data is shown in greater detail, these were used to generate Tables 1 and 2. Notes on the data and the calculations made to come up with the estimates for the indicators in Annex 1 are found in this section. Section III provides a short summary of the main strategies used in 1995 to ensure progress toward the goals in each one of the indicators.

TABLE 1: Output Indicators

Percentage of Progress toward DHS Project Goals

INDICATOR	-25%	0%	35% *	100%	150%	200%	Observations
1. Tx of Diarrheas with ORS					113.6%		(7/95)
2. Vitamin A Supplements				75.4%			(7/95)
3. Tx Pneumonias w/Antib.							Baseline established in 1995.
4. Prenatal Care I Trimester			32.8%				(7/95)
5. Postnatal Care	-3%						(7/95)
6. Training							
a. MINSA per. & Volunteers			24.2%				(12/95)
b. MINSA per. in mgt.			20.7%				(12/95)
c. In USA & 3rd Countries					106.2%		(12/95)
7. Training of Trainers				76.7%			(12/95)
8. IEC Campaign							Strategic proposal finalized. (8/95)
9. FMS reports		Partial data is espected to be available by end of 1996.					
10. SIG reports		Partial data is expected to be available by end of 1997.					
11. Alt. Financing Studies			25%				(12/95)
12. Alt. Financing Workshops		Workshops proposed for the end of 1996 and during 1997.					
13. Alt. Financing Proposals		Proposals to be prepared for the new govt. that will take over in 1997.					

■ Indicates that current level represents a retrogression of the initial level.

□ Indicates that the percentage differential between the initial level and the final goal has been achieved.

▒ Indicates a percentage of progress beyond the initial goal of the indicator.

* Approximately 35% of the life of the technical cooperation contract has transpired as of the date of preparation of this report.

TABLE 2: Purpose Indicators

Percentage of Progress Achieved as of July,1995, toward DHS Project Goals

INDICATOR	-25%	0% 35% 100% 150% 200%	Observations
1. Post-neonatal Mortality			
a. Immunopreventable			No deaths.
b. Diarrheas		Data from different sources other than baseline. Congruent data not available.	
c. Pneumonias		Data from different sources other than baseline. Congruent data not available.	
2. Breastfeeding		Data expected through the 1997 National Family Health Survey.	Data not available.
3. Couple Years Protection			Probable underestimation in Baseline.
4. Vaccination Coverage			Percentage of coverage goal achieved,
Polio 3		109.6%	Official data subject to revisions by
DPT 3		98.3%	data from the 1995 Census.
Measles		92%	
BCG		137.5%	
TT		Data on national coverage available for the first quarter of 1996.	
5. Maternal Mortality			
5a. Infant Mortality (12/95)		4%	Research begun in 2 SILAIS.
6. Medicine Stockouts			Implementation of SIVIC will improve
ORS		133.3%	stocks and data.
TMX		155.6%	
Benzyl penicillin		116.8%	
7. Contraceptive Stockouts			Implementation of SIVIC will improve
Levonorgestrel		135%	stocks and data.
Norgestrel		65.9%	
Condoms			Condoms in stock are above 95%.
Copper T		95%	
8. Budget Use		Final data on budget execution available in the second quarter of 1996.	
9. Personnel Costs		Progress expected after FMS implementation. Partial data expected in 1997.	
10. Medical Costs		Progress expected after FMS implementation. Partial data expected in 1997.	
11. Financial Plan		Indivisible unit indicator. Goal expected in the first quarter of 1998.	
12. Cost Recovery Policy		Indivisible unit indicator. Goal expected in the first quarter of 1998.	

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PROGRESS TOWARD THE GOALS OF THE DHS PROJECT

I. INTRODUCTION

During the Accelerated Start Component of the DHS Project, a definite effort was made to review the principal objectives of the Project, in order to ensure their consistency not only with MINSA's fundamental objectives but also with USAID's principal strategies, establishing specific definitions for the indicators through which progress is intended to be measured. (See report: Summary and Analysis of Baseline Data for the Logical Framework.) It is important to clarify that the DHS Project intends to support MINSA in achieving impact goals as well as purpose goals, and their achievement represents a success shared between MINSA, USAID and other institutions.

This report is the first comprehensive attempt to review progress toward the goals submitted in the report: Summary and Analysis of Baseline Data for the Logical Framework. In Section II, values for the updated indicators as well as the baseline are shown in the same format as Table II of the original report. In general terms, the "output" goals have been updated to December 1995. In the case of the purpose goals, those based on data from MINSA's information system have been updated to 1 July 1995 in keeping with the reports received up to November 1995. Finally, there are some indicators whose updated values will be available only through the next Family Health Survey scheduled for the beginning of 1997. Section III of this report summarizes the strategies adopted and the activities carried out to guarantee the achievement of each one of the goals. Generally, the information in this section is updated up to December 1995. Section IV contains notes on the sources and availability of information in each SILAIS. The Executive Summary presents a brief narrative of the most outstanding progress.

In preparing this report, it was possible to calculate the indicators of the former SILAIS Occidental and the former SILAIS Central, both of Managua. For the next report, this information will be consolidated and the baseline for the two SILAIS in order to come up with a single value for the SILAIS Managua.

The reader will be able to note that progress has been more obvious at the level of outputs expected from the DHS Project, this is to be anticipated. Project outputs are meant to have an impact on the delivery of health services, which in due time, will have an impact on the morbidity and mortality endured by the population. Consequently, at this stage of Project implementation, meaningful progress in all the indicators should not be expected.

II. QUANTITATIVE PROGRESS ACHIEVED

MINSA has achieved important progress with respect to the objectives outlined in the logical framework of the Project, particularly in maternal health and child survival interventions in the five Project SILAIS. Among the progress directly related to the Project indicators, the following are worth noting:

1. the absence of mortality due to immunopreventables diseases,

2. an increase in the amount of family planning services (CYP),

3. the systematic investigation of all maternal deaths and the beginning of a similar process for the investigation of infant deaths,

4. a meaningful increase in the availability of three high-priority medicines and of four contraceptives,

5. an important increase in the coverage of children less than five years old with vitamin A supplements,

6. an increase in prenatal services in the first trimester of gestation,

7. an acceleration in the pace of training, to the point of having now reached the final Project goal,

8. the preparation of a manual and training of trainers in continuing education which promises to improve the quality of activities in permanent education, and

9. the preparation of the *Estudio de la Farmacia Popular de Ocotal* and its utilization in a proposal for replication.

Obviously at this stage of Project development, all the achievements cannot be expected to be in direct relationship with the progress in the indicators. Many advances are of a preparatory nature to arrive at substantial progress thereinafter. Section III of this report includes a summary, by indicator, of the Project's most important accomplishments which during the life of the Project should contribute to the attainment and sustainability of the goals defined as final objectives of the Project. The remainder of this section of the report describes some of the most important progress and their importance for the development of health services in Nicaragua.

A. Development of the *Modelo de Atención Integral a la Mujer y la Niñez* (MAIMN)

The development of the MAIMN and its implementation in the five Project SILAIS has been identified as the principal goal for the year 1995 by the Project's Steering Committee. As a result important advances have been carried out, such as the preparation of the managerial tools for the integrated services and the introduction of the MAIMN in all the municipalities of the five focal Project SILAIS.

The fundamental purpose of the MAIMN is to improve the quality and opportunity of primary health care services through services for women and children, integrated in time and physical location in their health maintenance, not solely in treating their immediate health problem. It is expected that through the Model it will be possible to prevent lost opportunities, not only for vaccinations, but for other preventive and/or educational services including family planning, breastfeeding, nutrition and hygiene. These services contribute to the prevention and recovery of

episodes, among others, of diseases such as diarrhea and ARI. The MAIMN also incorporates a preventive approach with respect to nutrition through the prioritizing of children that stop growing satisfactorily, instead of prioritizing those who have become malnourished and therefore require a curative service to try to recover their nutritional status (which usually is no longer possible).

During 1995, the MAIMN was introduced in all the Project areas. For 1996, there will be a concerted effort to delve into the quality of its operation in each health unit, and in the implementation of its new components.

B. Nutritional Study of Teustepe, Boaco

Nutrition is one of the most serious health problems in Central America. Nevertheless, many of the analyses have been directed at measuring the scope of the problem, instead of defining its characteristics, thereby facilitating managerial decisions to be made concerning solutions. In several communities of the Municipality of Teustepe, the nutritional status of 288 children less than two years old was measured.

The most important result is shown in Graph 1 (next page), indicating the following:

1. The nutritional status is quite good until six months of age.

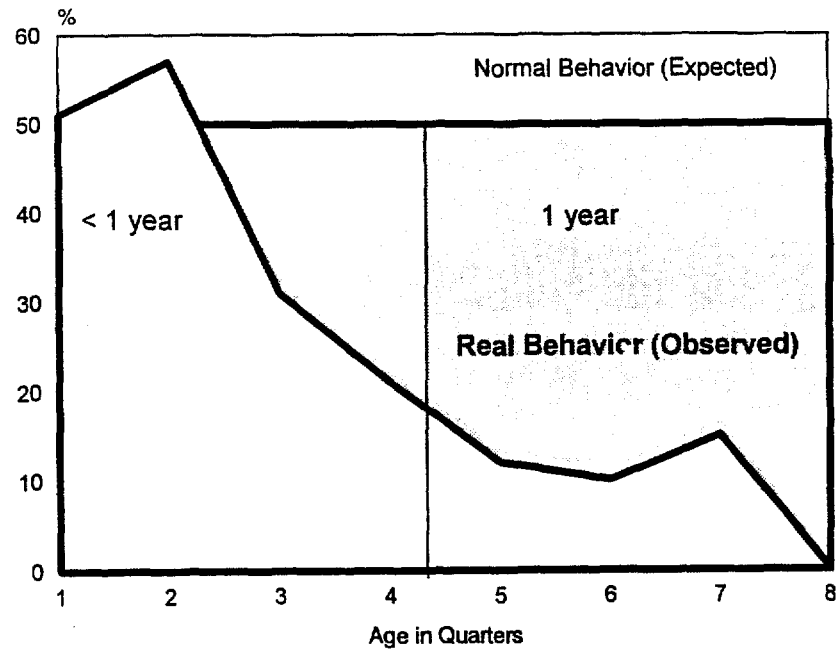
2. In the third quarter, a serious process of malnutrition begins.

