FOOD AND NUTRITION TECHNICAL ASSISTANCE

SMIC

Sun Mountain International Consulting

MID-TERM EVALUATION FOR THE FY 2002-2006 BOLIVIA TITLE II DEVELOPMENT ASSISTANCE PROGRAM

A report prepared for USAID Bolivia

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LIST OF ACRONYMS

ACS	Agentes Comunitarios en Salud (Community Health Agents)
ADRA	Adventist Development Relief Agency
AFI	Asistente de Fortalecimiento Institucional (Institutional Strengthening Assistant)
ARI	Acute Respiratory Infection
ASOHABA	Association of Haba Bean Producers
BCC	Behavior Change and Communication
CAI	Comité de Análisis de Información (Committee for Information Analysis)
CAPYS	Comité de Agua Potable y Saneamiento (Potable Water and Sanitation Committee)
CBGP	Community-based Growth Promotion
CBO	Community Based Organizations
CCPF	Centro Comunitario para Promoción Familiar (Community Family Promotion Center)
CHP	Community Health Promoter
CLUP	Community Land Use Plan
CPS	Center for Communications Programming
CS	Cooperating Sponsor
CSR4	Cooperating Sponsor Results Report and Resource Request
DAP	Development Assistance Program
DESCOM	Desarrollo Comunitario (Community Development)
DHS	Demographic and Health Survey
DILOS	Directorio Local de Salud (Local Health Directorate)
DPT	Diphtheria, Polio, Tetanus Vaccine
EHP	Environmental Health Project
EIA	Environmental Impact Assessment
FDTA	Bolivian Foundation for the Development of Agricultural Technologies
FFP	Food for Peace
FFW	Food for Work
FHI	Food for the Hungry International
FUD	Ficha Familiar Unico de Datos (Unique Family Data Form)
GOB	Government of Bolivia
IEC	Information, Education and Communication
IEE	Initial Environmental Examination
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
INE	Instituto Nacional de Estadistica (National Statistics Institute)
IPTT	Indicator Performance Tracking Table
KAP	Knowledge, Attitude and Practice
LOA	Length of Activity
LOP	Life of Project
MAPA	Market Access and Poverty Alleviation
MCH	Maternal and Child Health

MCH/N	Maternal and Child Health and Nutrition
M&E	Monitoring and Evaluation
MOH	Ministry of Health
MT	Metric Ton
MTE	Mid-term Evaluation
MWM	Micro Watershed Management
MYAP	Multi-Year Assistance Program
NGO	Non-Governmental Organization
NRM	Natural Resource Management
NTU	Nephelometric turbidity unit
O&M	Operation and Maintainance
ORPA	Observe, Reflect, Personalize, Act (Educational Method)
OTB	Organizaciones Territoriales de Base
PASACH	Programa de Apoyo al Sector Agropecuario de Chuquisaca (Program to Aid the Agricultural Sector in Chuquisaca)
PCP	Participatory Community Plan
PDI	Positive Deviance Inquiry
PERSUAP	Pesticide Evaluation Report and Safe Use Action Plan
PIV	Puesto de Información de Vinchucas (Vinchuca Information Post)
POA	Plan Anual de Operacion (Annual Operating Plan)
POP	Planes de Ordenamiento Predial (Land Use Plans)
PROAGUAS	Programa de Saneamiento Básico para Pequeños Municipios (Basic Sanitation Program for Small Municipalities)
PROSIN	Programa Nacional de Salud Integral (Integrated National Health Program)
PVO	Private Voluntary Organization
RIP	Rural Income Program
RPS	Responsable Popular de Salud ("Health Promoter")
SD	Standard Deviation
SEAS	Seguridad Alimentaria Sostenible (Sustainable Food Security)
SECI	Sistema Epidemiologico Comunitario de Información (Community Epidemiological Information System)
SERNAP	Bolivian National Park Service
SIMA	Servicio Informativo de Mercadeos Agropecuarios (Agricultural Marketing Information System)
SISAB	Superintendencia de Servicios Basicos (Superintendent of Basic Services)
SIVAS	Sistema de Vigilancia en Agua y Saneamiento (Water and Sanitation Surveillance System)
SIVICS	Sistema de Vigilancia Comunitaria en Salud (Community Health Surveillance System)
SNIS	Sistema Nacional de Información en Salud (National Health Information System)
SODIS	Solar Disinfection of Water
SUMI	Seguro Universal Materno-Infantil (Universal Maternal and Child Health Insurance)
TAG	Technical Assistance Group

UMSS	Universidad Mayor de San Simon (University of San Simon)
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VIP	Ventilated Improved Pit Latrine
VMSB	*ViceMinisterio de Servicios Básicos* (Vice Ministry of Basic Services)
WARMI	Aymara word for women, also name used for a community participatory planning method
W&S	Water and Sanitation

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EXECUTIVE SUMMARY

The purpose of this Mid-term Evaluation (MTE) was to review the programs of the four Title II cooperating sponsors (CSs) in Bolivia and assess the progress that they have made to date in meeting the objectives specified in their Development Assistance Programs (DAPs). This evaluation included a review of each of the major program components – maternal and child health and nutrition (MCH/N), water and sanitation (W&S), income generation (IG) and natural resource management (NRM). The MTE also aimed to identify key problems and constraints and to work with each CS and the Bolivia Mission to develop recommendations that would help improve the effectiveness of the current Title II programs during the remaining two and one half years of the DAPs.

The MTE Team was comprised of experts in the fields of health and nutrition, household economic analysis, agricultural production, natural resource management, U.S. Regulation 216, environmental analysis and engineering. In addition to the four external experts, the CSs provided significant expertise through their own staff, who accompanied the external evaluators in almost every aspect of the evaluation. The findings and recommendations included in this report are truly a joint effort of both the external experts as well as the CS professionals. Debriefings were held continually throughout the evaluation to ensure coherence of observations as well as to avoid any surprises in the final report. Fieldwork took place during two phases, with the visits to the Food for the Hungry International (FHI) and Save the Children (SAVE) sites taking place in August 2004 and the visits to the Adventist Development Relief Agency (ADRA) and CARE sites in November 2004.

With respect to the Bolivian Title II program as a whole, the MTE Team was impressed with how far the program has come since 1995 when USAID began to focus the overall Title II program on the objective of reducing food insecurity in the developing world. The current programs in Bolivia are more focused on the food insecure, their technical quality is much higher, and their staff, who are still as dedicated, now also have much more technical knowledge and experience to offer.

The Team also was impressed with the high quality of many of the activities being undertaken in the individual CSs programs and with the progress that is being made by the four CSs in terms of impact. Many of their activities are having a measurable and in some cases substantial impact on the lives of the people in their program areas. The implementation of activities is uneven, however, by CS and by program component, with some activities an integrated part of a coherent strategy and/or meeting high technical standards, others needing to be strengthened and some rethought and even phased out.

The Adventist Development and Relief Agency (ADRA), for example, has made great strides under this new DAP significantly improving the technical quality and impact of its Title II program. Compared to its last DAP, this program is much more focused both technically and geographically. The maternal and child health and nutrition, income generation and natural resource management programs are all well designed and have strong technical staff at the helm and in the field. The quality of this program was a surprise to the evaluation team, and is a good

example of how the principles of "focus and concentrate" coupled with sound technical design and effective leadership can produce a measurable improvement in results.

CARE also has accomplished a lot under its Title II program, which began in 1999. CARE Bolivia has considerable depth and strength as an organization, however, its current program is too ambitious relative to the human and financial resources available under the DAP. This is a reality that CARE management and technical staff have begun to recognize and deal with. At this point in time, halfway through the current DAP, CARE needs to rethink its priorities and think more strategically, refocusing its programs more geographically and technically on activities that have a higher probability of making significant contributions to its key objectives.

Food for the Hungry International (FHI) continues its tradition of having a strong technical program, backed with experienced and capable staff in the field. FHI has gained a reputation for its commitment to technical innovation and a willingness and ability to learn from past experiences. Since the initiation of this DAP, FHI also has taken steps to rationalize its management, shedding certain non-essential functions and decentralizing others to the field. FHI also has added a new dimension to its programs under this current DAP, working with communities to help them develop a broader vision of their long-term goals, one that goes beyond just technical objectives.

This is Save the Children Bolivia's (SAVE's) first Title II program in Bolivia and to its credit SAVE was able to get a lot of activities underway quickly and to develop close working relationships with its target communities. Like many new programs, however, SAVE tried to do too much in too many places. Now is the time for consolidation. SAVE needs to reassess what it has accomplished in the first half of its DAP and begin quickly to focus its program more geographically and programmatically on those activities and interventions that seem to be most effective and with the highest potential. To its credit, SAVE senior management reacted quickly and decisively to the results of the MTE, taking action immediately to replace several key technical staff and consolidate programming. SAVE has made the decision to withdraw from the Province of Inquisivi, limit its selection of infrastructure projects, shift to a greater market focus, improve its health and nutrition interventions and focus its natural resource management activities.

The overall Title II program in Bolivia would benefit from more collaboration among the CSs, and each of the CS programs would benefit from better integration among their individual program components. Many of the steps that the four CSs need to take to improve program performance within each of their major program components are also similar:

Maternal and Child Health and Nutrition (MCH/N)

The CSs have made good progress incorporating community-level integrated management of childhood illness (C-IMCI) into their MCH/N programs and have strengthened community health promoter capacity in this area. In addition, women in project areas generally have very good general health, nutrition and hygiene knowledge and have made good use of MCH/N food rations. However, the CSs can strengthen community-level growth monitoring by placing more focus on growth promotion, since the sole concentration on recuperation of malnourished children results in lost opportunities to catch and correct child growth faltering early in its

development. The programs also should develop clearly defined and implemented behavior change and communication (BCC) strategies, especially in the areas of nutrition and hygiene. CSs should make better use of qualitative methods to understand participant behaviors and formulate BCC strategies in order to have a greater impact on behavior. ADRA has done a good job of incorporating early childhood stimulation into its program, and all CSs should strategically include this activity. The CSs should also work together to develop a basic standard protocol to follow when addressing the needs of malnourished children. Although the programs appear to have similar monitoring and evaluation indicators, their definition and calculation is not completely harmonized across all CSs, making comparisons of progress difficult. Future DAP programs should focus on harmonizing both indicator definition and calculation in the early stages of program development. In addition, all CSs should have standardized equipment and procedures for gathering and analyzing anthropometric data given the critical importance of the anthropometric indicators.

Income Generation (IG)

The CSs have made progress in adding a marketing dimension to their income generation (IG) programs and have some successes to show for it. ADRA, in particular, stands out as having developed a true market or demand driven program. The programs of the other three CSs vary, with some further along on certain dimensions of their marketing efforts than others. All three need to give more attention to disseminating post harvest technologies and practices to their clients to help them increase the value of their products in higher valued markets, however, and all three need to devote more attention to facilitating market linkages. All three also need to strengthen their in-house marketing expertise and their links with other organizations with marketing expertise, including the Bolivia Mission's Marketing and Poverty Alleviation Project (MAPA) and the Bolivian Foundations for the Development of Agricultural Technologies (FDTAs). All four CSs also should continue to give priority to activities that help increase producers access to water for agricultural purposes. Lack of access to water is a major constraint and helping to relax this constraint opens up many more opportunities for the CSs and their client communities. Because the water supplies are so limited in the areas of the country where the CSs are operating, they also need to give more emphasis in their programs to improving water utilization and to protecting water sources. To achieve this latter objective, the CSs will have to improve the collaboration between their IG and NRM programs and give higher priority to working in watersheds that affect the supplies of water that are available to their communities, both for irrigation and human use.

Natural Resources Management (NRM)

Through the course of the MTE, the Team became convinced that CS efforts in natural resource management (NRM) activities have made a substantial improvement to ecosystems and livelihoods of many DAP program participants. Soil conservation activities have made farmlands more productive and water conservation interventions have increased moisture content and carrying capacity of the land. Reforestation efforts have increased soil stabilization, created new arable land and increased woodlots and biomass to help families cope with household energy needs. Community organizations also have been strengthened and have increased resources in a sustainable manner through both household and community-level NRM activities

and long-term planning. To improve their (NRM) programs further, the CSs would benefit from improving coordination between NRM programs and their MCH/N and IG counterpart components. In addition, CSs should more thoroughly incorporate environmental planning and mitigation measures into project designs, implementation strategies and monitoring and evaluation systems. To increase impact, CSs should also strengthen or adopt watershed management strategies in each of the priority program areas, and concentrate efforts in contiguous geographic areas as much as possible. Exit strategies should be oriented to focus on results rather then time spent in communities. Agro-forestry strategies should complement soil and water conservation activities and be incorporated into on-farm and municipal development plans. ADRA, CARE and SAVE would benefit from the creation of stand alone environmental units, such as FHI has successfully piloted. Environmental guidelines should also be developed (or adopted) for all activities and all four CSs should work together to ensure that the guidelines they develop are in accord with Bolivian laws and USAID regulations.