3. By 18 months of age, few children have a satisfactory nutritional status. (The normal curve, in any population, has moved dramatically toward the left.)

Obviously, at least part of the solution to the nutritional problem requires a change in some of the care practices of the children, which have an important impact on their nutritional status in their third quarter of life. The surveillance of growth and promotional services should prioritize the care for children who are entering this high-risk group.

Graph No. 1

MODEL FOR CHILD INTEGRATED CARE
Survey Based on Height in Children <Two Years
Analysis of Positive Standard Deviations
Teustepe, August 1995



C. Registry of Pregnant Women and Prolonged Postnatal

Pre- and post-natal services and family planning have been identified as high-priority, by MINSA as well as in the Project design. The implementation of a registry for pregnant women and prolonged post natal has been included as a component of the MAIMN. During 1995, the registry questionnaire was developed and tested in two municipalities of Jinotega.

The purpose of the registry is to assure and facilitate the systematic monitoring of the delivery of promotional and preventive services beginning with the first trimester of gestation and ending with the first year post partum. Among the services monitored are the identification of high-risk pregnant women, nutrition for both women and children, and family planning. Adequate application of the registry ensures attaining the Project goal with respect to post-natal services, in addition to facilitating the coverage goals for services directed at children.

D. Registry of Children

Services, particularly preventive ones (growth and development, breastfeeding, vitamin A supplements, and immunizations) for children less than five years old, also require systematic monitoring. An instrument has been designed for this purpose, as a component of the MAIMN.

Simultaneously, the Census for Immunizations has been empowered immediately for the same purpose with respect to EPI services, through the *Sistema Gerencial de Vacunación* (SGV). It is estimated that during 1995 more than 50% of all the children were registered in the five Project SILAIS. In the case of Boaco, there were more children registered than the population estimated by INEC, which explains one of the causes why frequently there is more than 100% coverage in this SILAIS.

The registry is in essence a managerial tool, which helps health workers, by facilitating and simplifying their work as follows:

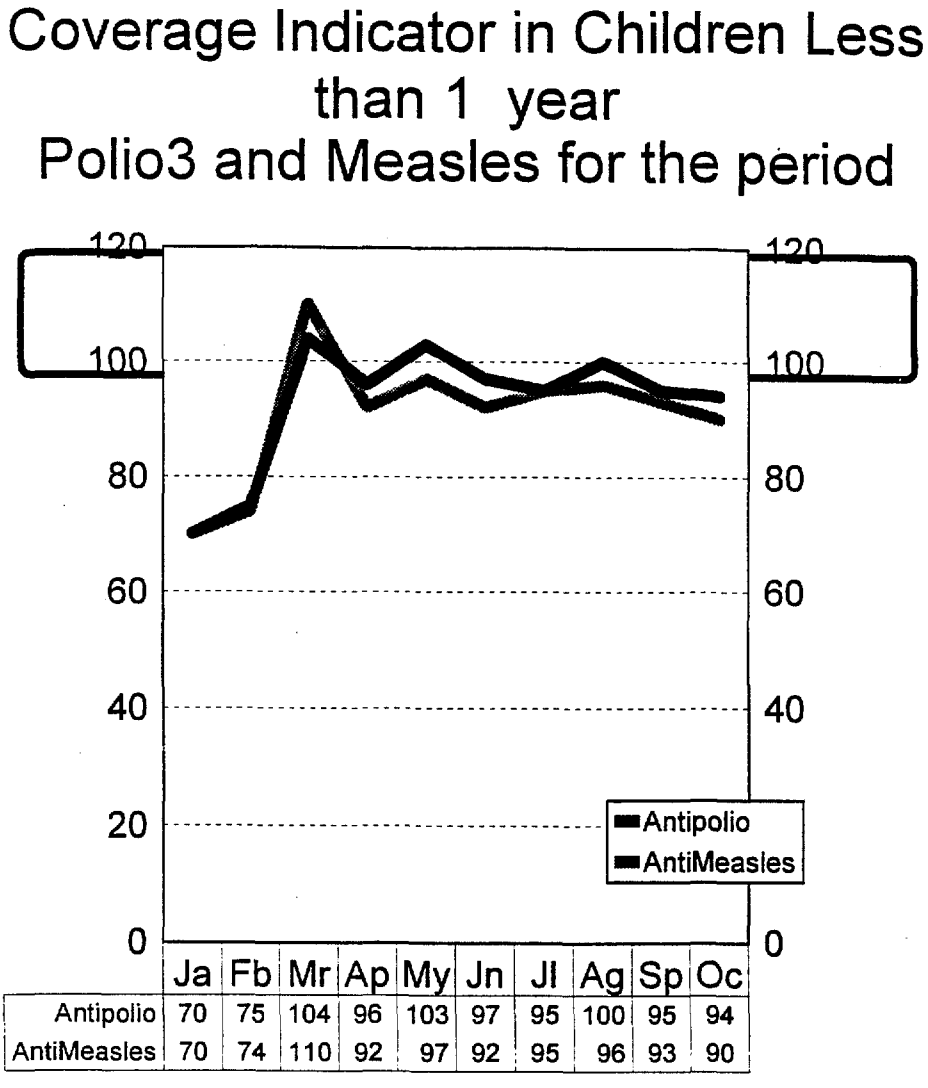
1. The registry indicates and locates the children who lack a programmed service, allowing the worker to focus efforts in capturing this individual, already at high risk.

2. The registry facilitates the accurate analysis of coverage obtained, facilitating decision making to improve on coverage, if it where necessary.

3. Concerning the vaccination, the registry (in this case the Immunization Census) permits the replication of the vaccination card which is frequently lost, resulting at least occasionally, in the duplication of the registry for doses of vaccines.

Results obtained are impressive, if applied adequately, as can be appreciated in Graph 2 (on the following page) which indicates improvement of coverage secured with the application of the SGV, based upon the Immunizations Census in the Health Center of Mateare, Managua.

Graph No. 2



E. Rational Use of Antibiotics in the Treatment of ARI

In spite of extensive training efforts, ARI, particularly pneumonia, are one of the most important causes of infant mortality. Problems with the diagnosis of pneumonia and the stockouts of antibiotics are reasons why ARI continue being such a serious problem.

An instructive research was carried out in the Boaco SILAIS in which one group of physicians analyzed their own diagnosis and treatment for ARI comparing their practices with the procedures. Once they did the analysis, each participant was committed to monitor their practices during the following month and to repeat the analysis to measure whether there was any change in their practices. The results shown in Graph 3, include:

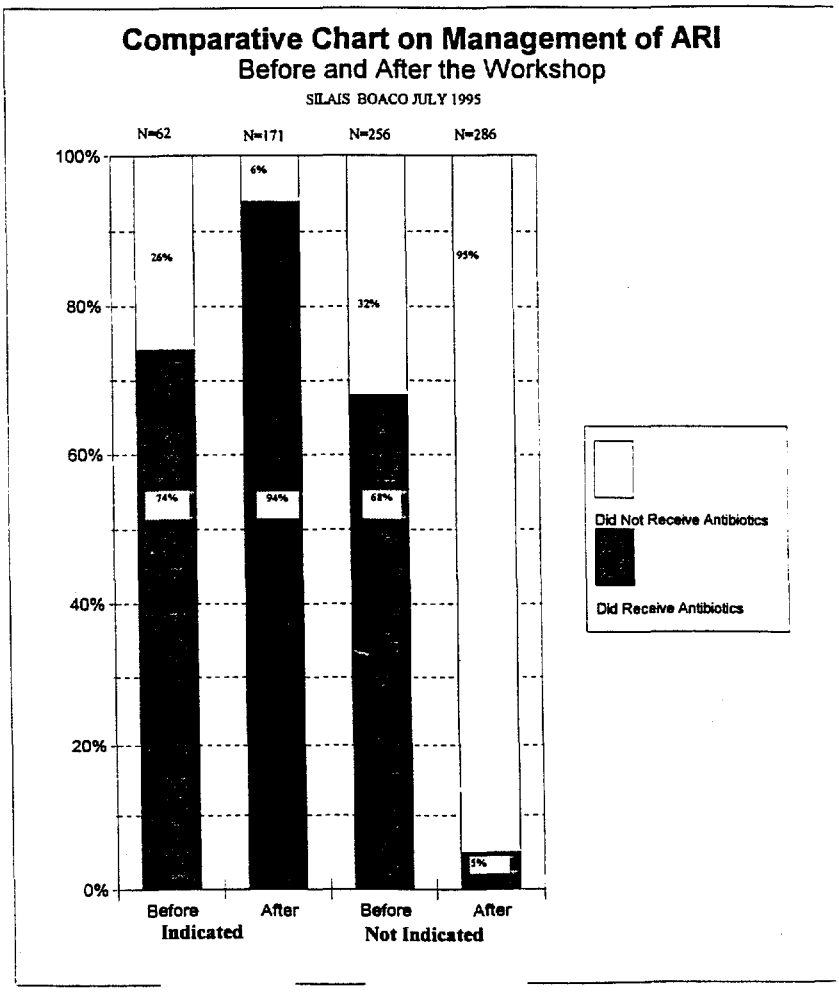
1. a reduction of 75% in the number of cases of pneumonia not treated with antibiotics,

2. a reduction of more than 90% in the number of patients who received antibiotics and did not need them, and

3. in spite of the increase in the number of pneumonia cases treated, there is a decrease in the quantity of antibiotics used, helping to resolve the stockouts of these products.

Replication of instructive research in ARI has begun in Boaco as well as in the SILAIS Managua. It is expected that the same training methodology will be applied in the diagnosis and treatment of diarrhea in the near future.

Graph No. 3

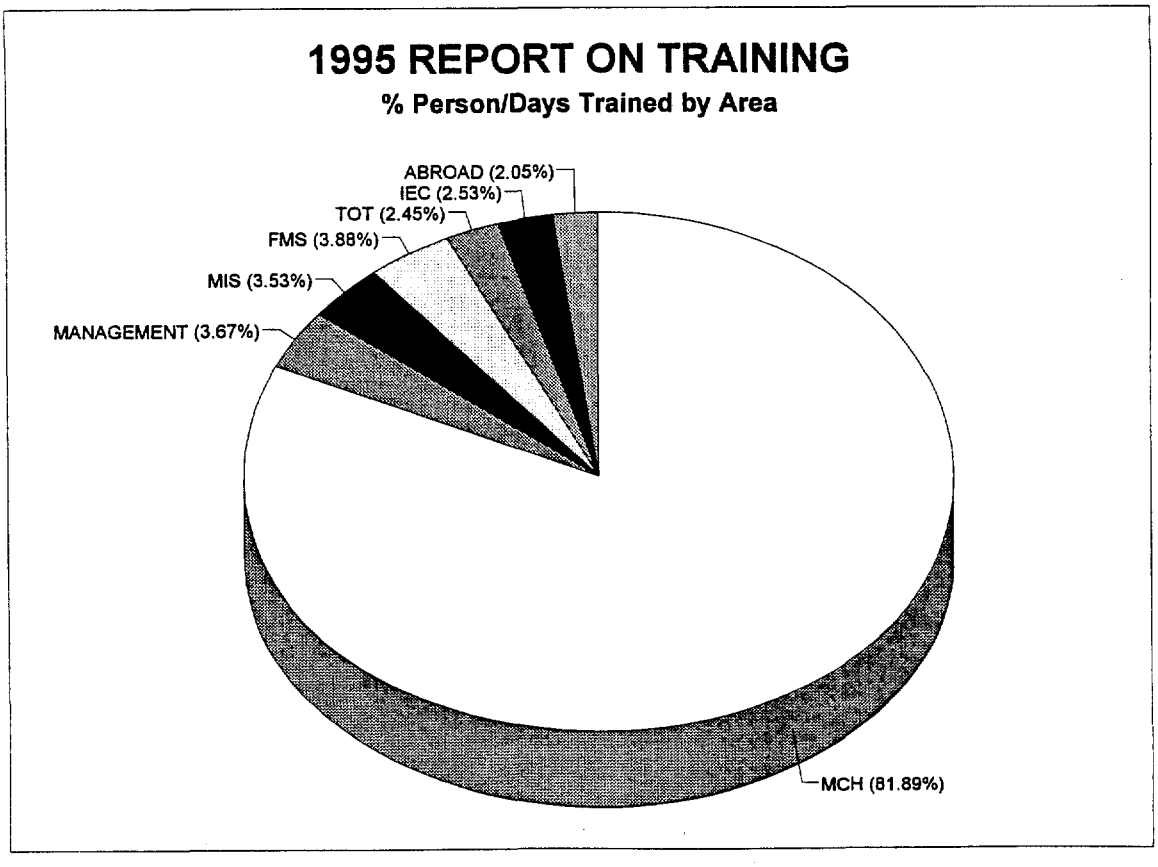


F. Training

One of the more important products of the DHS Project includes a considerable amount of training, particularly in maternal health and child survival. Furthermore, the strengthening of quality in-service training for MINSA, has been identified as a priority. The training of community health providers is also being used as a strategy to secure their integration as important participants in the services network.

Graph 4 shows the distribution of training during 1995 and its primary focus on the strengthening of maternal health services and child survival. In order to initiate the process of strengthening the quality of training the first workshops for facilitators in continuing education and the preparation of a manual for facilitators were carried out. The manual is expected to be published as a book during the first semester of 1996.

Graph No. 4

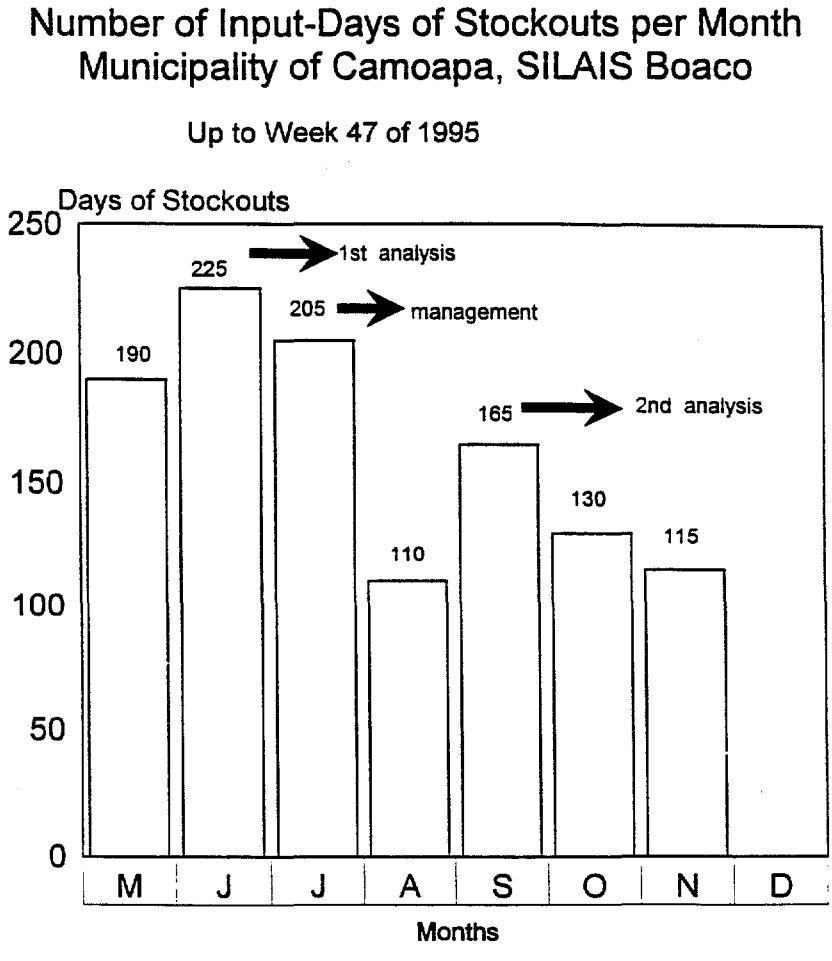


G. System for Surveillance of Critical Inputs (SIVIC)

There are very few things that affect the image of MINSA and the quality of its services as the supply of medication. MINSA, in terms of its efficiency and prestige, does well if there are medicines, and poorly if there are none. During 1995, the *Sistema de Información y Vigilancia de Insumos Críticos* (SIVIC) was tested, adjusted and approved for implementation at the national level. The purpose of SIVIC is to facilitate the continuous supply of the more important products for the services prioritized by the MAIMN. These products include ORS (for the treatment of diarrhea), contraceptives (for family planning), antibiotics (for the treatment of ARI), and vitamin A supplements (to prevent the nutritional deficiency of this micronutrient).

Graph 5 shows the decrease in stockouts, calculated by product-days of stockouts, carried out with the implementation of SIVIC since May of 1995 in the municipality of Camoapa. The *Dirección General de Normalización de Insumos Médicos* has begun training the staff of all the municipalities in the DHS Project SILAIS, as well as in other SILAIS. Through the implementation and follow-up of SIVIC, a meaningful increase in the availability of high-priority inputs in all municipal health centers of the Project SILAIS is expected to take place during 1996.

Graph No. 5



H. Financial Management System (FMS)

The process of decentralization depends upon the development and implementation of management systems to facilitate decision-making by public officials, subject to the increase in their responsibilities and implicit authority in the process. The SIVIC, described in the previous sub-section, is one of these systems. The FMS is another, and probably the most important one from the perspective of the process for administrative decentralization. The FMS will facilitate adequate management of MINSA's financial resources in the SILAIS and more important health centers. (Using other resources, MINSA has plans to implement the FMS in 17 hospitals beginning in the first quarter of 1996.)

During 1995, the computerized version of the FMS was programmed, tested and adjusted. Furthermore, computer equipment was delivered to 12 of 17 SILAIS and to 14 health centers, and the staff from 15 SILAIS and 21 health centers was trained in the use of computer equipment as well as in the FMS program. The only staff who has not been trained is from the RAAN and the RAAS. Beginning with the 1996 fiscal exercise, the FMS is expected to be operating in all the SILAIS of the country. The adequate operation of the FMS will permit MINSA to continue strengthening the process of decentralization and municipalization.

III. STRATEGIES AND PRINCIPAL ACTIVITIES

This section briefly summarizes the contribution of the technical cooperation toward the attainment of each one of the goals presented in the logical framework of the DHS Project. The goals are discussed in the order of appearance in the report: *Summary and Analysis of Baseline Data for the Logical Framework.*

The indicators appear in three groups: (1) impact indicators; (2) purpose indicators and (3) outputs. In general, all the outputs are directed at bringing about progress toward one or more of the purpose indicators, and the latter are directed at producing advances toward the achievement of the impact indicators. In order to avoid repetition, the strategies and activities aimed directly at a greater level indicator, are not included as strategies and activities aimed at the more specific indicators. This document presents only a summary of achievements. Details will be submitted in the "Annual Activities Report - 1995."