More detailed information on the Team's recommendations, by CS and by program component, is provided in Chapter 9 and Team observations on the strengths and weaknesses of each of the four cooperating sponsors, by program components can be found in Chapter 8.

1. BACKGROUND ON THE BOLIVIAN TITLE II PROGRAM

1.1. Program Overview

The Bolivian Title II Program is implemented through four Cooperating Sponsors (CSs): The Adventist Development and Relief Agency (ADRA), CARE, Food for the Hungry International (FHI) and Save the Children (SAVE). All four CSs have five year Development Assistance Programs (DAPs) that were approved by USAID in Washington in 2001 and run from 2002 through 2006. The resources provided through the program are considerable, averaging $20 million per year for a total of $100 million over five years.

Table 1: Estimated Resources Available to the Bolivia Title II Program by Cooperating Sponsor over the Life of the Program, 2002 to 2006
(US$ 000)

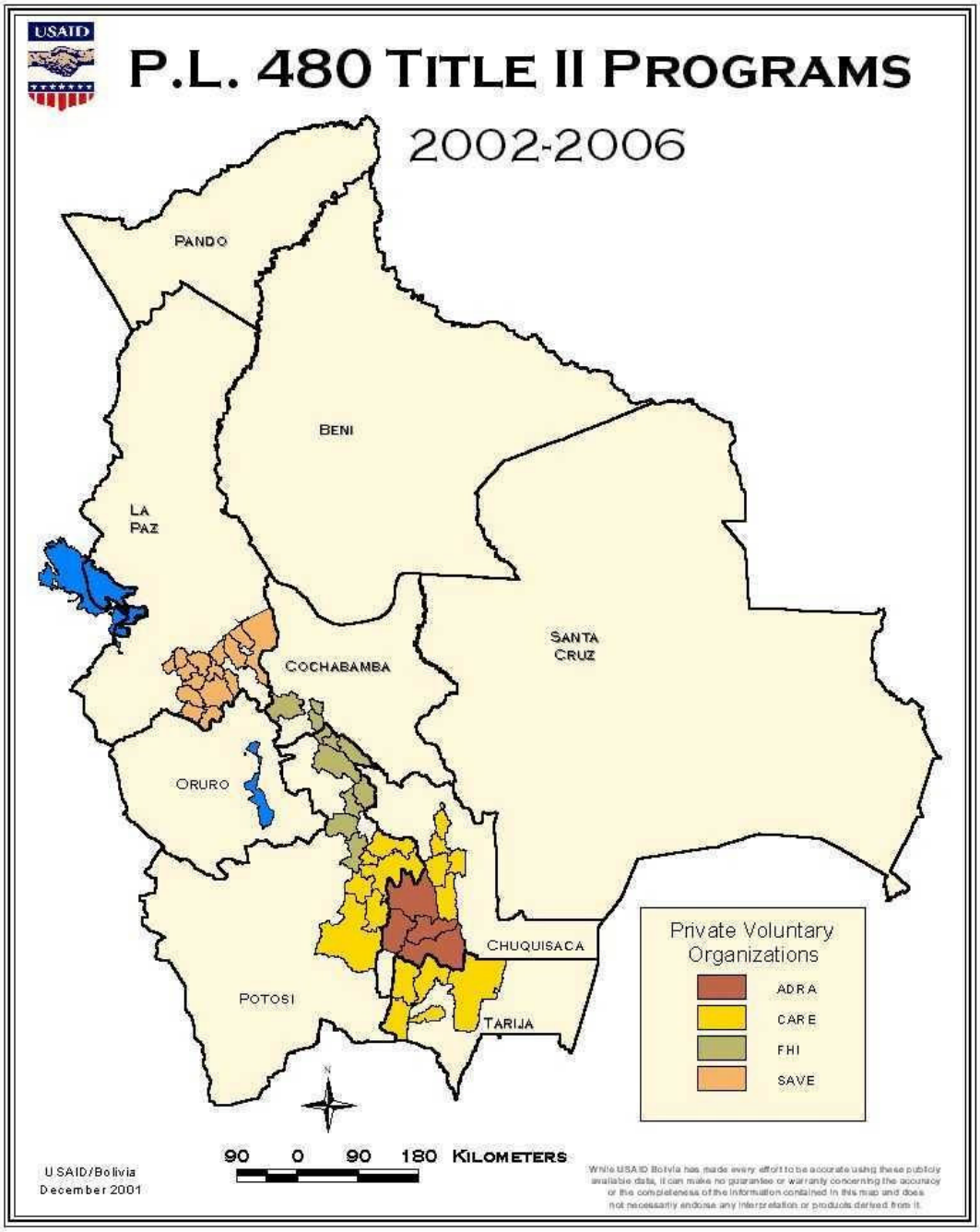
	ADRA	CARE	FHI	SAVE
Regular Program	7,910	12,403	7,218	10,963
Monetization Program	8,622	12,857	13,182	9,341
202 (e)	389	500	714	500
Other	1,117	5,821	2,144	526
Total	18,038	31,581	23,258	21,330

All four CSs use food aid to improve food access, availability and food utilization in some of the most food insecure areas of Bolivia. All four programs use food directly to supplement the diets of young children and pregnant women and in food for work programs, which provide food to vulnerable families in exchange for work on local public infrastructure. All four programs also monetize some of the food and use the proceeds to support basic health services, nutrition education, agricultural extension and training and local capacity building.

1.2. Geographic Location of the Program

The four CSs are working in the most food insecure provinces in five departments of the country – La Paz (SAVE), Chuquisaca (ADRA, CARE), Potosí (CARE and FHI), Cochabamba (FHI) and Tarija (CARE) (see map). These areas were selected based on a study of food insecurity commissioned by the Mission in FY2001 which gave each province in Bolivia a food security rating (low, moderate, high and extreme) using existing socio-economic data. The areas that the four CSs are working in were rated as having high or extreme levels of food insecurity.

Map of P.L. 480 Title II Programs



1.3. Program Goals and Principles

The Bolivian Title II development assistance program, which is explicitly directed at reducing the high levels of food insecurity and poverty in Bolivia, has four interrelated goals:

- Improving the availability of food at the household level through increases in agricultural productivity,
- Increasing incomes and enhancing access to food through improved marketing links,
- Reducing child malnutrition and improving biological utilization of food through integrated health, education, water and sanitation interventions, and
- Increasing food availability and access by conserving and rehabilitating the natural resource base which maintains agricultural productivity for rural Bolivians.

The Bolivian Title II program aspires to be a true "development program," with food and local currency resources used to support individual, community and municipal efforts to overcome development constraints and enhance household food security. Efforts are focused on creating opportunities so that households achieve sustainable improvements in real income. Although activities such as the Maternal and Child Health and Nutrition (MCH/N) Program distribute food rations to vulnerable individuals, food resources are used primarily in conjunction with training and technical assistance activities that help build a foundation for sustainable development.

The program also focuses on sustainability, with sustainability including the degree to which Title II program interventions establish the basis for continued progress and actions after the end of CS involvement. To promote sustainability, the CSs get the support of and involve the municipalities, local communities and beneficiaries in the development and implementation of their activities. As a result of the Popular Participation Law, municipalities are now able to provide counterpart funds to help support the Title II activities. These relationships are formalized in an "Inter-Institutional Agreement" between the CSs, the relevant municipal governments, and the local communities. Municipal counterpart funds, which range from 10 to 30 percent, are included in the annual operating plan (POA) that each municipality has to develop. By working through municipalities and obtaining counterpart contributions, the CSs are helping ensure that local governments will be able to continue similar interventions after the CSs leave the area. All CSs recognize that active, continued participation is essential to sustainability. As a result, all activities also have an explicit training component and a high degree of local control.

1.4. Program Components

Each CS program contains three major components with distinct objectives and activities. These objectives are to:

Improve maternal and child health and nutrition – This component includes two types of activities. The first set is focused on improving the delivery of health and nutrition services, and includes immunization campaigns, the detection and treatment of diarrheal diseases and acute respiratory infections, and the provision of basic medical services; growth monitoring and promotion of children below the age of three; and nutrition and health education. The second set

is focused on improvements in water and basic sanitation and includes the construction of basic infrastructure (community and family water systems, sewage systems, latrines and showers), helping communities organize to operate and maintain this infrastructure and the provision of hygiene education.

Increase rural incomes – This component includes activities designed to transfer improved agricultural technologies, improve farmers' access to market information and strengthen market links, improve farm family infrastructure (including silos, chicken houses and stables for cattle and sheep) and improve community productive infrastructure (including micro-irrigation and rural access roads).

Improve natural resource management – This component includes training communities in natural resource management (NRM), promoting soil conservation practices and adapting irrigation methods to topographic conditions in the areas of intervention; providing temporary Title II food assistance in support of conservation or rehabilitation activities; and improving forage through the introduction of improved species and/or propagation and protection of desirable native species.

All four CSs are trying to integrate these components at the community level. This can be difficult, however, including because different programs can require different amounts of time to implement. For example, when FHI designed its current DAP, it believed that it only needed two and one half years in a community to implement its integrated health and water and sanitation programs but that it would need seven years in a community to implement its income generating programs.

1.5. Brief Descriptions of the Four Programs

All four CSs designed their programs to be consistent with and support several of USAID/Bolivia's strategic objectives and intermediate results. This includes SO2, which focuses on *increased incomes for Bolivia's poor*, and SO3, which focuses on the *improvement of the health of the Bolivian population.*

Although all four of the CSs are working in distinct locations, with no overlapping of program areas, all four work primarily in two major ecoregions. This includes the Altiplano (which refers to high, cold arid tablelands generally more than 3,600 meters above sea level) and the Valles (which refers to temperate but dry valleys generally between 1,000 and 3,400 meters).

1.5.1. ADRA

ADRA has been operating in Bolivia since 1976, including implementing Title II activities. The goal of its current program (2002-2006) is to increase rural incomes in a sustainable way in its program area while focusing on markets and ensuring environmental and health improvements (See page 6 for more details on the goals and strategic objectives of each of the four cooperating sponsors). Early Title II programs included health, nutrition, infrastructure and agricultural development activities, but the methods that ADRA uses have changed dramatically over the years, with more emphasis given now to sustainability and to program integration. For example,

in its health programs, ADRA focuses less on the direct delivery of services and more on strengthening the capacities of the Bolivian Ministry of Health system to provide these services. Currently ADRA works with rural communities in food insecure areas in the department of Chuquisaca (in the provinces of Sud Cinti and Nor Cinti). ADRA selected these areas because they met the food insecurity criteria established by the Mission and they were working in them during the previous DAP. ADRA estimates that its programs were reaching almost 10 thousand direct beneficiaries and almost 40 thousand indirect beneficiaries in 2004.

1.5.2. CARE

CARE has provided development assistance and humanitarian relief in Bolivia since 1976. CARE's first DAP was approved in 1999, and it began working in January 2000 in six municipalities in the Departments of Potosí and Tarija. In August 2003, under its current DAP, CARE expanded into the Department of Chuquisaca (where it is now working in five municipalities) and it began working in two additional municipalities in Potosí and three additional municipalities in Tarija, for a total of 16 municipalities and 782 communities. The goal of the current program is to significantly improve the quality of life for 29,000 rural, poor, food insecure families living in 16 municipalities within three socioeconomic sub-corridors in the Departments of Potosí, Chuquisaca and Tarija. CARE estimates that in 2004 its MCH/N program was reaching almost 8 thousand direct beneficiaries, its income generation (IG) program almost 7 thousand direct beneficiaries and its NRM program almost 800 beneficiaries. The CARE program also gives high priority to working closely with and strengthening municipal governments as a means to ensure sustainability.

1.5.3. FHI

Food for the Hungry International (FHI) has been operating in Bolivia with a Title II program since 1983. The goal of the current program (2002-2006) is to increase regional, local and household food security for approximately 55 thousand men, women and children in FHI targeted areas through three strategic objectives. FHI works with around 240 rural communities in food insecure areas in the departments of Cochabamba (provinces of Capinota and Tapacari) and Potosí (provinces of Chayanta, Charcas and Bilbao). FHI expanded its operations in these departments under this DAP and phased out of the departments of Oruro and La Paz, where it also had been working during its previous DAP. FHI's principle partners are the Organizaciones Territoriales de Base (OTBs) and community churches. Community members are primarily of Quechua or Aymara descent. FHI estimates that its programs were reaching over 21 thousand direct beneficiaries and 24 thousand indirect beneficiaries in 2004.

Box 1: Goals and Strategic Objectives of the Four Title II Cooperating Sponsors in Bolivia

ADRA

GOAL: To empower families and communities for a holistic, sustainable improvement in their lives through an increase in rural income supported by improvement in health and natural resources management.

STRATEGIC OBJECTIVES:

- Increased productivity of marketable produce by targeted households
- Increased agriculture-related income of targeted households
- Improved natural resource management in targeted communities
- Improved health and nutritional status of the targeted population
- Increased water and sanitation facilities for targeted households and communities
- Strengthened capacity of municipal governments and OTBs to promote citizen development in their own communities

CARE

GOAL: To significantly improve the quality of life for 29,000 rural, poor, food insecure families living in 16 municipalities within three socioeconomic sub-corridors in the Departments of Potosí, Chuquisaca and Tarija.

STRATEGIC OBJECTIVES:

- Reduced burden of disease and ill health among woman of reproductive age and children under five years
- Increased rural household income in cash and in food supplies
- Enhanced natural resources and common property management through improved local governance and enabling conditions

FHI

GOAL: To increase regional, local and household food security for approximately 55,000 men, women and children in FHI's target areas.

STRATEGIC OBJECTVES:

- Improved integrated health of targeted populations in food insecure areas of Bolivia
- Increased incomes from agricultural or agriculture-related activity in communities assisted by FHI
- Reduced unsustainable exploitation and degradation of natural resources

Save the Children

GOAL: To reduce childhood malnutrition and increase the overall food security of the families living in 214 rural communities in their target areas.

STRATEGIC OBJECTIVES:

- Increased rural incomes through improved agriculture and market participation
- Improved maternal and child health and nutrition
- Enhanced natural resource management by improving local capacity

1.5.4. Save the Children

SAVE has been operating in Bolivia since 1986, but this is its first Title II program. The goal of this program (2002-2006) is to reduce childhood malnutrition and increase the overall food security of the families in its project areas through three strategic objectives. SAVE is working in 246 rural communities in three provinces in the Department of La Paz – Inquisivi, Loayza, and Aroma -- located to the south and east of the capital. SAVE's community members are primarily of Aymara descent with some three percent of Quechua origin. SAVE estimates that its programs were reaching almost 45 thousand direct beneficiaries and an additional 40 thousand indirect beneficiaries in 2004.

2. THE MID-TERM EVALUATION (MTE)

2.1. Purpose of the MTE

The purpose of the MTE was to review the program of the four Title II CSs and assess the progress that they have made to date in meeting the objectives specified in their DAPs. The MTE also aimed to identify key problems and constraints and to work with the Bolivia Mission and the CSs to develop recommendations that would help them improve the effectiveness of their programs during the remaining two and one half years of their DAPs. In carrying out this purpose, the MTE Team:

- Reviewed each of the four CSs programs, by program component, to assess the progress they have made to date in accomplishing their stated goals and objectives.
- Identified the strengths and weaknesses of the individual CSs and of alternative program approaches.
- Generated a set of recommendations to improve the design and implementation of the programs, by program component, during their remaining two and one half years.
- Examined and recommended ways to enhance program sustainability and viability.
- Observed and commented on the use of food and other resources to support program activities.
- Reviewed practices related to and compliance with Environmental Regulation 216 in all DAP activities.

The MTE Team devoted considerable effort to the development of specific recommendations for each of the CSs by program component and with respect to Regulation 216. In doing so, it has tried to be as specific as possible, given the limited time that it had to spend in the field visiting each of the four programs. It did so knowing that each of the four CSs wanted this evaluation to provide them with detailed information and practical, actionable recommendations that they could put to use immediately to help them improve the management and impact of their programs.

2.2. Methodology

The MTE Team took a participatory approach to the evaluation, working closely with USAID/Bolivia and each of the CSs in all phases of the evaluation. Field visits were designed to enable program participants as well as CS staff to provide their inputs to the evaluation process. Both qualitative and quantitative data were used. Qualitative data were collected through a review of key documents, interviews with key informants, and observations of programs in the field. MTE Team members reviewed and assessed the quantitative data available on program performance from the baseline survey results and the final results from the mid-term survey. Team members also reviewed the FY 2003 and FY 2004 results reports from each of the four CSs, which contained detailed information on each of the CS's performance indicators.

The core MTE Team included four expatriates -- an agricultural and marketing specialist, who also served as team leader, a maternal and child health and nutrition (MCH/N) specialist, two specialists in the environment and natural resources -- and two Bolivian engineers, who focused

on the infrastructure dimensions of the program. Each cooperating sponsor also nominated sector specific representative for each of the sector teams, who assisted the core team in meeting the MTE objectives and facilitated the evaluation process for their CS target areas.

Table 2: Composition of the Bolivia Title II Mid-term Evaluation Team

Sector Specialists	Name	Organization
Agriculture (team leader)	Roberta van Haeften	AED
MCH/N	Monica Woldt	AED
Environment/Natural Resources	Scott Solberg	Sun Mountain, Inc.
	Wilson Castaneda	Sun Mountain, Inc.
Infrastructure	Humberto Caceres	USAID Contract
	Fernando Castellon	USAID Contract

The fieldwork took place during two three-week phases. The team reviewed the FHI and SAVE programs during Phase One, which took place in August 2004, and the ADRA and CARE programs during Phase Two, which took place in November 2004. The MTE Team provided initial, but detailed debriefings for each of the CSs immediately after each of the field visits. Members of the USAID Bolivia Food Security Unit participated actively in all field visits and during the individual CS debriefings. Upon completion of all fieldwork, the team held a debriefing with USAID Bolivia staff that included the Mission Director, the Deputy Director and staff of the Food Security, Health, Environment and Economic Opportunities teams.

Specific activities included:

- A Review of Documents

Documents reviewed included the Title II Development Assistance Proposals (DAPs) for each of the four CSs, their FY 2003 and FY 2004 results reports and resource requests, and the mid-term and final evaluation reports for the 1997-2001 DAP implementation period.

- Interviews

Interviews were conducted both in La Paz and in the field with a wide range of key informants, including senior staff from USAID/Bolivia and each of the CSs, regional and local CS staff, formal community leaders, members of community development committees, community volunteers, and beneficiaries.

- Field Visits

Separate field visits were made to communities in each of the CS's sites (See schedules in Annex C). These visits were designed to include a minimum of four days visiting sites, a half day at the mid-point of the field visit for MTE Team members to analyze data and compare notes, and a half day for the MTE Team to meet with CS staff at the end of the field visit to provide feedback on the results of the field visits and to discuss each CS's priorities for the remainder of its DAP. Sites were selected by each of the CSs to provide MTE members with a good representation of

their activities. Specific criteria used to select sites included perceived level of project success (high, medium and low), agro-ecological zones (Altiplano and Valles), presence or absence of health post/health center and types of activities implemented (maternal and child health (MCH/N), income generation (IG), water and sanitation (W&S), natural resources management (NRM), and infrastructure).

3. ASSESSMENT OF RESULTS IN THE MAJOR PROGRAM COMPONENTS: MATERNAL AND CHILD HEALTH AND NUTRITION (MCH/N)

Bolivia's high rates of chronic malnutrition, infant mortality and maternal mortality provide clear evidence that the problem of food insecurity is still serious in the country. According to the results from the 2003 Demographic and Health (DHS) survey, the prevalence of chronic malnutrition (low height for age) among children less than five years of age is 26.5 percent for the country as a whole, 18.5 percent in urban areas and 37 percent in rural areas.[1] There has been no change in national levels of chronic malnutrition since the last DHS survey in 1998. Chronic malnutrition is highest in the department of Potosí (42.3 percent), followed by Chuquisaca (36.6 percent), Chochabamba (28.8 percent), La Paz, (28.5 percent) and Tarija (17.8 percent). High levels of malnutrition in Bolivia are related to poor access to resources that can have positive effects on children's nutritional status. This includes water and sanitation services that can help to prevent diarrheal disease; poor knowledge about nutrition and health, such as the benefits of exclusive breastfeeding, appropriate complementary feeding, and child care during illness; and poor utilization of existing resources, such as locally available foods high in caloric density or plant proteins that can be inexpensively prepared and fed to children.[2]

Nationally, 51 percent of children aged 6-59 months are anemic, 46.7 percent in urban areas and 56.3 percent in rural areas. Anemia levels among children are highest in Potosí (67.6 percent), followed by La Paz (60.3 percent), Cochabamba (51.6 percent), Chuquisaca (46.9 percent) and Tarija (38.6 percent). The majority of children's anemia in Bolivia is caused by iron deficiency.[2] Bolivia also has high rates of infant and maternal mortality. According to the most recent DHS data, Bolivia has an infant mortality rate (IMR) of 54 deaths per 1,000 live births (DHS, 2003), with rates of 44 per 1,000 in urban areas and 67 per 1,000 in rural areas. The IMR is highest in the department of Potosí (72), relatively high in Chuquisaca (67) and Cochabamba (61), slightly lower in La Paz (51) and lowest in Tarija (29). The infant mortality rate is highest among the poorest quintile of the population (106.5).[3] Bolivia's high rates of infant mortality are directly related to high levels of malnutrition, frequent illness among young children, poor caretaker knowledge and care-seeking behavior and poor access to and quality of health services, most frequently seen among the poorest individuals in the population. Bolivia's maternal mortality ratio is 399 deaths per 100,000 live births (DHS, 1994, calculated by direct method for 1984-1994), the highest in the region after Haiti. The MMR in rural areas is two times that of urban areas (563 vs. 262, DHS, 1994). About one-third of women 15-49 years of age are anemic, 30 percent in urban areas and 40 percent in rural areas. Women's anemia levels are highest in La Paz, 43.4 percent, and lowest in Tarija, 25.6 percent. High maternal mortality is also associated with poverty, women's poor nutritional status, and poor access to and use of health services.

Preventive health services are provided by the Ministry of Health (MOH) and NGOs working among the neediest populations. However, a large segment of the population still does not

[1] See Annex B, Table B1 for more details
[2] McGuire, J and Lopez, C. "Poverty and Malnutrition in Bolivia," The World Bank, draft, 2000.
[3] Gwatkin, DR, Rutstein, S., Johnson, K, Pande, RP, and Wagstaff, A. " Socio-economic differences in health, nutrition and population, " The World Bank, May, 2002.

receive basic health services due to cultural and geographic barriers and the limited capacity of the pubic and private sector to reach dispersed rural populations. Plus, individual health seeking practices also are poor. These factors affect the frequency with which women use the health services for themselves and their children. For example, only 47.7 percent of women had a prenatal checkup with a doctor in rural areas in 2003, compared to 70 percent nationally and 84.7 percent in urban areas. Only 32 percent of pregnant women in rural areas gave birth in a health institution, compared to 57 percent nationally and 75 percent in urban areas. In Potosí only 36 percent of women give birth in a health institution, while 50 percent do so in Chuquisaca and 78 percent do so in Tarija.

Also, only around half of caretakers sought assistance from a health care professional when their child was ill with an acute respiratory infection (ARI), 36 percent sought assistance when their child had diarrhea, and about 66 percent provided oral rehydration therapy and/or liquids for their child with diarrhea. A greater percentage of caretakers in urban areas sought assistance for their child with ARI in comparison to rural areas. However, results for care seeking among mothers of children with diarrhea were very similar for urban and rural areas, perhaps due to extensive education and campaigns to raise awareness for this topic. Approximately 50 percent of Bolivian children 12-23 months are completely vaccinated against major childhood diseases, with rates for urban areas slightly higher than for rural areas (52.1 percent vs. 47.8 percent). By department, vaccination rates are higher than national levels in Tarija (70.7 percent) and Chuquisaca (67.2 percent), slightly higher in Potosí (52.6 percent) and lower in Cochabamba (48.3 percent) and La Paz (37 percent). La Paz has the lowest vaccination rates of all the departments of Bolivia (DHS, 2003).