A. Impact Indicators

1. Reduction in Infant Mortality Rate (from 59 to 50/1000 live births)

Strategy:

The principal strategy to attain this goal is to increase coverage and improve the quality of maternal-child services through the development and installation of the *Modelo de Atención Integral a la Mujer y la Niñez* (MAIMN). The high-priority services of the MAIMN include all the infant survival interventions supported by the DHS Project. A comprehensive coverage of services will be guaranteed through the microsectorization of the population in the areas of geographical influence for each health unit, the development of a registry of all children organized by annual birth cohorts, and the development and strengthening of liaison services with the network of voluntary community health providers, particularly *brigadistas* and mid-wives. Services offered by the units are reorganized guaranteeing integrated care and reducing to a minimum the opportunities lost for each one of the preventive services. The precise identification of local priorities will be secured through the research and analysis of infant mortality cases.

Accomplishments for 1995:

(1) design and approval of the necessary managerial tools to handle services in an integrated manner,

(2) microsectorization of nearly all the geographical area of the SILAIS in the DHS Project,

(3) 1,102 institutional and 392 community staff trained on the MAIMN including personnel of all the municipalities in the five Project SILAIS,

(4) preliminary reorganization of the way in which services are offered in most of the health centers,

(5) registry of more than half of the children under five in Project SILAIS,

(6) design, approval and initial application of the questionnaire for epidemiological research of infant mortality cases and

(7) 19 people at the community level trained in care of the newborn.

(8) Four participants from the SILAIS and municipal director level trained for 10 weeks in management of maternal-child health programs in the School of Public Health at the University of Chile.

(9) Ten municipal directors trained for 8 weeks in the management of health care programs in a course offered and partially funded by the Spanish Cooperation.

(10) One SILAIS Director trained for 8 weeks in management of health programs in developing countries in the School of Public Health at Harvard University.

Note: A new measurement of this indicator is expected as a result of the next Family Health Survey, currently programmed for the beginning of 1997.

2. **Reduction in Maternal Mortality Rate** (from 150 to 125/100,000 live births).

3. **Reduction in Total Fertility Rate** (from 4.6 to 4).

Strategy:

The principal strategy to attain these goals is also to increase the coverage and improve the quality of maternal-child services through the development and installation of the *Modelo de Atención Integral a la Mujer y la Niñez* (MAIMN). The priority services of the MAIMN include all the interventions contemplated in the design of the DHS Project. In addition to what was previously mentioned concerning infant mortality, the MAIMN will guarantee the delivery of priority preventive services for each pregnant woman within the first quarter of pregnancy until the completion of the child's first year after the delivery, including post partum family planning services, through the use of a registry for pregnant women. Correct identification of local priorities will be secured through the research and analysis of maternal mortality cases. The design and implementation of a registry for women of childbearing age is also envisaged, to assure an extensive coverage of family planning, immunization and other preventive services during the entire childbearing period of each woman.

Accomplishments for 1995:

(1) the design and initial testing in two municipalities of Jinotega of the registry for pregnant women,

(2) the design, approval and initial application of the research questionnaire of the cases of maternal mortality,

(3) preparation of the Preliminary Analysis of Maternal Deaths from 1992 to 1995 in the Jinotega SILAIS,

(4) 303 institutional staff and 353 community health providers trained in subjects related to maternal mortality and

(5) 3 institutional staff and 497 community health providers trained in subjects related to care during birth.

B. Purpose Indicators

1. 25% Decrease in Proportion of Post Neonatal Infant Deaths by Immunopreventable Diseases (0.5% to 0.4%), Diarrhea (21.0% to 15.8%) and Pneumonia (8.8% to 6.6%).

Strategy:

The MAIMN prioritizes interventions, reducing mortality caused by this group of diseases and will assure high coverage levels through microsectorization and registration of high-risk population and the strengthening of the network of *brigadistas* and midwives. In the case of pneumonia and diarrhea, investigative training in participatory methodologies are being developed to improve the diagnoses and use of drugs. Furthermore supervisory tools and other follow-up processes are being developed and implemented to guarantee the correct application of information acquired through training.

Accomplishments for 1995:

(1) development and testing of an investigative training methodology to improve the diagnosis and treatment of pneumonia in children reducing by 75% the number of cases of pneumonia not treated properly.

(2) 179 institutional workers trained in the use of a participatory research methodology to improve the treatment of ARI,

(3) 90 institutional workers and 686 community health providers trained in the treatment of ARI,

(4) 65 institutional workers and 1822 community health providers trained in the treatment of diarrhea,

(5) development and testing in the Boaco SILAIS of supervisory instruments for the treatment of diarrhea and ARI.

2. **Increase Prevalence of Exclusive Breastfeeding** (from 13.1% to 20.0%) **of Infants less than Four Months Old.**

Strategy:

To accomplish this goal, using the MAIMN both institutional as well as community staff promote breastfeeding continuously to pregnant women and to women with children less than one year old. The registries of pregnant women and children will be used to secure the delivery of this service to most mothers. The accreditation of child-and-mother friendly hospitals and health centers will be supported with training and with the search for financing of materials required. Finally, support is being provided to IEC activities developed by Wellstart International and Johns Hopkins University.

Note: The Family Health Survey is contemplated as the only source of information about progress toward this goal. The next survey will be carried out at the beginning of 1997.

Accomplishments for 1995:

(1) incorporation of breastfeeding in the registries of children as well as pregnant women, to assure a routine surveillance with ample coverage,

(2) 625 institutional staff and 427 community health providers trained in areas of breastfeeding,

(3) a superb coordination with Wellstart International, to whom MSH provides administrative services in Nicaragua, and Johns Hopkins University.

3. **Increase CYP Provided by MINSA in the Five Project SILAIS** (from 34,700 to 38,200).

Strategy:

In order to achieve this goal, institutional staff as well as community workers will promote and/or deliver family planning methods continuously to groups of women defined by the MAIMN as high risk, including those who simply do not wish to become pregnant. The registry of pregnant women and children will be used to assure the delivery of this service to mothers during the first post-natal year. The feasibility of developing registries of all women in childbearing age in the rural areas will be studied, and if feasible, the registries will be implemented. The injectable

method (DepoProvera) has been introduced and the availability of all methods will be enhanced in all the health units. Finally, IEC activities being developed by Johns Hopkins University will be supported.

Accomplishments for 1995:

(1) delivery of 36,072 CYP in the five Project SILAIS, during the first six months of the year.

Note: This achievement surpasses the final goal of the Project. The goal was based on estimates of the Official TAACS of AID for MINSA CYP in 1993, which seem to be underestimated by approximately 100%. It is recommended that the Project goal be doubled.

(2) the introduction of DepoProvera in all the municipalities of Jinotega and Matagalpa,

(3) the adoption by 471 users of DepoProvera in the SILAIS of Jinotega in the first six months of availability,

(4) the incorporation of contraceptives in the SIVIC,

(5) 258 institutional staff and 111 community health providers trained in areas of family planning,

(6) the coordination with Johns Hopkins University.

4. Immunization Coverage Achieved and Maintained at 80% for Polio, DPT, Measles, BCG and TT.

Strategy:

In the five Project SILAIS, the Immunization Census of the EPI have been empowered as tools to monitor and assure the timely delivery of vaccinations for children at the microsector level. This measure will contribute to a meaningful improvement in coverage estimates through a reduction in double recount of doses applied and an improvement in the estimates of population to be vaccinated, and will reduce the dependency of EPI on campaigns to achieve adequate coverage. (A similar system has been proven to assure the vaccination with TT of women of childbearing age.) In coordination with EPI and to reduce lost opportunities and duplication of efforts, vaccination services will be integrated in the delivery of other maternal-child services, and the monitoring and supervisory systems of the immunization process will be implemented by the municipal authorities. Also in coordination with EPI, monitoring and maintenance of the cold chain is being supported.

Accomplishments for 1995:

(1) more than 90% increase in coverage of one-year old children in populations where the immunization census has been used during six months or more,

(2) incorporation of approximately half of the children less than one year old in the immunization census organized by annual cohorts and microsectors,

(3) 933 institutional staff and 1554 community health providers trained in the system for management of vaccinations,

(4) the development, testing and implementation of a system to supervise, monitor and evaluate the system for management of vaccinations in the Boaco and Matagalpa SILAIS

(5) survey of cold chain inventory in cooperation with EPI.

5. Investigate 50% of Maternal and Infant Deaths.

Strategy:

Routine investigation at the local level of maternal and infant deaths serves two fundamental purposes: (1) the self-learning of those involved on the causes and possible measures to avoid future deaths and (2) the development of reliable data that permits the scientific identification of the principal causes of death, which is necessary for the selection of priority interventions. Institutional staff will be trained in the compilation and analysis of the data on deaths occurred in the geographical area of responsibility of their health unit. Once the local analysis is completed, the data will be delivered to the municipality, SILAIS and national level for the corresponding analysis.

Accomplishments for 1995:

(1) the development and initial testing of research questionnaires on infant deaths with their respective instructive,

(2) the investigation of 45 infant deaths in the Boaco and Managua Central SILAIS (approximately 5% of expected deaths),

(3) the investigation of all maternal deaths identified in the Project SILAIS using MINSA's original investigation questionnaires and

(4) 56 institutional staff trained in the Epidemiological Surveillance System on Infant Mortality.

6. **Decrease by 60% Duration of Stockouts of Three Primary Health Care Drugs: ORS** (6.0% to 3.0%), **TMX** (18.0% to 9.0%) **and Procainic benzyl-penicillin** (19.0% to 9.5%).

7. **Decrease by 50% Duration of Stockouts of Contraceptives: Levonogestrel** (21.0% to 10.0%), **Nogestrel** (26.0% to 13.0%), **Condoms** (3.0% to 1.5%) **and Copper T** (8.0% to 4.0%).