3.1. Program Objectives and Strategy

The Title II Maternal and Child Health and Nutrition (MCH/N) activities are directly linked to the Mission Strategic Objective of *Improved Health of Bolivian Population*. The main objective of the MCH/N program is to improve the health and nutritional status of its target population, women of reproductive age and children less than five years of age, in food insecure areas of Bolivia. The Title II cooperating sponsors are working to achieve this objective through strategies that center around health and nutrition education to improve knowledge and promote behavior change, provision of food rations to vulnerable individuals including pregnant women and children under three years of age, and capacity building aimed at communities, the health system and municipalities in order to increase resources, make effective use of existing resources, and ensure sustainability of efforts once the program phases out.

3.2. Types of Interventions and Their Rationale

Although there is a degree of variation among CSs, most include the following types of MCH/N interventions in their programs: (1) community level education on health, nutrition and hygiene, (2) community-level growth monitoring, accompanied by MOH provision of basic medical services such as immunizations, detection and treatment of diarrheal disease and acute respiratory infections, and supplementation with vitamin A and iron, (3) nutrition rehabilitation of malnourished children, (4) community level integrated management of childhood illness, (5) various types of activities in support of behavior change, (6) use of MCH/N food rations

(preventive model) for pregnant women and children under three years of age, and (7) capacity building at the community, MOH and municipal levels. More detailed information on the individual CS MCH/N programs is available in Annex A.

These activities address some of the key constraints to improving the health and nutritional status of women of reproductive age and children less than five years of age, including:

- Limited education and health and nutrition knowledge

Although child malnutrition in Bolivia persists due in part to poverty (lack of access), insufficient knowledge of appropriate practices (utilization) also plays an important role. Therefore, the CSs give priority to health, nutrition and hygiene education activities, which include promotion of adequate food intake for pregnant women, breastfeeding and complimentary feeding practices for young children, recognition of danger signs during pregnancy and the post-natal period and appropriate response, as well as danger signs during children's episodes of diarrhea and acute respiratory infections and care-seeking behaviors. Education sessions are provided to women's groups by community health volunteers and local MOH staff, who are trained by CS staff in coordination with the Ministry of Health.

- Detrimental health behaviors

Poor knowledge regarding health, nutrition and hygiene, lack of empowerment, and inaccessible services or poor quality services often translates into behaviors that can be detrimental to the health of women and young children. Due to these circumstances, women who experience complications during pregnancy or the post-natal period may not seek medical care. Similar reasons may influence families in their care-seeking behavior for young children who are ill. Child caretakers who lack nutrition knowledge often have poor breastfeeding practices. They also may provide complementary foods of inferior quality for their young children, in quantities and frequencies inadequate to support appropriate child growth.

In response, the CSs work to improve behaviors through providing skills in food preparation using both food rations and locally available foods. In addition, the food rations themselves act to improve not only family nutrition, but also participation in project activities such as growth monitoring and provision of basic medical services, where it is hoped that families will grow to appreciate the importance of the health, nutrition and hygiene interventions and be motivated to continue participation once food rations cease. In other words, the CSs hope to transition from food assistance in the short term, to development of long-term community level strategies to reduce high rates of child mortality and malnutrition.

In addition, the CSs use nutritional rehabilitation sessions to specifically improve behaviors among those families with children that are malnourished. Nutritional rehabilitation includes education, cooking demonstrations, and monthly weighing of malnourished children to measure improvements. Nutrition rehabilitation is complemented by various behavior change activities, such as support groups and home visits with counseling and negotiation sessions. CSs also make active use of community-based integrated management of childhood illness in an effort to improve caretaker prevention and response to children's episodes of illness, especially diarrheal

disease and acute respiratory infections, and construct water and sanitation systems to facilitate behavior change in hygiene.

- Lack of access to health services and poor quality of existing health services

As mentioned previously, the MOH provides curative and preventive health services to Bolivians in both urban and rural areas. However, especially in rural areas where populations are highly dispersed, access to health services can be limited, due both to geographic and cultural barriers. Quality of health services can also be poor due to lack of training and supervision, high levels of staff rotation, and poor facilities/lack of equipment.

In response, the Title II CSs work to strengthen the MOH by training staff in institutional and community IMCI, quality of care/cultural sensitivity, management and use of health data for the national health information system, and effective supervision. CSs also educate families about the Bolivian government's insurance plan for maternal and child health, SUMI (Seguro Universal Materno Infantil), in order to empower families to exercise their right to use health services. In addition, Title II CSs are helping the MOH with coordinated health planning and decision making and allocation of resources for health activities, including strengthening of the CAIs (Comites de Análisis de Información, or committees for the analysis of health information).

- Poor allocation of municipal level resources to health, nutrition and water and sanitation needs and lack of municipal level capacity to plan, design and execute effective programs to meet population needs in health and nutrition

Sustainable improvement in the health and nutritional status of the Title II target population can occur, in part, if the local MOH is strengthened. However, the MOH can only be strengthened if adequate resources and capacity building are allocated to improve its function. In the Bolivian context, the resources to ensure the function of the local MOH are allocated at the municipal level.

In order to positively influence resource allocation to health, nutrition and hygiene needs, the CSs are coordinating with the municipalities to strengthen their health plans and budgets, and to build the management capacity of key individuals at the municipal level and the DILOS (Directorios Locales de Salud, or Local Health Directorates).

- Poor community level capacity for organization and planning to meet needs in health, nutrition and water and sanitation

Another key aspect to achieve sustainable improvement in target population health and nutritional status is to improve community level capacity to organize and plan for health, nutrition and water and sanitation needs. In order to strengthen community capacity, CSs are helping OTBs (Organizaciones Territoriales de Base, legally established community structures) to analyze their needs and propose projects, such as water and sanitation projects, to be submitted to municipal authorities. The CSs are also training community health volunteers in collecting and analyzing community-level health data, in coordination with the MOH and

community leaders and members, in order to identify problems, barriers and solutions. Water and sanitation committees are also trained to operate and maintain community-level water and sanitation systems.

3.3. Progress to Date

In general, the MTE Team was impressed with the technical quality of the CS activities and the progress being made to reach MCH/N targets. Both quantitative and qualitative results demonstrate that CS programs have made positive impacts on the lives of the project participants, and there is great potential to achieve lasting results. However, there are a number of areas where improvements can be made. The programs need to develop/refine their strategies, consolidate their efforts and focus on key issues, activities and areas of intervention in order to have an effective, sustainable impact. This section will first review quantitative results by CS and then qualitative results, in order to illustrate areas for improvement and recommendations to achieve improvements.

3.3.1. Quantitative Analysis Based on Annual Reports

The four CSs have harmonized five of the 10 to 12 MCH/N indicators that they include in their annual results reports. Harmonized indicators include those for measuring the percent of children 3-35 months of age who have a weight-for-age Z-score above -1 S.D., percent of children who participate in growth monitoring, exclusive breastfeeding among children less than six months of age, percent of children less than one who have received their 3rd DPT vaccine (or Pentavalent), and percent of pregnant women who have had a prenatal check-up before their fifth month of pregnancy.

Differences among the remaining indicators, or the fact that some of the CSs include indicators that others do not, make them difficult to directly compare across the four CSs. CARE, FHI and SAVE generally have the most similar indicators. The MTE Team recommends that in future DAPs, the CSs work to harmonize their main indicators, ensuring that indicators that are worded the same are also being calculated in a similar manner. The latter is absolutely critical in order to compare progress among the four CSs.

3.3.1.1. ADRA

ADRA's MCH/N and Water and Sanitation (W&S) program performance results for FY 2004 can be found in Table B2 of Annex B. ADRA surpassed targets for six of the nine MCH/N indicators for which it provided information. Positive results in exclusive breastfeeding are attributed to ADRA's support groups, small women's groups organized by age of the child, in which women share experiences and help mothers with breastfeeding problems to overcome their difficulties. ADRA will adjust its FY 2005 and LOA targets upward for this indicator. Good results in complementary feeding are also attributed to the use of the support groups, as well as the CCPF (Centro Comunitario para Promoción Familiar, or Community Family Promotion Center) training in nutritional rehabilitation and food preparation.

Caretaker treatment of child diarrhea also exceeded the planned target, due mainly to educational sessions provided to mothers at the CCPF. ADRA was one of two CSs (FHI the other) able to meet its target for children 3-35 months of age with a Z-score above -1 S.D. weight for age. ADRA attributes this outcome to its use of health evaluation charts and community risk maps in the CCPFs, good planning of growth monitoring sessions, special attention given to micronutrient supplementation of children, and caretaker support groups. ADRA mentions that barriers to achieving even better results still exist and include domestic violence, temporary migration of families, consumption of contaminated water and poor hand washing. Migration also contributed to poor outcomes for child participation in growth monitoring and low immunization rates.

Women's knowledge regarding danger signs in the pregnancy, delivery and post-partum periods is attributed by ADRA to its healthy motherhood campaigns, which include posters and drawings by mothers, socio dramas and songs. However, targets for prenatal consults before women's fifth month of pregnancy were not achieved, due to misunderstandings about SUMI, language/cultural barriers between health staff and clients, and poor service at health institutions. ADRA is the only CS reporting on community level emergency evacuation systems, which focus on safe motherhood and evacuation of women with obstetric emergencies. The target for communities with such systems was met.

Outcomes related to child nutritional status were not provided because the MTE quantitative results were not available when the report was submitted. Also, results for indicators related to improving health services will be provided in next year's report.

ADRA met its target for appropriate hand washing due to assistance from the health field staff and construction of water systems, though there is much room for improvement. Also, ADRA did not achieve the target for households with year-round access to water sources due to delays with completing two water systems, which will be included in next year's results report. Since water systems are very new, indicators related to per capita water use and community management of water systems will be reported next year.

3.3.1.2. CARE

MCH/N and W&S program performance results for CARE project areas can be found in Table B3 in Annex B. CARE met targets for eight out of eleven of its MCH/N indicators. CARE attributes positive results in child nutritional status to the educational sessions provided to community members, family-level follow-up by its health promoters, family gardens promoted by the rural income generation component of the project, and the WARMI methodology for community planning. The relatively high participation in child growth monitoring is attributed to interest by mothers, fathers and community leaders through the use of WARMI -- although no reason is given for not meeting the target. CARE exceeded its target for exclusive breastfeeding. According to CARE this was due to massive campaigns conducted in coordination with various partners that provided information through radio announcements, health fairs, workshops, community meetings and home visits. Results for care and treatment of children with diarrhea were also very good. This was also attributed to education and family visits provided by health promoters. In addition, CARE is using community wide "healthy home" competitions to

encourage families to improve household hygiene. The competitions were initiated on a pilot basis in the Tarija region and now are being expanded to other project areas.

Vaccination coverage was good and targets were met due to sensitization campaigns and community mobilization through the community level CAIs. The diffusion of information on SUMI by health promoters assisted in reaching the target for prenatal consults for pregnant women. However the target for prenatal consults before the fifth month of pregnancy was not met and barriers and difficulties were not presented.

CARE exceeded targets for three of five W&S indicators. CARE states that training and health volunteer home visits have resulted in positive results in hygienic use of sanitation facilities, and effective work with partners at the municipal and community level, as well as leveraging of funds from UNICEF, Britain and Denmark, has helped CARE meet targets in the provision of water and sanitation systems. However, no reasons were given for not meeting targets for appropriate hand washing and community operation and maintenance of water systems.

3.3.1.3. FHI

FHI program performance results for its MCH/N and W&S programs can be found in Table B4 of Annex B. FHI met or exceeded targets for eight of ten MCH/N indicators. FHI achieved very good results in improving child nutritional status and attributes this to a number of factors, including its use of Positive Deviance Inquiry/Hearth, increased incomes, increased access to and quality of MOH services, positive effects of food rations, high percentage of exclusive breastfeeding among children less than six months of age, and targeting of women and young children most at risk. FHI and Management Sciences for Health are conducting a study to determine the factors behind the results. FHI activity in communities in the prior DAP is also an important factor contributing to their success. LOA targets will not be adjusted due to new project areas that will be introduced in FY 2005. Immunization results are very good due to good collaborations between health promoters and the MOH and active encouragement of caretakers who do not participate in project activities.

However, FHI did not meet targets for prenatal consults among women before their fifth month of pregnancy. FHI believes this is due to poor detection of pregnant women early in their pregnancy. They plan to work with the MOH to detect pregnancies in a more timely fashion and hope that this may also help improve results in exclusive breastfeeding.

FHI exceeded targets in three of five W&S indicators. Their progress in improving access to clean water and sanitary services was very good. Families that chose to participate in W&S projects provide co-funding and labor for the construction of bathrooms and the water distribution system. However, FHI did not meet targets for appropriate hand washing for FY 2004. FHI plans a qualitative study to better comprehend the reasons behind poor results in hand washing and cleanliness of sanitation areas, and also plans to include youth in hygiene campaigns. The FHI team should consider lowering its LOA target for this indicator, considering progress made to date and strategies that will be employed in the remainder of the DAP.

3.3.1.4. Save the Children

Program performance results for SAVE's MCH/N and W&S components are found in Table B5 of Annex B. SAVE exceeded expectations for two of eight MCH/N indicators for which targets were provided, namely, participation in growth monitoring and immunization of children less than one year of age with DPT or Pentavalent. SAVE also had extremely good results for the indicator of appropriate management of diarrhea, almost reaching its LOA target of 95 percent (actual FY 2004 achieved was 93.4 percent -- no FY 2004 target was provided for this indicator in the 2004 results report).

SAVE experienced the greatest challenges to meeting nutritional targets in 2004. SAVE believes this was due to a number of factors, including promoting too many educational messages with lack of focus on key messages, lack of credible change agents in the community, and lack of emphasis on behavioral change. SAVE plans to concentrate on making improvements in these areas during the remaining period of the DAP, including limited, focused messages (six to eight), training of "mother nutrition counselors", an emphasis on weight gain among children instead of just nutritional status, and a greater emphasis on behavior change strategies, including studies on care and feeding behavior.

SAVE had higher than expected percentages of DPT3 drop out for children less than one year of age, but this appears due to initial inappropriate indicator definition, originally agreed upon by the CSs and the USAID Mission. SAVE will alter the target in the future to better reflect the children under one year of age eligible to receive DPT3. Interestingly, SAVE did meet its target for vaccination of children less than one with DPT3.

SAVE did not meet its target for prenatal consults among women before their fifth month of pregnancy. SAVE believes it *is* adequately capturing pregnant women before their fifth month of pregnancy, but that MOH figures for expected pregnancies may be overstated. It also believe that its annual and LOA targets may need to be revised because targets were set based on baseline results that were collected using verbal reporting, which could have involved recall bias. The baseline data collection method, verbal recall, differs from the method used for the collection of the 2004 results, which involved review of health cards. Monitoring of the actual number of pregnant women has been poor and SAVE plans to strengthen monitoring so it more accurately reflects the reality in which the team operates.

SAVE exceeded three of five targets set for its W&S programs -- showing good monitoring results for access to safe water, access to latrines or sanitation and appropriate hand washing. SAVE should be commended for conducting a water and sanitation rapid assessment in its project area and its efforts to rehabilitate existing non-functioning water systems. SAVE attributes its progress to the implementation of a W&S epidemiological surveillance system (SIVAS, Sistema de Vigilancia en Agua y Saneamiento), promoting solar disinfection of water (SODIS) and partnering with the Vice Ministry of Basic Services to strengthen municipal management of W&S projects.

3.3.2. Quantitative Analysis Based on the Mid-Term Evaluation Survey Results

The baseline and mid-term survey results are presented in Table B6 of Annex B. The baseline and mid-term results are provided by the consultant hired by the USAID Mission in Bolivia to oversee and analyze the data for the mid-term survey. Adjusted baseline results refer to a re-analysis of original baseline data taking into consideration only those baseline areas where the project operated during the DAP, and excluding the data from those areas where the DAP did not operate. Indicators for the MTE survey were theoretically standardized across the CSs, however, there are indicators for which some CSs did not collect data, and the indicator for appropriate hand washing was not analyzed in the same fashion for all CSs, though the reasons for this are not clear.

Nutrition results for ADRA, CARE and FHI show good progress made in reducing moderate and severe stunting. As mentioned earlier, SAVE faces challenges in improving stunting levels in its operational area, and is taking steps to improve program implementation. The percentage of children below recommended weight for their age decreased in FHI areas, did not change in CARE and SAVE areas, and oddly, doubled in ADRA's project area, from 10 to 20 percent. This result is also double the level found at the department level where ADRA is working (Chuquisaca, 10 percent, DHS 2003). ADRA states that recent monitoring and evaluation data demonstrate that 10.1 percent of children 3-35 months had a Z-score below -2 S.D. weight for age. ADRA's MTE results for underweight should be re-analyzed and evaluated, as well as their equipment and methods for standardizing staff in taking anthropometric measures. Wasting levels were lower at midterm in FHI and SAVE areas, and low as well in ADRA's project area.

Improvements were also seen among the CSs in exclusive breastfeeding and complementary feeding, with the exception of exclusive breastfeeding in SAVE project areas (SAVE's adjusted baseline levels were 78.3 percent, while the level achieved at the MTE was 73.9 percent). Immunization results were also very good, as were those for appropriate care during diarrheal illness, though there is continued room for improvement in decreasing diarrhea prevalence, especially in ADRA and SAVE project areas.

There is room for improvement in water and sanitation for all the CSs -- in particular, indicators related to access to potable water in ADRA's project area, and access to sanitation and knowledge and practice of appropriate hand washing in ADRA, FHI and SAVE's project areas.

3.3.3. Qualitative Analysis Based on Results of Field Visits

This section reviews CS progress from a qualitative perspective, identifying achievements and areas where improvements are needed, for each of the major activities being implemented. The matrix on the following page lists the activities that will be discussed and indicates with an "X" which cooperating sponsors are using the specific activity listed. All four CSs are implementing most of the activities listed. The exceptions include early childhood stimulation, certain BCC (Behavior Change and Communication) supporting activities, and the Chagas project. In addition to the listed activities, this section will also discuss CS staff capacity and organization and their monitoring and evaluation systems.

Matrix 1: Maternal and Child Health and Nutrition (MCH/N) Activities by CS

Type of Activity	ADRA	CARE	FHI	SAVE
Education Sessions	X	X	X	X
ORPA method used	X	X	X	X
Community-level Growth Monitoring/Promotion	X	X	X	X
Nutrition Rehabilitation of Malnourished Children	X	X	X	X
C-IMCI	X	X	X	X
Early Childhood Stimulation	X			(X)[a]
BCC Strategy Defined[b]				
BCC Supporting Activities:				
Counseling and negotiation	X	X	X	X
Support groups[c]	X			
Positive deviance inquiry			X	(X)[d]
Hearth[e]			X	
Use of MCH/N Food Rations:				
Pregnant women	X	X	X	X
Children less than 3 years	X	X	X	X
Malnourished children 3-5 years (6 months)		X		
Chagas			X	
Capacity Building:				
Promoter	X	X	X	X
Community	X	X	X	X
MOH	X	X	X	X
Municipality	X	X	X	X

[a] In the process of initiating implementation.
[b] None of the CSs have a defined BCC strategy
[c] Although CARE literature mentioned support groups, none were being implemented in the project areas visited.
[d] Not currently in use but the project proposes to re-evaluate use in the near future.
[e] Also for nutrition rehabilitation of malnourished children.

3.3.3.1. MCH/N Education Sessions (for child caretakers/community members: level of participant knowledge and comments about program impact)

The four CSs conduct educational sessions, in theory for all family members, however the majority of participants are women. The basic content of the educational sessions is very similar among the CSs, covering numerous topics such as infant and young child feeding, care of children during illness, appropriate hygiene, immunizations and vitamin A and iron supplementation. All CSs teach health promoters to use the participatory educational method referred to as ORPA (observe, reflect, personalize and act) during educational sessions. Some promoters used this technique very effectively to engage caretakers while others lacked dynamic interaction. It is recommended that the CSs adopt and make effective use of quality assurance checklists for supervisors observing health promoters so that they can help promoters improve their skills. FHI has ample experience in this area.

The CSs differ in the frequency of educational sessions for women. ADRA has by far the most frequent sessions, one per week, during which women not only learn about nutrition and health from the health promoter but also embroider, knit, weave, and do various other handicrafts that often incorporate the educational messages they have learned. FHI and SAVE hold monthly

educational sessions. CARE also holds monthly sessions, but focuses on growth monitoring and healthcare needs during one month, and nutrition and health education the next. Women's crafts were also noted at some CARE sites. The following paragraphs will briefly describe the level of participant knowledge noted during field visits for each CS, as well as participant comments on program impact.

ADRA

Mothers in ADRA project communities that were visited demonstrated good knowledge of basic health and nutrition information. Mothers said that the diets of their families had improved due to the MCH food rations, food from the food for work program as well as their better use of local foods.

In one particular community where ADRA is conducting a pilot project on the use of support groups, mothers showed very impressive knowledge. During monthly meetings the women form smaller groups according to the age of their child (less than 6 months, 6 to 11 months and more than 12 months). When mothers in the exclusive breastfeeding group were asked questions about breastfeeding, they mentioned methods to encourage milk letdown after delivery, and the advantages of immediate breastfeeding such as increased uterine contractions and prevention of excessive blood loss. It was unique to hear this level of detail from women. The group said they encourage women to have their babies in the hospital and visit women after they have given birth to help them with breastfeeding. The women were very proud that recently they had convinced a mother to discontinue bottle feeding and give her new infant only breast milk. Women's knowledge about other topics such as young child feeding, micronutrients, the food groups and diet diversity, were also very good and women did not hesitate to respond to questions.

The women in the groups were very vocal about the fact that the smaller groups made it easier for them to learn because they paid closer attention and felt more comfortable asking questions and talking about their problems. The use of support groups such as these should be further studied by ADRA and the results documented and disseminated.

Men in the ADRA communities visited appeared to have good knowledge about the MCH/N component of the program and a high degree of involvement in the development and maintenance of the community emergency evacuation systems, part of an initiative to reduce maternal mortality. In the event of an emergency, key people within the community are notified, which sets in motion a series of actions that culminates in transport of the ill person to the nearest health post or center via ambulance and/or local transport, including hand-carried stretcher. According to ADRA, 14 of 73 existing emergency evacuation systems have been used, and ADRA plans to conduct simulations in the remaining communities to ensure their smooth operation. ADRA is commended for advances that they have made in this effort.

CARE

In CARE project areas, mothers' responses to questions about health issues showed mixed results. It should be stressed, however, that the majority of communities visited in CARE areas had only been in the program one to one and one half years. A number of groups in Tarija were very timid and had difficulty providing responses to questions. CARE uses a participatory

monitoring program to monitor women's acquisition of knowledge – when women have learned specific topics they sign their name to a poster on the wall of the meeting room – or indicate in some manner on the poster that they know the materials. In many cases women who signed did not volunteer to share their knowledge, or those called upon were either not present or did not respond. Of the five communities visited in Tarija, women in one community were very enthusiastic and did demonstrate very good health knowledge, though they appeared to have a dependency on the donated food and said that when the CARE program ended they would look for another donor to provide them with food.

In Chuquisaca women were more animated and willing to share their knowledge and experiences. Many women said that they had seen improvements in the nutritional status of their children, that their children had fewer episodes of diarrhea, that their homes were cleaner, and that they were eating vegetables. They also said that before the project began they did not know if their child's weight was adequate, if their children were fully vaccinated, or how to care for their children during illness.

Women in Chuquisaca said that they feed their children better because they have learned about food preparation. Women mentioned recipes such as lentil soup with vegetables, quinoa soup with vegetables, fried snacks made of peas or beans with egg and vegetables, and bread. Specifically they mentioned that in the past they used peas and beans only in soups but now they use them in snacks and breads. One recipe repeatedly mentioned in the communities in Chuquisaca was *chapu reforzado*, a mixture of ground seeds from wheat, barley, and/or maize, mixed with ground peanuts or peas/beans, and blended with oil, fruit and milk (optional). It is provided to children as a snack and specifically given to undernourished children. CARE is the only CS where the preparation of this type of specific food for young children was noted. It would be useful for CARE to provide information on the nutrient content of *chapu reforzado* and the impact of its use on prevention and rehabilitation of child malnutrition.