Note: The strategy and corresponding accomplishments for these two indicators are the same.

Strategy:

The SIVIC developed and tested at the level of municipal health centers with Project support, will be implemented at the national level to monitor the availability of 20 products considered critical for the delivery of services included in the MAIMN. The SIVIC will be adapted to the level of health posts, and mechanisms of data consolidation for the municipal, SILAIS and central levels will be implemented in order to expedite decision making concerning high-priority products. The SIVIC will be complemented by efforts to improve the system of programming medicines and medical inputs, which will facilitate a better estimate of the real needs and will permit more informed decisions with respect to priorities, within the budgetary limits. These efforts, in turn, will be complemented by the development and/or efforts to improve the rational use of drugs.

Note: The *Dirección General de Normas para Insumos Médicos* (DGNIM) made the decision not to include condoms because there were no stockouts during the testing of SIVIC. Likewise, by ministerial decree, the copper T has not yet been included in the SIVIC.

Accomplishments for 1995:

(1) adjustment and approval of the SIVIC by the DGNIM for its implementation at the national level,

(2) initial implementation of the SIVIC in at least one municipal health center in each one of the five Project SILAIS,

(3) 222 institutional staff trained in the SIVIC,

(4) development of a computerized system to improve annual programming of pharmaceuticals and its testing and utilization in the Matagalpa and Managua SILAIS,

(5) participation by three MINSA officials in the international workshop: *Evaluación Rápida del Manejo de Productos Farmacéuticos: un Enfoque a Base de Indicadores,* carried out in Santa Cruz de la Sierra, Bolivia.

8. Increase the Approved Budget Ratio of the SILAIS.

Strategy:

MINSA is in a process of decentralization where more responsibility and authority has been granted to the SILAIS. The Project supports this process through the development and implementation of the Financial Management System (FMS) that implies a strict standardization of the financial management processes (which did not exist), and the development and implementation of a computerized program to monitor these processes and the flow of funds through them. FMS implementation is supported through the purchase and installation of microcomputers and staff training in basic abilities of computer use as well as in the use of the FMS. After the successful implementation of the FMS, the staff is supported by means of analyses of processes and decision making based upon the program's output reports.

Accomplishments for 1995:

(1) approval of the design of the FMS,

(2) development and testing of the computerized FMS program with the corresponding user's manual and technical documentation,

(3) installation of 26 computers, 25 in different SILAIS and health centers, with the installation of programs, including the FMS, and corresponding accessory equipment,

(4) 860 person-days of training to institutional staff in basic abilities of computer use,

(5) implementation and operation of the FMS in three SILAIS and four health centers,

(6) 823 person-days of training to institutional staff in the operation and use of the FMS.

9. Reduce by 15% Personnel Unit Costs.

10. Reduce by 6% Physician Unit Costs.

Note: The strategy and corresponding accomplishments for these two indicators are the same.

Strategy:

The Project is seeking to increase productivity of MINSA personnel through the most efficient utilization of their time and abilities. Decentralization is expected to create incentives and enough flexibility that local authorities can adjust the geographical location and responsibilities of the existing staff in order to increase their productivity. Also through decentralization and local budget management, the necessary conditions are expected to be created for a bettter distribution

of personnel among the different categories of health staff, for example, an increase in the number of nurses with respect to physicians. The development and implementation of improved management systems, such as the FMS, is contemplated to secure decentralization; this will be complemented by technical assistance in organizational development and by the creation and implementation of methodologies to measure productivity, which feeds into the process of decision making at the local level. Supervisory systems will also contribute to productivity increases, in addition to improvements in the quality of services.

Accomplishments for 1995:

Note: The progress in the development and implementation of the FMS has been described previously.

(1) preparation of the study *Utilización de los Costos Promedio de Mano de Obra para Medir la Eficiencia Relativa en los Centros de Salud de los SILAIS de Boaco y Managua Central,*

(2) development and beginning of the implementation of the Monitoring and Evaluation System and

(3) 376 institutional staff trained in areas related to supervision.

11. Adoption of a Global Financial Plan.

12. Adoption of a Global Cost Recovery Policy.

Note: A global cost recovery policy should be a component of a Global Financial Plan. Thus, the strategies for the development and approval of the plan also apply to the development and approval of the policy.

Strategy:

Though the Government of Nicaragua has achieved impressive advances in health sector reform, given the political sensibility of this subject, new initiatives are expected until after the elections next year. In 1996 the progress made is expected to be consolidated and evaluated and the studies prepared will be analyzed. This delicate task could be carried out by a commission of high-level political officers of MINSA, supported by consultants of different agencies, to prepare the ideas and recommendations that would feed a dialogue with the new authorities at the beginning of 1997. The product of this dialogue, which should include authorities from the principal donor agencies such as PAHO/WHO, USAID, World Bank and IDB, would be the global financial plan and the global cost recovery policy for the new government. These plans and policies will have to be approved by the new authorities.

Accomplishments for 1995:

Notes: The FMS has the capability to handle separately funds from different financing sources and to produce consolidated reports, essential attribute for global financial health management in the public sector.

To avoid duplication of efforts, the DHS Project collaborated informally with consultants from other projects financed by the World Bank and the IDB, who with their MINSA counterparts were the principal authors of the following initiatives that will contribute to the development of a global financial plan.

(1) the preparation of a bibliography on the financing of health services in Nicaragua under the MINSA-IDB Project,

(2) the initiation of the study for demand of health services carried out by the MINSA-IDB Project, and

(3) the beginning of recurrent costs of health centers and hospitals carried out by the MINSA-World Bank Project.

C. OUTPUTS

Note: Some of the outputs included in the logical framework of the Project depend upon efforts of the different MINSA programs and do not reflect the Project's own activities. Nevertheless, those who designed the Project decided that the joint efforts of MINSA and the Project should be able to guarantee the fulfillment of the progress stipulated.

1. ORS provided to 95% of Children less than Five Years Old with Diarrhea.

Strategy:

To carry out this objective the availability of ORS is assured in each health unit and the correct diagnosis and adequate treatment of diarrhea cases. Having ORS constantly in stock in health units will be facilitated with their inclusion in the SIVIC, which is discussed previously. Their correct usage is guaranteed by training institutional and community workers in the diagnosis and treatment of diarrhea and with the implementation of a systematic and objective supervisory methodology.

Accomplishments for 1995:

Note: The incorporation of the ORS in the SIVIC and the training carried out for the treatment of diarrhea were mentioned previously (purpose indicator #1 and #6).

(1) design and testing of a systematic and objective supervisory instrument on the diagnosis and treatment of diarrhea in the Boaco SILAIS, and

(2) the attainment of the final goal at the level of municipal health center and short of its goal at the level of health posts.

2. Vitamin A Supplements provided to 80% of Children less than 5 years old.

Strategy:

This objective will be achieved with the approval of the administration of vitamin A supplements, not only during the national health campaigns, but as one of the priority preventive interventions included in the MAIMN and the incorporation of the supplements among the products monitored by the SIVIC. The application of vitamin A supplements will be assured through the registry of children less than 5 years old and the training of staff involved, institutional as well as community health providers.

Accomplishments for 1995:

(1) MINSA approval of the application of vitamin A supplements as a priority preventive intervention included in the MAIMN,

(2) incorporation of vitamin A supplements in the products monitored through SIVIC,

(3) 94 institutional staff and 54 community health providers trained in areas related to micronutrients, mainly vitamin A, and

(4) an important increase (from 48% to 72%) in coverage with vitamin A supplements estimated in the five Project SILAIS.

3. Treatment of 85% of Reported Pneumonia Cases with Antibiotics.

Strategy:

Availability of the antibiotics (trimethoprin sulpha and benzyl penicillin) is assured to achieve this objective in each health unit, plus the correct diagnosis and adequate treatment of the cases of pneumonia. Having a permanent stock of antibiotics in the health units will be facilitated with their incorporation in the SIVIC, which was discussed previously. Their correct utilization is ensured with the training of community and institutional staff in the diagnosis and treatment of pneumonia and with the implementation of a systematic and objective supervisory methodology.

Accomplishments for 1995:

Note: The incorporation of the antibiotics in the SIVIC and the training carried out on treatment of ARI (purpose indicator #1, #6 and #7) were mentioned previously.

(1) design and testing of a systematic and objective supervision form on the diagnosis and treatment of pneumonia in the Boaco SILAIS,

(2) an increase (from 74% to 94%) of the cases of pneumonia treated with antibiotics through investigative training in the Boaco SILAIS, and

(3) an initial measurement (77.8%) of the cases of pneumonia treated with antibiotics in the Jinotega SILAIS.

4. Increase by 25% of Percentage of Women who Receive Prenatal Care during the First Trimester.

Strategy:

To attain this objective, the timely capturing of pregnant women is assured by setting goals for each microsector of each health unit and municipality, and incorporating the *brigadistas* and midwives, heads of microsectors, into the task of identifying pregnant women and the promotion of pre- and post-natal services. The women, who for whatever reason, do not go to the health unit will be visited in their houses by personnel from the nearest health unit. Once identified, the pregnant woman will be incorporated into a registry (census) organized by annual cohorts according to the estimated date of birth of the child to assure the delivery of promotional and preventive services in a timely and systematic way.

Accomplishments for 1995:

Note: The development and testing in Jinotega of the registry for pregnant women has been presented previously (impact indicator #2).

(1) 60 institutional staff and 335 community health providers trained in subjects related to prenatal services and identification of pregnant women with high obstetric risk, and

(2) an increase of 8.2% in the number of pregnant women with controls in the first quarter (33% of the goal for Life of Project).

5. Increase by 25% the Percentage of Women who Receive Post-natal Care.

Strategy:

The registry of pregnant women will be used to assure post-natal controls. Once the specific women who require the service are identified, their active search will follow, in the first instance by midwives and in the second by the institutional staff.

Accomplishments for 1995:

Note: The development and testing in Jinotega of the registry for pregnant women has been previously mentioned (impact indicator #2). Training in this area includes maternal mortality (impact indicator #2) and family planning (impact indicator #3). Other activities related to this objective will begin once the registry for pregnant women is implemented.

6. Training MINSA and community staff (90,000 person-days in maternal health and/or infant survival), **MINSA personnel** (15,000 person-days in management and 450 person-days in the U.S. or third countries).

Strategy:

For the training financed by the Project, a two-pronged strategy is being used: to support the rapid implementation of the MAIMN and other Project objectives, training activities have been financed which were developed and carried out at the SILAIS and/or health unit level and, in the case of abilities to use computers, by the private sector. Simultaneously, some areas of priority have been selected to strengthen the development of new training activities, such as the investigative training in ARI in Boaco and Managua or the round table to promote DepoProvera among health professionals in Jinotega. In order to assure the impact of the training designed with Project support, among other things, formal commitments are negotiated between the facilitators and the participants with respect to training objectives, which are subject to a follow-up after one month or more.

Accomplishments for 1995:

(1) 19,119 person-days of training for MINSA and community personnel in areas directly related to the implementation of the MAIMN and the development of interventions identified in the design of the Project (21.9% of the goal for the Life of Project),

(2) 3,177 person-days of training in areas of management and information systems for MINSA personnel (17.2% of the goal for the Life of the Project) and

(3) 478 person-days of training in the U.S. and third countries for MINSA personnel (106.2% of the goal for the Life of the Project)

Note: The expense for training in the U.S. and third countries was 22.1% of the funds budgeted for such purpose. Therefore, there are still sufficient funds to continue financing training abroad at a similar pace as that of 1995 for the Life of Project.

7. Training of Trainers (in permanent education) (700 person-days for MINSA personnel).

Strategy:

Training of trainers in permanent education is an indispensable effort to improve the quality of in-service training provided within MINSA, for its staff as well as for community workers. (There is a perception that there is an excess of training with relatively poor results.) As a consequence, the Project seeks to initiate a strengthening process which is more substantial and permanent than what is allowed by only 700 person-days of training. This process will be facilitated by the preparation of a handbook for trainers in permanent education, which will be used by them in the replication of the training of trainers at the municipal level.

Accomplishments for 1995:

(1) 573 person-days of training for MINSA trainers in permanent education (81.9% of the goal for the Life of Project) and

(2) the preparation and distribution of two drafts of the facilitators' manual on permanent education.

8. IEC Campaign Conducted.

Strategy:

Given the great number of agencies and projects with IEC activities and the clear need for strengthening MINSA's ability to manage adequately these activities by ensuring their quality and coordination, three strategic action lines have been developed with Project financing: (1) training of MINSA officials abroad in technical aspects of IEC, (2) direct technical assistance in IEC to support the capacity to handle programs currently in design and/or implementation phase, and (3) an IEC campaign directed at institutional staff to develop their knowledge and support of the MAIMN.

Accomplishments for 1995:

(1) Preparation of the initial IEC proposal with participation from the *Dirección General de Atención Integral a la Mujer y la Niñez* (DGAIMN),

(2) Review of the initial IEC proposal taking into account the campaign currently financed by the World Bank and approved by the DGAIMN,

(3) Development and execution of the *Primer Encuentro de Parteras,*

(4) Financing of a participant in a three-week course in IEC technical methodologies, carried out by the Johns Hopkins University in Quito, Ecuador.

9. Produce Timely Revised Reports of the MIS.

Strategy:

One of the fundamental objectives of the MIS is to strengthen the timely financial information available to MINSA managers. The computerized version of certain parts of MIS in the more important health units is key to the achievement of this objective. The follow-up process whose priority is the supervision of timely production and utilization of the financial information at the local level is also essential, as well as its timely delivery to the higher echelons.

Accomplishments for 1995:

Note: Advances in the development and implementation of the FMS have been previously described (purpose indicator #8).

(1) As an integral part of the FMS, the standard reports that the computerized system will produce were designed, approved and programmed.

10. Produce Timely Revised MIS Reports.

Strategy:

One of the fundamental objectives of the MIS is to strengthen the timely statistical information available to MINSA managers. Computerizing parts of the MIS in the more important health units and the SILAIS is key for the achievement of this objective. The follow-up process which prioritizes the supervision of the timely production and utilization of statistical information at the local level, is also essential as well as its timely delivery to the higher echelons.

Note: In accordance with MINSA priorities and instructions from the Project's Steering Committee, the development and implementation of the FMS has been granted the highest priority.

Accomplishments for 1995:

(1) Analysis of the statistical processes in urban health centers and preparation of the *Diagnóstico del Sistema de Información en el Primer Nivel de Atención: Centro de Salud Francisco Morazán,*

(2) Preparation and production of the Manual of Operations and Procedures: SILAIS Statistics,

(3) Preparation and production of the Manual of Operations and Procedures: Statistics Department: Health Center,

(4) 40 institutional staff at the national level trained on the two manuals, and

(5) 14 institutional staff of the Boaco and Central SILAIS trained on the computer program EPI-INFO.

11. Prepare Four Studies on Cost Containment and Alternate Revenue Sources.

12. Perform Four Workshops on Cost Containment and Alternative Financing.

13. Perform Four Specific Proposals for Cost Containment and Alternative Financing.

Note: The strategy and corresponding achievements for these three outputs is the same.

According to MINSA's priorities and instructions received from the Steering Committee of the Project, the implementation of MAIMN and the development and implementation of the FMS should be granted the highest priority.

Strategy:

Since the resources available through the DHS Project for alternative financing and cost containment are more limited than those available through the MINSA-IDB Project and the MINSA-World Bank Project and the stage of the electoral cycle favors the consolidation of initiatives already done, instead of the formulation and starting of new initiatives, two strategic lines have been adopted (1) to respond to specific opportunities and/or detailed requests made by MINSA officials and (2) to collaborate informally with some initiatives of the other projects. It is considered that the production of these three products would be timely for the second semester of 1996 and in 1997 when they could feed a dialogue on the policies of the financing of the health sector with the new MINSA authorities.

Accomplishments for 1995:

(1) Preparation of the document *Alternative Financing: Strategies for the Decentralized Health Services Project*,

(2) Design, implementation, preparation and presentation of the *Estudio de la Farmacia Popular de Ocotal*,

(3) Incorporation of the *Estudio de la Farmacia Popular de Ocotal* as an annex for the PAHO/WHO proposal to the Government of Italy for the extension of PRODERE, which includes the creation of popular pharmacies in other municipalities of the SILAIS of Nueva Segovia and Jinotega, and

(4) Participation in the Seminar "The Nicaraguan Health System, Facing the Year 2000" sponsored by MINSA and the National Assembly, financed partially by the MINSA-World Bank Project .

ANNEX 1

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	BASELINE 93/94	PROGRES 1995 I	TARGETS 1998	SOURCE	FREQUENCY OF COLLECTION	OBSERVATIONS FIRST SEMESTER 1995
GOAL							
To improve maternal & child health	1. Reduction in Infant Mortality Rate (IMR)	59		50	FHS (Baseline 1990)	Every 4 years	
	2. Reduction in Maternal Mortality Rate (MMR)	150	74	125	MINSA/Boletin Epidemiológico	Yearly	Maternal Deaths = 61 Live Births = 172,373
	3. Reduction in Total Fertility Rate (TFR)	4.6		4.0	FHS (15-49) (Baseline 1990)	Every 4 years	
PURPOSE							
To improve management & increase effectiveness of and access to health services	1. 25% decrease in proportion of postneo-natal deaths from:			%	SILAIS reports FHS	Yearly	
	Immunopreventable diseases:						
	NATIONAL	10.7%		8.0%	FHS	Every 4 years	Taken from:
	OCCIDENTAL	0.2%	0.0%	0.2%	SILAIS reports	Yearly	*Defunciones por Causa*
	CENTRAL	0.5%	0.0%	0.3%	SILAIS reports	Yearly	*Básica. DGSI*
	BOACO	2.2%	0.0%	1.7%	SILAIS reports	Yearly	
	MATAGALPA	0.6%	0.0%	0.5%	SILAIS reports	Yearly	
	JINOTEGA	0.6%	0.0%	0.5%	SILAIS reports	Yearly	
	5 SILAIS	0.5%	0.0%	0.4%	SILAIS reports	Yearly	
	Diarrheas:						
	NATIONAL	20.0%		15.0%	FHS	Every 4 years	
	OCCIDENTAL	12.0%	38.5%	9.0%	SILAIS reports	Yearly	
	CENTRAL	21.0%	45.7%	15.8%	SILAIS reports	Yearly	
	BOACO	13.0%	36.8%	9.8%	SILAIS reports	Yearly	
	MATAGALPA	41.0%	47.4%	30.8%	SILAIS reports	Yearly	
	JINOTEGA	29.0%	47.1%	21.7%	SILAIS reports	Yearly	
	5 SILAIS	21.0%	44.6%	15.8%	SILAIS reports	Yearly	
	Pneumonias:						
	NATIONAL	12.9%		9.7%	FHS	Every 4 years	
	OCCIDENTAL	4.7%	30.8%	3.5%	SILAIS reports	Yearly	
	CENTRAL	2.7%	17.1%	2.0%	SILAIS reports	Yearly	
	BOACO	6.6%	15.8%	5.0%	SILAIS reports	Yearly	
	MATAGALPA	32.0%	23.1%	24.0%	SILAIS reports	Yearly	
	JINOTEGA	6.0%	25.5%	4.5%	SILAIS reports	Yearly	
	5 SILAIS	8.8%	23.4%	6.6%	SILAIS reports	Yearly	
	2. Increase % of infants less than 4 months that are breastfed exclusively	13.1%		20.0%	FHS	Every 4 years	