As noted above, women in Chuquisaca mentioned that their children had fewer episodes of diarrhea, due to improved hygiene, and they correctly mentioned appropriate times for hand washing. However, although women said they had learned to use SODIS (solar disinfection of water), they did not convey accurate information about the type of bottles recommended for SODIS, the recommended turbidity of the water, how to check the water's turbidity, and the amount of time the bottles need to be left in the sun. More training and supervision regarding SODIS use is necessary.

Men in both Tarija and Chuquisaca generally had difficulty responding to specific health and nutrition questions but did say that they and their families were eating more vegetables now than before the project, that they felt their children were healthier and that their wives were taking better care of their children. There was some optimism in Chuquisaca that when food rations end they will be able to use produce from their gardens to provide the food they need, or extra cash to purchase food. In CARE project areas, especially in Chuquisaca, men and women repeatedly mentioned the importance of gardens and consuming foods produced in the family gardens.

FHI

In FHI project areas women in the health education groups showed good knowledge regarding the need to improve children's diets by the addition of oil, feeding more frequently and prioritizing household food for children. They mentioned new recipes incorporating lentils from the MCH/N ration with local vegetables, such as carrots. Some mothers were convinced children's better growth was due to the MCH/N ration and intended to buy lentils and peas when the MCH/N rations were no longer provided. Many mothers expressed a desire for continued assistance with food rations. However, mothers' knowledge of use of local foods was not consistent across project areas. FHI's plans to expand its pilot PDI/Hearth program, which emphasizes the use of local foods to improve young child feeding, should help to ensure consistent messages on the use of local foods in all program areas. This will contribute to the sustainability of efforts once food donations are terminated.

In a project area where FHI had operated during the prior DAP mothers were pleased FHI had provided water containers with filters. The latter was a pilot project that FHI conducted in coordination with the London School of Hygiene and Tropical Medicine. Unfortunately, plans to set up local stores to sell replacement parts proved unsustainable due to the high cost for replacement parts and complications of getting parts through Bolivian customs. Women in the community attested to the effectiveness and usefulness of the filters, but did share their frustration that the filters only last six months, containers sometimes broke, and the cost of replacement filters and containers was high. FHI is commended for this pilot effort but should investigate the use of other filtration systems and/or solar disinfection of water for project areas. Mothers in most areas could not provide complete responses regarding when it is necessary to wash hands (FHI prioritizes five responses: after using the latrine, after handling children's diapers/helping children with latrine use, before handling food, before eating and before feeding children), although most mentioned the need to use soap or ash and water. Women commented that they needed latrines, and it was very encouraging to hear them voice this need.

Men who were interviewed were pleased with the program and saw differences in their homes, for example, their wives were preparing new meals, using the foods provided in the MCH rations and the food-for-work program. In some areas men mentioned producing or buying foods such as carrots, parsley, chard, mint, corn, lima beans, peas and potatoes. These men were confident that when the project finishes they could continue producing and buying the foods their families need because of the project's activities in income generation, agriculture and natural resource management. One man provided testimony about the nutritional recuperation of his malnourished child and indicated that now he buys certain foods from the market for his children, such as carrots, which he did not do before.

Men were not able to comment on the health and nutrition situation in the community and the health goals for the community. They also did not have adequate knowledge regarding danger signs during pregnancy and delivery and the importance of delivery in a health institution. Interestingly, FHI conducted a knowledge, attitude and practices (KAP) survey and focus groups in February of 2004, which revealed that women who do not attend prenatal consults are influenced by a combination of factors, including their husbands. The KAP also revealed that many women themselves did not know danger signs in pregnancy. Despite the KAP showing a high percentage of women attending prenatal consults, the vast majority of women gave birth at

home attended by a family member. The reasons for this result should be investigated through qualitative methods and followed up with specific educational messages and strategies for both men and women.

Save the Children

Women in SAVE project communities seemed very animated and knowledgeable. In some of the project areas mothers made comments such as "before our children were malnourished, now they are not". Mothers' health knowledge regarding management of diarrhea and respiratory illness was good as well as their knowledge concerning proper hygiene. They also discussed women's health and danger signs in pregnancy. Women's food preparation knowledge was very impressive, as well as their knowledge about the food groups and the importance of the various foods they were providing to their children. Women were preparing dishes with both local foods and donated foods, such as mixtures of rice and quinoa, lentils and carrots, tortillas made with white flour and onion, soy flour and white flour, and squash and white flour. Women named local foods that could be used in place of donated foods, such as fava beans and peas that can be used in the place of lentils.

However, in some project communities mothers believed improved child nutritional status was due to the donated foods and appeared distraught at the thought of no longer receiving the rations. This was particularly true in the mining town of Viloco where mothers and the MOH alike said rations sizes were insufficient to cover large family needs and land is scarce. SAVE will need to analyze its program in areas such as Viloco to ensure sustainability once families no longer receive donated foods. Also, many mothers in Viloco who were questioned about episodes of growth faltering said their child had become ill with diarrhea when older siblings were left to care for them. SAVE should investigate episodes of growth faltering and try to resolve problems with caretakers and families.

Although the SAVE family centers are for all family members, in most areas men are not adequately involved in activities related to maternal and child health. In Viloco there was a specific request that men be included in the education sessions on health. In general, men did not have specific knowledge regarding health topics such as children's nutrition and danger signs for both sick children and pregnant women. The latter is of importance given husbands' decision-making role in accessing health services.

In some project areas men did respond that they noted differences due to the program, such as cleaner homes, fewer malnourished children, and increased income from production of vegetables which their wives sold in La Paz. These men felt confident that they would be able to continue to feed their families well after SAVE completed the project.

3.3.3.2. Community-level Growth Monitoring/Promotion

All four CSs are implementing community level growth monitoring and promotion activities within their programs. Growth monitoring sessions are conducted with the local MOH staff and accompanied by immunizations, micronutrient supplementation and treatment of respiratory infections, diarrhea, and other illnesses. All programs emphasize the importance of communicating the results of the growth monitoring session to the mother/caretaker in terms of

the child's nutritional status. That is, the health promoter explains to the mother that her child's weight is in the "normal" range, or in the mildly malnourished area of the growth card (weight for age Z-score between -1 and -2 S.D.), or the moderately malnourished area (Z-score between -2 and -3 S.D.) or the severe area (Z-score less than -3 S.D.). Mildly and moderately malnourished children are referred to special nutritional rehabilitation and/or followed up with home visits, which will be discussed in the next section. Children with weight-for-age Z-scores less than -3 S.D. are referred to the nearest appropriate health facility. All programs use the C-IMCI counseling cards that guide promoters in counseling caretakers concerning respiratory and diarrheal infections, nutrition and hygiene.

The CSs project focus on identification and recuperation of malnourished children is important, but it is strongly recommended that the projects also identify children who are not gaining sufficient weight, or losing weight, regardless of their nutritional status, in order to more effectively prevent growth faltering in its early stages. Ideally child growth monitoring should occur on a monthly basis, and all mothers should receive counseling at growth monitoring sessions, to provide encouragement to mothers when their children are growing well and to counsel mothers whose children are not growing well.

An analysis of children's growth cards in ADRA project areas revealed some irregularities, such as children's weight data not filled in correctly according to age resulting in improper interpretation of nutritional status, and failing to plot weight when no weight is gained. Promoters and MOH staff require more training and supervision on correct entry and interpretation of data on child growth cards. Weight and height measurements taken by an ADRA promoter were well done and the equipment was of good quality, although the sling used to weigh the child was not appropriate given the child's age, as older children (more than six months of age) can squirm and possibly fall out. It would be best to use weighing pants for older children.

A new health promoter in a CARE community that had been phased out had numerous difficulties including weighing children with the majority of their clothes on, not adjusting for the clothing in the final registered weight, and not correctly graphing the child's weight on the growth chart. The promoter said she had been trained during a short session with the local MOH staff person. CARE, as well as the other CSs, must pay special attention to these types of sustainability issues given the reality of both health promoter and MOH staff turn over.

3.3.3.3. Nutrition Rehabilitation

The four CSs are approaching nutritional rehabilitation of malnourished children through slightly different strategies. ADRA health promoters conduct monthly nutritional rehabilitation workshops for moderately malnourished children. This session is in addition to the weekly women's groups meetings. During the session the health promoter weighs the child and provides personalized counseling for the mothers. Women bring contributions for the meal preparation and feed their child at the workshop. The women also receive additional education on child nutrition and health. ADRA's health promoters follow-up with home visits. The sessions are supervised by ADRA staff. ADRA is working with the MOH's Department of Nutrition to validate a protocol for the management of mildly and moderately malnourished children. It was

encouraging to see this collaboration between a Title II CS and the Department of Nutrition of the MOH.

CARE's health promoters follow up malnourished children through home visits. The health promoters that were visited in CARE project areas did not keep good records of home visits on their monthly summary data forms. Many had difficulty explaining how they prioritized home visits among children listed on the summary form. Since home visits are the primary mechanism used by CARE to follow up on malnourished children, this area must be strengthened.

FHI has conducted PDI and modified Hearth sessions on a pilot basis, following up with home visits where promoters counsel mothers and negotiate specific behavior change. The Hearth sessions are modified in that staff negotiate with the mothers about the number of days and number of hours a day for the Hearth sessions, rather than use the standard protocol, which involves daily Hearth sessions for two-week periods. The Bolivian context, in which houses are very dispersed in some areas, does not allow for standard Hearth protocol. Hearth sessions were usually conducted over a period of three days, during which time mothers were taught how to prepare complementary foods made with local produce, and to provide these foods to their children taking into consideration the recommended quantity and frequency according to the child's age, with special attention to the child during feeding times. During home visits the types of negotiated behaviors include adding oil to the meal, providing special attention to the child during mealtime, providing more food during the day, washing the child's hands before eating, cooking with a variety of foods and maintaining breastfeeding. The pilot program produced encouraging results and FHI is planning to expand the program to other project areas. Health promoters in areas where PDI had been used were especially excited to mention this during the MTE interviews.

SAVE had planned to use the PDI/Hearth model for behavior change and nutritional rehabilitation but they felt the positive deviance inquiry did not provide a "positive deviant food" and the Hearth model was impractical given the highly dispersed nature of the homes. However, when asked, SAVE staff did not have a clear understanding of the use of PDI for behavior change, they did not correctly explain the concept of "positive deviance", and their analysis of positive deviant behaviors seemed restricted to those related to foods and child feeding, and did not include behaviors related to care seeking, management of illness or hygiene, for example. In place of PDI/Hearth, SAVE promoters are teaching mothers during nutritional rehabilitation sessions and following up with home visits. Given SAVE's poor results for improving child nutritional status, they are reviewing their strategy and the use of PDI.

The MTE Team recommends that the CSs develop a basic standard protocol to follow when addressing the needs of malnourished children, taking into consideration recommendations being developed by the Bolivian MOH. This could take the form of a simple checklist for health promoters, taking into consideration literacy levels, to ensure they follow standard steps in addressing the needs of mild and moderately malnourished children. It is also recommended that the CSs continue to share experiences – of special interest is FHI's use of the PDI/Hearth model.

3.3.3.4. Community Integrated Management of Childhood Illness (C-IMCI)

Community Integrated Management of Childhood Illness (C-IMCI) aims to improve partnerships between health facilities and communities, increase appropriate and accessible care and information from community-based providers, and integrate promotion of key family practices. C-IMCI is included in all the CSs Title II programs. When CS staff, heath promoters and MOH staff were asked, they generally said that the implementation of C-IMCI was progressing fairly well. One issue consistently mentioned as an area for improvement was referrals. In some areas the MOH said that promoters were not referring pregnant women (SAVE, Viloco) or that promoters' referrals were not accepted by the local health institution (FHI, Hospital in Capinota, Cochabamba) or that a counter-referral system was lacking (all areas). To address these problems, the MTE Team recommends that the four CSs strengthen health promoter knowledge regarding whom to refer, when to refer, and how to use referral forms, as well as sensitize MOH staff to accept referral forms completed by health promoters.

In reality all the components of C-IMCI as described above, that is, health facility/community partnerships, access to care and information, and integration of behavior change, need strengthening -- some more than others. These issues will be discussed in further detail in the capacity building and behavior change sections of this report.

3.3.3.5. Early Childhood Stimulation

Early childhood stimulation consists of a set of practices and actions that reinforce critical aspects of childcare in order that children more fully develop their motor, cognitive, social and communication skills[4]. Incorporating early child stimulation into programs increases children's level of development, increases the motivation of caregivers and may also improve a child's nutrient intake and care.

ADRA is the only CS fully implementing early childhood stimulation in the program areas that were visited. Early child development is evaluated in children every three months until the child is 12 months old, and then also at 18 and 24 months. The evaluation is done with the MOH. Information on whether children have been evaluated is presented on CCPF wall charts alongside children's names. CCPF meeting areas have materials for early childhood stimulation and mothers demonstrated how they use some of the materials with their children. Early childhood stimulation was mentioned by some MOH staff in CARE project areas in Chuquisaca, but it was not discussed by CARE staff or mentioned as a major area of intervention. Early childhood stimulation was also not presented as a major component of the FHI program. SAVE has begun to introduce early childhood development in its program areas, and mentioned that it has conducted training sessions but has not yet begun implementation.

The MTE Team recommends that the four CSs strategically incorporate early childhood stimulation into their programs.

[4] Engle, P. Multi-sectoral work: early childhood development. Presented at: Reaching Communities for Child Health: Workshop for Advancing Health Outcomes through Multi-Sectoral Approaches, The CORE Group, March 25, 2004.

3.3.3.6. Behavior Change and Communication (BCC) Strategies and Supporting Activities

None of the CSs have clearly defined behavior change and communication (BCC) strategies. For example, the CSs do not clearly demonstrate how interventions in communication will lead to a specific behavior change. The MTE Team recommends that each CS have well defined behavior change and communication strategies.

Although the four CSs use counseling and negotiation as an approach for behavior change, it is not clear that there are focused efforts to train staff or volunteers in this area, and observations of home visits revealed that counseling and negotiation were not used effectively. An ADRA volunteer "negotiated" with the mother about the amount of weight her malnourished child would gain by the time of the next growth monitoring session, but did not negotiate a specific behavior to change. A CARE volunteer talked at the mother, did not follow up on the fact that the child, though of normal weight for his age, had not gained weight in the past two months, and did not ask at all about the status of another child in the household who was mildly malnourished. None of the volunteers who were observed demonstrated appropriate counseling and negotiation skills. It is recommended that the CSs work together to develop and test specific training and supervisory materials to improve both staff and volunteer capacity in this area.

ADRA's pilot project of mothers' support groups is a potential behavior change intervention that has shown positive results (See section 3.3.3.1., page 21). Mothers that were interviewed said they paid closer attention to educational sessions within their support group, felt more comfortable asking questions, and found the group of great assistance not only in dealing with child care issues but also matters in the home. As mentioned before, the MTE Team recommends that ADRA documents its experience and results with support groups and share its findings with the other CSs. Although CARE documentation also mentions the use of support groups, staff said groups had not been implemented in any of the project areas visited and it is not clear if CARE's "support groups" are similar to those in ADRA's project.

FHI's behavior change approach includes PDI/Hearth combined with counseling and negotiation during home visits (See section 3.3.3.3., page 26). FHI's results have been positive and the MTE Team recommends that FHI's results be well documented and shared among the CSs. FHI conducted a qualitative analysis of KAP findings in February of 2004 and recognizes it has "achieved increases in knowledge but not modifications in attitudes or practices in comparison to the baseline in 2002".[5] The qualitative findings reveal numerous participant reasons for not adopting certain behaviors and FHI is encouraged to use these results to develop targeted messages, activities and strategies for behavior change. FHI also has experience using barrier analysis -- a tool for improving behavior change communication. This tool could be particularly helpful at the project's midterm to help FHI better understand the reasons why certain behaviors have not changed despite repeated efforts. FHI field staff voiced frustration over some of the MTE quantitative results, especially those related to hygiene and hand washing behavior. This may be an excellent opportunity for FHI to use barrier analysis to better understand why these behaviors have not changed and develop an appropriate project response.

[5] FHI Bolivia."Encuesta de conocimiento, actitudes y prácticas," 2004, p. ii.

SAVE is the only CS to have a behavior change and communication specialist on their staff. The focus of the specialist's MCH/N work is to better understand morbidity and health seeking behavior in communities and to develop ways to promote effective decision making regarding health seeking behavior. Four main methods for transmitting educational messages were outlined: (1) radio, (2) cassettes for use during educational sessions, (3) advocacy through social networks, and (4) interpersonal communication with participants. The specialist has limited knowledge regarding positive deviance inquiry and it would be useful for her to have a deeper understanding of the approach given SAVE's interest in PDI. The MTE Team also recommends that the specialist be involved in the development of materials for training and supervision of staff and volunteers in the area of counseling and negotiation. SAVE staff in the Washington, DC office mentioned that they have a number of behavior change tools and approaches. This places SAVE Bolivia is in an excellent position to ensure that its BCC specialist is trained in these various tools and serves as a valuable BCC resource for the organization.

3.3.3.7. Use of Food Rations and Local Foods in the MCH/N Program

The four CSs provide MCH/N rations to households whose caretakers/mothers and young children participate in project activities, such as educational sessions and the growth promotion program. The MCH/N ration generally includes 10 kilograms (kgs) of Corn Soy Blend, 10 kgs of flour, 5 kgs of dried peas, 4 kgs of dried lentils, and 1 liter of vitamin-enriched vegetable oil. The ration was developed among all the CSs using a prevention model (a direct input to prevent malnutrition or maintain adequate nutritional status) and calculated to meet 90 percent of the range of caloric deficits in the CS operational zones. [6] CARE also plans to include iodized and fluoridated salt in its MCH/N ration given high rates of iodine deficiency and dental caries in its target population.

Monthly food rations are provided for children up to 35 months and for pregnant women, though in CARE project areas rations are also provided for a period of six months for moderately malnourished children aged 3 to 5 years. At present about 40 percent of children aged 3 to 5 years of age in CARE project areas are receiving MCH/N rations, though in at least one case a mother said her four-year old had continued to receive rations longer than the six month period. It is unclear why this ration is provided for children in this age range, given that supplemental feeding generally has its greatest impact on child height gain in the first three years of life[7], low weight for age in the 3 to 5 year age range is most likely a reflection of stunting than of wasting, and wasting levels are usually very low in this population. It is recommended that CARE clarify the determinants of malnutrition of children in the 3 to 5 year age range and use this information to rectify the situation, since malnutrition among these children may be more related to frequency, intensity and duration of illness than lack of sufficient food intake.

All CS programs develop recipes using both the food rations and local foods and should be commended for working with mothers on the development of these recipes. Although some CSs are better at helping participants identify locally available foods that substitute for foods found in

[6] "Improving the Use of Food Rations in Title II Maternal/Child Health and Nutrition Programs: Examples from Bolivia and Peru." Washington, D.C.: Food and Nutrition Technical Assistance Project, Academy for Educational Development, 1999.
[7] Gillespie, S. Supplementary feeding for women and children. Human Development Network, The World Bank, August 1999, p. 5.

the MCH/N ration, there is a sense of dependency on donated foods among many participants and stakeholders. Consistent messages and training must be provided in all program areas so that participants at the community level understand how to use local foods that can be produced or purchased to adequately support child growth. Stakeholders such as the MOH must understand the vision of the integrated DAP program (increased income, improved natural resource management, and improved health/nutrition) and the place that donated food has within the program. CSs and the MOH must use the opportunities that the project provides to increase participant awareness concerning the importance of participation in health programs and not rely on long term food donations to draw participants to health program activities.

3.3.3.8. Chagas Project

Bolivia has the highest prevalence of Chagas (South American trypanosomiasis) of any affected country and socio-economic costs are high in terms of physical and psychological suffering and lost production, investments and income.[8] Long term effects of the disease include damage to the heart muscle, cardiac arrhythmia, cardiac arrest and severe gastrointestinal problems. Chagas is caused by the flagellated protozoan Trypanosoma cruzi, carried by numerous wild or domestic mammals that serve as reservoir hosts, and transmitted by the *vinchuca* insect, which lives in the cracked mud (adobe) walls and mud and thatch roofs of homes. The cycle of infection is perpetuated by the proximity of domestic animals to homes. Medication is only useful to rid an affected person of the disease in its early stages.

FHI is the only CS implementing a pilot Chagas project. The project is implemented with Pro-Habitat, an organization with previous experience in this type of activity. The goal of the project is to decrease the incidence of Chagas disease through decreasing *vinchuca* infestations of homes and educating participants on how to keep homes *vinchuca* free. The project works to achieve these objectives by rehabilitating homes, teaching participants about proper hygiene around the home and promoting behavior change.

Pro-Habitat project staff includes a regional manager, an educator and an architect. The project operates in five communities in Potosí and has rehabilitated over 185 houses. The cost of the rehabilitation is about 2,000 Bolivianos per house, or approximately US $250. The project provides cement, roof tiles and other non-local materials and participants provide local materials and labor. The project trains community members as volunteer promoter masons and warehouse keepers, as well as educators. The project also works with local teachers and students. Community volunteers called PIVs, who control Puestos de Información de Vinchucas (Vinchuca Information Posts), were also re-activated after a long absence. The PIVs collect samples of *vinchucas* to be sent for epidemiological analysis to the regional hospital laboratory. Feedback regarding recent samples sent to the hospital had not been received and the project needs to follow up on this system to ensure it is operating well.

FHI health promoters visit houses and provide education not only on *vinchucas* and Chagas but also illnesses related to hygiene and environmental sanitation such as malaria, lice, and scabies. Promoter training, refresher training, organization of weekly educational messages, home visits and supervision all appeared fairly well organized, though promoters did request more training

[8] SOH/CCH "Chagas Control Program in Bolivia, (1991-1994)." 1995, Annex C, p. 82.

and educational materials on Chagas. Pro-Habitat staff mentioned that FHI did coordinate through monthly meetings and was involved in key activities, especially related to community meetings, but was not as involved in the educational part of the project. Regional and national FHI staff may benefit from working even more closely with Pro-Habitat if they wish to replicate this type of project on their own in the future.

Pro-Habitat staff mentioned a few lessons learned from the project. These included: (1) soil in the project area was very sandy so numerous tests had to be completed with the local clay to obtain the correct consistency for rehabilitating the households (one cannot assume that a "recipe" for re-finishing the homes in one area will work well in another); (2) the Quechua language was a barrier and the people were more resistant to changing behaviors so strategies for behavior change needed to be adapted; and (3) the *vinchucas* themselves had different behaviors in the project area in comparison to other areas where Pro-Habitat had worked – for example, they reacted differently to light and this needed to be taken into consideration when planning project strategies.

One positive difference was that in the project area the population had slightly more resources than in other areas where Pro-Habitat had worked, so some households could afford to contract a local mason and pay someone to haul water to complete work on homes. Educational materials, including adequate budget and time for audiovisual documentation of the project and educational materials for the communities and the schools would help to strengthen the program and improve dissemination of lessons learned. Also, the project could be improved through strengthening the hygiene component, advocacy to prevent/control Chagas and activities to ensure active and effective surveillance. Also, FHI desires to add treatment for Chagas to future projects. This should be investigated with experts in the field of Chagas to determine the feasibility. In general the project seemed to be very well organized and run and participants were pleased. This type of activity could be considered for future Title II programs in Bolivia, however, since the MTE Team only visited the project for one day, a more thorough evaluation should be conducted to fully glean strengths, weaknesses and recommendations/lessons learned.