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS (OVI)		BASELINE 93/94	1995-I	TARGETS 1998	SOURCE	FREQUENCY OF COLLECTION	OBSERVATIONS FIRST SEMESTER 1995
	3. Increase CYPs provided by MINSA in 5 focus SILAIS		34,700	72,144	38,200	93: USAID est. future data from SILAIS reports	Biannually	Occidental = 9801 Central = 8344 Boaco = 3239 Matagalpa = 10524 Jinotega = 4164
	4. 80% immunization coverage achieved & maintained							
	Polio	NATIONAL	94% <49%>	92.0%	80%	EPI/PAHO <FHS>	<FHS: every	
		OCCIDENTAL	79% (49%)	80.0%	80%	(SILAIS)	4 years>	
		CENTRAL	69% (70%)	60.0%	80%		All other	
		BOACO	137% (136%)	132.0%	80%		annually	
		MATAGALPA	90% (90%)	108.0%	80%			
		JINOTEGA	94% (78%)	92.0%	80%			
	DPT	NATIONAL	78% <49%>	82.0%	80%	EPI/PAHO <FHS>	<FHS: every	
		OCCIDENTAL	65% (74%)	66.0%	80%	(SILAIS)	4 years>	
		CENTRAL	57% (57%)	50.0%	80%		All other	
		BOACO	105% (102%)	128.0%	80%		annually	
		MATAGALPA	74% (77%)	96.0%	80%			
		JINOTEGA	93% (69%)	86.0%	80%			
	Measles	NATIONAL	83% <35%>	78.0%	80%	EPI/PAHO <FHS>	<FHS: every	
		OCCIDENTAL	76% (85%)	56.0%	80%	(SILAIS)	4 years>	
		CENTRAL	67% (68%)	46.0%	80%		All other	
		BOACO	109% (109%)	110.0%	80%		annually	
		MATAGALPA	85% (85%)	98.0%	80%			
		JINOTEGA	110% (93%)	96.0%	80%			
	BCG	NATIONAL	94% <90%>	126.0%	80%	EPI/PAHO <FHS>	<FHS: every	
		OCCIDENTAL	66% (72%)	58.0%	80%	(SILAIS)	4 years>	
		CENTRAL	112% (108%)	74.0%	80%		All other	
		BOACO	138% (130%)	140.0%	80%		annually	
		MATAGALPA	94% (94%)	162.0%	80%			
		JINOTEGA	85% (84%)	168.0%	80%			
	TT	NATIONAL	78%	32.0%	80%	FHS: 1 dose	Every 4 years	
		OCCIDENTAL	26%	26.0%	80%	EPI/PAHO	Annually	
		CENTRAL	25%	24.0%	80%	EPI/PAHO	Annually	
		BOACO	97%	38.0%	80%	EPI/PAHO	Annually	
		MATAGALPA	54%	42.0%	80%	EPI/PAHO	Annually	
		JINOTEGA	91%	44.0%	80%	EPI/PAHO	Annually	

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	BASELINE 93/94	1995-I	TARGETS 1998	SOURCE	FREQUENCY OF COLLECTION	OBSERVATIONS FIRST SEMESTER 1995
	5. Investigate 50% of maternal & infant deaths				SILAIS reports	Annually	An analysis of all reported deaths is made.
	OCCIDENTAL	0%	100.0%	50%	SILAIS reports	Biannually	
	CENTRAL	0%	100.0%	50%			
	BOACO	0%	100.0%	50%			
	MATAGALPA	0%	100.0%	50%			
	JINOTEGA	0%	100.0%	50%			
	6. Decrease by 50% stockout duration of 3 PHC drugs						TMX Stockouts Occ = 22 days, 4 whses Cen = 60 days, 5 whses Boa = 3 days, 1 whse Jin = 0 days
	ORS	6.0%	2.0%	3.0%	TA reports	Biannually	
	TMX	18.0%	4.0%	9.0%			Tot = 706 days, 24 whses
	benzyl penicillin	19.0%	7.9%	9.5%			
	7. Decrease by 50% contraceptive stockout duration						
	levonogestrel	21.0%	6.2%	10.5%	TA reports	Biannually	
	nogestrel	26.0%	17.4%	13.0%			
	condoms	3.0%	4.7%	1.5%			
	copper T	8.0%	4.2%	4.0%			
	8. Increase SILAIS expenditure rates						
	NATIONAL	?		75%	TA reports	Annually	
	OCCIDENTAL	63%		75%			
	CENTRAL	69%		75%			
	BOACO	62%		75%			
	MATAGALPA	65%		75%			
	JINOTEGA	64%		75%			
	5 SILAIS	64%		75%			
	9. Reduce personnel unit costs by 15%						
	NATIONAL	?		?	TA reports	Annually	
	OCCIDENTAL	38.36		29.58			
	CENTRAL	36.57		33.33			
	BOACO	46.61		33.78			
	MATAGALPA	30.11		29.56			
	JINOTEGA	17.18		17.18			
	5 SILAIS	33.78		28.69			

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	BASELINE 93/94	1995-I	TARGETS 1998	SOURCE	FREQUENCY OF COLLECTION	OBSERVATIONS FIRST SEMESTER 1995
	10. Reduce physician unit costs by 6%						
	NATIONAL	?		?	TA reports	Annually	
	OCCIDENTAL	5.10		3.94			
	CENTRAL	3.68		3.68			
	BOACO	3.83		3.83			
	MATAGALPA	3.13		3.13			
	JINOTEGA	3.95		3.94			
	5 SILAIS	3.94		3.70			
	11. Comprehensive financing plan adopted	none		one	Official Document	Once during project life	
	12. Comprehensive user fee policy adopted	several		one	Official Document	Once during project life	
OUTPUT							
1. Improved delivery of MH/CS services	1. 95% of children less than 5 presenting with diarrhea provided ORS						
	NATIONAL	54%		none	FHS (all cases)	Every 4 years	
	OCCIDENTAL	71%	100.0%	95%	SILAIS reports	Biannually	
	CENTRAL	75%	100.0%	95%	SILAIS reports	Biannually	
	BOACO	85%	100.0%	95%	SILAIS reports	Biannually	
	MATAGALPA	71%	98.0%	95%	SILAIS reports	Biannually	
	JINOTEGA (inc. hosp.)	115%	100.0%	95%	SILAIS reports	Biannually	
	5 SILAIS	73%	98.0%	95%	SILAIS reports	Biannually	
	2. Vit A supplements provided to 80% of children < 5 years old				Jornada Nacional de Vacunación (JNS) reports	Biannually	Doses provided: 0-5 yr. population
	OCCIDENTAL	42%	67.94%	80%	JNS reports	Biannually	64,603/95,092
	CENTRAL	35%	30.95%	80%	(1994 is pro-		24,902/80,464
	BOACO	65%	97.39%	80%	jected based		21,863/22,450
	MATAGALPA	51%	105.70%	80%	June data.)		94,262/89,175
	JINOTEGA	70%	75.72%	80%			32,352/42,724
	5 SILAIS	48%	72.14%	80%			237,982/329,905

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	BASELINE 93/94		TARGETS 1998	SOURCE	FREQUENCY OF COLLECTION	OBSERVATIONS FIRST SEMESTER 1995
	3. 85% of pnuemonia cases treated with antibiotics						**In Jinotega:** 2,107 cases w/antibiotics out of 2,708 pneumonias.
	OCCIDENTAL	?		85%	TA reports	Biannually	Reports from the TA's
	CENTRAL	?		85%	(1994 data not	(Starting in	(1995 data does not exist
	BOACO	?		85%	available due to	1995)	due to the inadequate
	MATAGALPA	?		85%	inadequate		diagnosis of pneumonias)
	JINOTEGA	?	77.8%	85%	diagnosis of		
	5 SILAIS	?		85%	pnuemonias.)		
	4. 25% increase in % women receiving 1st trimester prenatal care						
	NATIONAL	37%		none	FHS	Every 4 years	
	OCCIDENTAL	18%	23.2%	22.5%	SILAIS reports	Annually	2,392 of 10,310
	CENTRAL	18%	22.9%	22.5%			1,996 of 8,724
	BOACO	35%	38.4%	43.8%			939 of 2,447
	MATAGALPA	38%	34.5%	47.5%			3,712 of 10,764
	JINOTEGA	47%	39.3%	58.8%			3,175 of 8,069
	5 SILAIS	28%	30.3%	35.0%			
	5. 25% increase in % women receiving postnatal care						
	NATIONAL	31.0%		none	FHS	Every 4 years	
	OCCIDENTAL	23.3%	26.5%	29.1%	SILAIS reports	Annually	2,463 of 9,289
	CENTRAL	19.8%	25.8%	24.8%			2,029 of 7,860
	BOACO	48.6%	38.7%	60.8%			854 of 2,205
	MATAGALPA	27.8%	22.0%	34.8%			2,056 of 9,328
	JINOTEGA	24.7%	19.4%	30.9%			1,412 of 7,269
	5 SILAIS	24.7%	24.5%	30.9%			
	6. Training (person/ days)						
	MINSA and CHWs	0	21,815	90,000	TA reports	Quarterly	
	MINSA: mgmt. training	0	3,109	15,000			
	US & 3rd country	0	478	450			
	7. Training of trainers (person/days)	0	537	700	TA reports	Quarterly	
	8. IE&C campaign conducted	0		1	TA reports	Biannually	

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	BASELINE 93/94	1995-I	TARGETS 1998	SOURCE	FREQUENCY OF COLLECTION	OBSERVATIONS FIRST SEMESTER 1995
2. Improved management of MINSA public health resources	9. % revised FMS report produced opportunely Health Centers SILAIS	 NA NA		 60% 60%	MINSA/SILAIS financial records	Biannually (starting '96)	
	10. % revised MIS report produced opportunely Health Centers SILAIS	 NA NA		 60% 60%	MINSA/SILAIS stat. records	Biannually (starting '96)	
	11. Decentralized budget management credits	8		57	TA reports	Biannually	
3. Cost containment and cost recovery methods explored and tested	12. Four cost & alternative financing studies	0	1	4	TA reports	Biannually	
	13. Four cost containment & alternative financing workshops	0		4	TA reports	Biannually	
	14. Four specific proposals for cost containment & alternative financing initiatives	0		4	TA reports	Biannually	

ANNEX 2

This annex contains notes on the data and the calculation of each indicator.

A. Impact Indicators

1. Reduction in Infant Mortality Rate (from 59 to 50/1000 live births).

The next reliable measurement of this indicator is expected from the Family Health Survey in 1997. The routine recording of infant deaths does not have sufficient coverage to permit a reliable estimate. The results of the Census on Population and Housing 1995, to be published in the 1996, should provide an estimate for this indicator.

2. Reduction in the Maternal Mortality Rate (from 150 to 125/100,000 live births).

The next measurement of this indicator is expected through the Family Health Survey for 1997. The value of the baseline comes from the 1993 Epidemiological Bulletin. MINSA did not publish an Epidemiological Bulletin for 1994. Thus, there is still no updated coefficient than the one in the baseline. The results of the 1995 Census, to be published in 1996, should provide an estimate of the level of this indicator.

3. Reduction in Total Fertility Rate (from 4.6 to 4).

The next reliable measurement of this indicator is expected through the Family Health Survey for 1997. The routine recording of births does not have sufficient coverage to permit the calculation of a reliable rate. The results of the 1995 Census, to be published in 1996, should give an estimate of the level of this indicator.

B. Purpose Indicators

1. 25% Decrease in Proportion of Postneonatal, Infant Deaths from Immunopreventable Diseases (0.5% to 0.4%)**, Diarrhea** (21.0% to 15.8%) **and Pneumonia** (8.8% to 6.6%)**.**

Data currently available for this indicator originates from the General Directorate for Information Systems (DGSI). DGSI data comes from the files on infant mortality. There are different forms for several of the most important causes. Frequently, when an infant dies who suffered more than one illness, there could be more than one form filled out, creating the probability of a double record. In the case of immunopreventable diseases, however, no deaths have been reported during the first six months of 1995.

2. **Increase Prevalence of Exclusive Breastfeeding** (from 13.1% to 20.0%) **of Infants less than 4 months.**

The results of the 1995 Census, to be published in 1996, should give an estimate of the level of this indicator. Currently, there is no other source of data for this indicator.

3. **Increase CYPs provided by MINSA in the Five Focus SILAIS** (from 34,700 to 38,200).

An estimate for the baseline was provided by the USAID TAACS officer, who indicated it was done jointly with UNFPA. An extrapolation of the data of the Family Health Survey on Nicaragua 92-93 derives an estimate approximately twice the figure in the baseline. The data gathered by the SILAIS, assuming the observance of the norm to provide three oral contraceptive cycles in each subsequent visit, also provides an estimate of CYPs by the MINSA approximately twice the baseline figure. Therefore, it seems that the baseline estimate should be doubled.

4. **Immunization Coverage achieved and maintained at 80% for Polio, DPT, Measles, BCG and TT.**

Coverage comes out of EPI and these are the official MINSA figures. Coverage included in the baseline came from the same source and, as a rule, are higher than the Project goal. Thus, for this indicator only, progress estimates in the tables of the Executive Summary are the current coverage divided by the goal coverage, and not the percentage reached of the difference between the baseline and the final goal.

Coverage obtained from EPI, frequently are above 100%. This problem seems to have two sources: (1) the double registry of doses applied, possibly when the mother of the child loses the vaccination card and the health workers begin a new vaccination program, and the instructions not to observe intervals during the campaigns, especially for polio, (2) an underestimate of the number of children who must be vaccinated. The two errors can be corrected through the application of the *Sistema Gerencial de Vacunación,* as has been promoted by the DHS Project.

5. **Increase by 50% the proportion of reported infant and maternal deaths that are investigated.**

It is understood that all reported maternal deaths are being investigated in the five Project SILAIS, though not yet with the integrated questionnaire developed with Project support. Recently, research was begun on infant mortality in two SILAIS using a preliminary questionnaire prepared with Project support. Approximately 45 deaths have been investigated to date, representing 4% of the 900 infant deaths expected in the Project SILAIS during a six month period.

6. **Decrease by 50% the Duration of Stockouts of 3 Essential PHC drugs: ORS** (6.0% to 3.0%), **TMX** (18.0% to 9.0%) **and Procainic Benzyl-penicillin** (19.0% to 9.5%).

7. **Decrease by 50% duration of Stockouts of Contraceptives: Levonogestrel** (21.0% to 10.0%), **Nogestrel** (26.0% to 13.0%), **Condoms** (3.0% to 1.5%) **and Copper-T** (8.0% to 4.0%).

Data for these two indicators has been gathered from the kardex in the health centers by the Project Technical Associates as a special effort for this purpose. It is espected that the data will be obtained routinely and more reliably through SIVIC. With the upcoming incorporation of the health posts, the levels shown in this report could diminish.

8. **Increase the Rate of Approved Budget Expenditure of the SILAIS.**

The principle implied by this indicator is that the rate of expenditure of the budget will be increased when the decentralized units acquire greater control in the formulation, execution and control of their budgets. The FMS is designed to cooperate with this process. Due to the fact that the FMS was just recently installed in the related SILAIS during 1995, a first evaluation of results can only be carried out at the end of 1996.

9. **Reduce by 15% Unit Personnel Costs.**

10. **Reduce by 6% Unit Physician Costs.**

With respect to these two indicators, the reduction of personnel costs will take place once the information of the FMS, together with the information originating from service statistics, allow the comparison of unit costs in a systematic form to allow for decisions with respect to staff assignments. The methodology to calculate unit costs has already been developed (Olave, Vásquez; 1995) and its implementation will be carried out in the five Project SILAIS in 1997.

11. **Adopt a Global Financial Plan.**

12. **Adopt a Global Cost Recovery Policy.**

The strategy adopted with respect to these indicators shows that the plan and policy will be developed by and with the Government installed in 1997. Thus, the fulfillment of these Project objectives is expected in the year 1998.

C. OUTPUTS

1. **ORS provided to 95% of children less han 5 years old with diarrhea.**

The calculation of this indicator is based upon the observation that practically all children with diarrhea are treated with ORS when the product is in stock in the health unit. Thus, the value of this indicator is similar to the stockage of ORS (Purpose Indicator #6).

2. Vitamin A supplements provided to 80% of children less than five years old.

Data on the current value of this indicator have been collected by the Technical Associates in the Project SILAIS. Coverage has been calculated by dividing the number of doses provided by the number of children estimated in the population. This denominator could experience significant adjustments with the publication of the 1995 National Census.

3. Treatment of 85% of reported Pneumonia cases with antibiotics.

Due to the lack of information on the diagnosis of pneumonias, a baseline could not be established for this indicator during the Project Accelerated Start Component. During 1995, a baseline of 74% was established for Boaco and for Jinotega, 77.8%. During the course of 1996, it is expected that progress will be observed in this indicator.

4. Increase by 25% the women who receive prenatal care during the first trimester.

5. Increase by 25% the women who receive post-natal care.

Data for these two indicators come from DGSI. The SILAIS report to MINSA Central the number of pre- and post-natal care provided. This number is divided by the number of pregnant women and births expected, respectively.

6. Train MINSA staff and Community health care providers (90,000 person/days in maternal health and/or infant survival), **MINSA personnel** (15,000 person/days in management and 450 person/days in the U.S. or third countries.).

7. Training of Trainers (in-service education) (700 person/days for MINSA personnel)

The quantifiable information on these two indicators is obtained through the system established by the Project, specifically to gather data on the amount of training financed by the Project through the MSH contract.

8. Conduct and IEC campaign.

In accordance with the Project design, the initiation of the IEC campaign was programmed for the third Project year. This output, however, must be subject to a revision on the basis of the document: *Plan Estratégico: Información, Educación y Comunicación (IEC),* prepared in collaboration with personnel from the *Dirección General de Atención Integral a la Mujer y la Niñez* and submitted in its current form to USAID in August 1995.

9. Timely Revised Reports produced by the FMS.

The FMS is being installed in all the country's SILAIS. Installation will conclude on 31 January 1996, and it is expected to be in working order in all the SILAIS and Municipalities

where it has been installed by 1 April 1996. The first evaluation on the timely preparation and utilization of the reports generated by the FMS will be carried out in July 1996.

10. Timely Revised Reports produced by the MIS.

The MIS will not only be a system for statistical information, but an integrated system with several components, which will be developed in a compatible way with many tiers. The first MIS component is expected to be developed, programmed and installed during the course of 1996. In July of 1997, the first evaluation can be carried out on the timely preparation and utilization of the reports generated by the first computerized component of the MIS.

11. Develop four Studies on Cost Containment and Alternate Revenue Sources.

It is expected that each one of the studies on cost containment and alternate revenue sources must have a report as a tangible result. The report, *Estudio de la Farmacia Popular de Ocotal,* was prepared and distributed by the Project in August 1995.

12. Carry out Workshops on Cost Containment and Alternate Revenue Sources.

13. Four specific proposals for Cost Containment and Alternate Revenue Sources developed.

In accordance with the document, *Financing Alternatives: Strategy for the Decentralized Health Services Project,* these outputs will support the development of the "Global Financial Plan" and the "Global Cost Recovery Policy." Consequently, progress on these two indicators is expected for the end of 1996.

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