3.3.3.9. Capacity Building

Volunteer Health Promoters

All CSs work with volunteer health promoters that they train in C-IMCI and related topics in health, nutrition, and hygiene, in addition to community mobilization and tracking and presentation of community health data. All promoters were seen with the standard MOH C-IMCI materials and all had been trained in this topic. ADRA, CARE and SAVE also specifically mentioned the use of materials on infant feeding developed by LINKAGES.[9] Promoters are generally selected by community leaders/members, although in one FHI project area the MOH physician was instrumental in selecting the promoters that fit her specific criteria. Criteria for selection usually include being over 18 years of age, knowing how to read and write, having a willingness to learn and serve and being well accepted by others. Most project areas had a good balance of men and women, though FHI staff mentioned that in some areas all health promoters

[9] LINKAGES is a worldwide project to improve infant and young child feeding managed by the Academy for Educational Development (AED) and funded by USAID.

are men and they expressed a desire to have more women because they felt the latter relate better to women's groups. CS staff mentioned several incentives for the health promoters including official recognition by the MOH and pardoning from participation in communal work and CAPYS (Comité de Agua Potable y Saneamiento, or Potable Water and Sanitation Committee) activities. A summary of findings and recommendations regarding health promoter capacity by CS follows:

ADRA

Generally, ADRA health promoters were very impressive, with good knowledge of various topics of nutrition and health. Promoters avidly discussed health problems in the community and the cycle of malnutrition and illness, especially diarrhea, that is common in the areas where they work, as well as solutions to these problems. Promoters mentioned the children's anthropometric measures they take every month and the training and standardization they receive. They have training manuals on how to take anthropometric measurements and reference tables for determining chronic and acute malnutrition by age and gender. In addition ADRA promoters have well designed support materials on various topics such as working with the community, consolidation of nutritional status information, evaluation using community-level CAI, home visits, evacuation plans, management of the oral rehydration unit (from the home), preparation of foods and SIVICS, the Sistema de Vigilancia Comunal de Salud (Community Health Surveillance System), which includes community mapping of children, community women who are pregnant, and malnourished children. Health promoters collect health data every month, and data is presented in the community CAI meeting every three months with the presence of MOH and ADRA staff. The CAIs at the community level appear to be operating well. As was mentioned previously (section 3.3.3.2., page 25), main areas for improvement include correct filling out of child health cards and promoter counseling and negotiation skills.

CARE

Generally the CARE health promoters show a great deal of potential but need more follow-up and supervision. The health promoters had consistent problems filling out the monthly registry of child information that CARE provides them, did not know how to prioritize home visits and failed to make home visits to caretakers of undernourished children. There was inconsistent use of referral cards and as noted above, there was also poor technique in weighing children (See section 3.3.3.2., page 25). In addition, the community level CAIs have not been implemented in most of the project communities visited and CARE will need to work with health promoters and the MOH to increase capacity in this area. CARE staff did indicate that the community level CAI will start next year and that materials are currently being produced.

FHI

Health promoters in all areas visited generally had good knowledge regarding detection of respiratory infections and diarrhea, care during illness, and referral to health centers. They also had basic nutrition knowledge regarding duration of exclusive breastfeeding, quantities of food to provide young children at specific ages and the need to add oil to foods to increase energy density. However, messages regarding quality of the diet need to be reinforced, especially use of locally available foods to improve the quality of children's diets. Knowledge regarding

micronutrients, especially iron, but also vitamin A and iodine, also need to be reinforced. Generally mothers felt the promoters were good and served them well.

Although the health promoters in Charamoco, Capinota (Cochabamba) did a very nice job of displaying community level health data, using colors of the Bolivian flag to represent the nutritional status of children in the community,[10] they were unable to describe how the data are actually used for decision making. Promoters in Potosí keep health data in notebooks, and it is not clear how or when data are shared with communities. FHI staff should strengthen health promoter capacity to present health data to the community (especially in Potosí) and community capacity to analyze health data and make decisions for action. The community CAIs need guidance in order to identify barriers to improving their health and nutrition situation and ways to overcome identified barriers. Specific training materials may need to be developed/adapted by FHI to improve promoter and community capacity in this area.

Save the Children

Some of SAVE's promoters have very good knowledge of nutrition and health messages and use dynamic participatory techniques effectively to convey key messages. Health promoters said SAVE and the MOH trained them in SECI (Sistema Epidemiologico Comunitario de Información, or Community Epidemiological Information System), C-IMCI, first aid, exclusive breastfeeding and complementary feeding, and they had support materials on community organization and responsibilities, monthly data collection and use of SECI. Various promoters said they are supervised every month by SAVE technicians. However, in other areas supervision occurs just once or twice a year.

Promoters would definitely benefit from refresher training and closer supervision. There was lack of home visits for malnourished children, lack of understanding regarding the health card (nutritional status), poor use of the C-IMCI counseling cards and poor counseling and negotiation skills with mothers/caretakers. Although some promoters had good knowledge regarding frequency of feeding and amount of food to be given young children, more emphasis should be placed on the quality of foods provided, on how mothers comprehend messages on the quantity of food that should be given, and on active feeding. Health promoters said they would like to learn more details about the topics in which they have already been trained. In some instances, promoters say they would like to learn from new trainers, as they feel they have already learned all they can from the SAVE technicians who supervise them. Promoters enthusiastically used SECI, but can be guided to take it one step further to more deeply investigate and discuss barriers to achieving goals and behavior change and how to overcome them. SAVE staff themselves will need to be provided more in-depth training in this area so they can help promoters and communities alike develop these critical thinking skills.

SAVE is proposing that mothers be trained to conduct home visits in order to assist promoters. The MTE Team recommends that if SAVE wishes to incorporate mothers in this way, training of mothers must be thorough, refresher training should be frequent, and adequate supervision is

[10] Figures of children with normal weight for age are pinned to the green section of the flag, children with mild malnutrition to the yellow section and children with moderate or severe malnutrition to the red section. This is the same system used by SAVE in its SECI program, described in Annex A.

absolutely necessary. Care must be taken in selection of the mothers to ensure they have sufficient time to volunteer. One mother who was going to be trained to conduct home visits had a moderately malnourished child who was not recuperating well -- instances such as this should be analyzed carefully by SAVE staff to determine the barriers to recuperation and to help mothers overcome them, as these women are to be models for others in the community. SAVE may also want to consider training some (or all) of these women as health promoters, given eventual turnover.

Community Members

The four CSs all work with women's groups and all groups seem very well organized, with an executive committee consisting of a president, treasurer, secretary and member representatives. ADRA has developed a manual for the board of directors of the CCPF, which includes information about rights and responsibilities, functions, the role of the health promoters, holding meetings, evaluation of health and nutrition in the community, and evacuation in emergencies. Women in CARE project areas were particularly vocal about being more involved in the community, knowing their responsibilities within the community and working side by side with men. Women in FHI areas were also very well organized and proud of their achievements. SAVE, similar to ADRA, has prepared a document for community members, including the women's groups, to better organize themselves. Community capacity building unique to each project is described by CS below, with recommendations, where applicable.

ADRA

ADRA has a pilot "Healthy Communities" project which focuses on community capacity building and community development. ADRA staff work together with community leaders and members to conduct a diagnostic exercise and based on the results develop a communal plan to respond to identified problems. The MTE Team met with one of the communities participating in the project and the results were very impressive. The community leaders did an excellent job of explaining the maps, plans, emergency evacuation system and information regarding health and nutritional status of children that filled the walls of the CCPF. Leaders said that two years ago they did the same types of activities but without structure or priorities. Now they feel much more organized. ADRA staff say the community is very open and has a very good attitude toward collaboration but that this took much time to develop. One area of weakness identified by ADRA staff is a lack of follow-up between the development of the operational plan and the target date for project completion, resulting in incomplete activities passing from one annual operational plan to the next. Communities seem to need more assistance with planning and setting small milestones that can be accomplished along the way.

CARE

A major component of CARE's capacity building in communities is the use of their WARMI method for community diagnosis and planning. The method involves four stages: auto diagnosis, planning, implementation and evaluation. The method focuses on the family, the importance of women within the family and an analysis of the situation of families within the community. Community members divide into working groups based on topic (health, production, organization, natural resources, etc) and identify principal problems, their origin,

solutions and the priority of the problem for the community. This information is then used to develop a community development plan. The concept is very good but numerous communities had difficulty in explaining the plan that had been developed and the progress that was being made. CARE has made a very good start and should continue to strengthen community capacity in this area.

FHI

FHI has developed an "Estrategas", or "Community Strategists" program whereby community members, including children, are selected to participate in special discussions and sessions to elaborate community development plans. The MTE Team discussed the "Estrategas" activity with two children who avidly explained the priority problem areas that had been discussed, their work with other community members mapping community resources and identifying problems, and the plans for solving the problems. It is recommended that FHI document the results of this activity.

Save the Children

SAVE's SECI is a tool shared with promoters and community members alike and used to develop an action plan to solve health and nutrition problems. SECI involves using community level data to identify health problems, followed by a discussion of community objectives, activities to achieve objectives, resources needed, timeline and responsible parties in order to solve identified health problems. SECI and community-level CAIs complement each other. SAVE monitoring data for 2004 show that SECI was implemented in 51 percent of its "Centros Familiares", or Family Centers. During field visits SAVE staff commented that introduction of SECI and CAI in its communities is an area that requires much further work, in addition to follow-up with communities that are implementing SECI and CAI.

Ministry of Health (MOH)

Collaboration with the Ministry of Health appears to be fairly good in the CS project areas. MOH staff expressed appreciation for the collaboration and assistance provided by the CSs, and they consistently stated that indicators of child malnutrition and child immunization had improved, and in many areas women's prenatal consults and institutional births had increased. CS-specific areas of capacity building and recommendations, where applicable, are provided below.

ADRA

ADRA is working to build the capacity of MOH staff in several areas, including IMCI, information systems, supervision, quality of service and the operation of the DILOS and CAIs. The MOH said support received has been good, and specifically mentioned staff training in institutional and community IMCI, entry of IMCI data into the SNIS and joint supervisory visits to ensure IMCI/SNIS data is free of errors. ADRA is also helping ensure data is used to make sound management decisions.

ADRA is supporting the addition, on a pilot basis, of the AFI, or Institutional Strengthening Assistant (Asistente de Fortalecimiento Institucional) to the MOH. In reality the AFI work with both the MOH and communities to improve the relationship between them, as well as strengthen the management capacity of the MOH. The ADRA AFI conducted a diagnostic exercise at the health post/center level to determine barriers to health post/center use and found the level of satisfaction with services was very low. The MOH physician interviewed said that he received training on service quality, which drastically improved his manner of treating patients – his testimony was very memorable.

The walls of the health center visited were filled with handmade posters outlining the health post's vision and mission as well as the flowchart of service for children, adults, and emergency obstetric cases. There was also a list of activities to strengthen, including the system for referral and counter-referral, risk maps and birth planning. MOH staff said the AFI was instrumental in assisting the MOH in preparing the organizational charts and plans last year.

It was also mentioned that health promoter dissemination of information about SUMI has resulted in increased prenatal coverage for pregnant women. There have been no maternal deaths reported in the area. The MOH also mentioned that the health post covers 12 communities, six that are included in ADRA's project area and six that are not. However, all communities have health promoters, and all health promoters are trained, have C-IMCI materials and participate in the CAI-Sector meetings. This situation seems unique. MOH personnel in FHI and SAVE project areas said that promoters from non-Title II communities have limited participation in training sessions or sector level CAI meetings due to lack of funds. It seems that in the case of ADRA, costs have been shared between ADRA, the MOH, the DILOS and PROSIN. Though this may be unique to ADRA's operational area, there may be lessons learned to share with the other CSs.

The DILOS appear to be functioning relatively well, and MOH comments about the sector level CAIs were also positive. One area for improvement mentioned by ADRA (and CARE) was the need for an operational plan for the CAIs at the beginning of each year, since last minute organization results in poor participation and disruptions to other plans.

CARE

CARE provides the same MOH capacity building support as does ADRA. CARE collaborates with two to three MOH facilitators in each health network to train health promoters in C-IMCI. A MOH physician said that the C-IMCI training in prevention is a new concept for the health promoters because they are accustomed to providing curative, not preventive services. An MOH nurse admitted that the MOH is not providing the continuous follow-up and evaluation that the promoters need, but staff said they are slowly integrating themselves into the project and conducting more joint activities with CARE, something they feel is critical to ensure MOH and CARE staff convey the same messages. CARE also coordinates with partners, such as Plan International, to work with the MOH in supervision and training and improving the quality of care, particularly for pregnant women. MOH staff said more women are now delivering at health facilities. Staff also said that the DILOS and CAIs are functioning well. It was noted that MOH staff capacity in nutrition and growth monitoring was poor and CARE should work to strengthen MOH capacity in this area through training, supervision and quality assurance.

FHI

Discussions with MOH staff in FHI program areas focused on FHI support in IMCI, supervision, the DILOS and CAIs. MOH feedback on FHI support in IMCI and supervision was positive. In all areas visited the MOH said the DILOS were not functioning as well as hoped and this sentiment was also held by FHI staff. It is recommended that FHI investigate the main reasons behind this situation and develop strategies to improve the functioning of the DILOS.

MOH personnel felt the sector-level CAIs were fulfilling their expectations, but they would be more effective if community leaders were motivated to attend, which would result in improved understanding of community health problems and mobilization for action. Sector-level CAIs appear to need more guidance on how to overcome problems of malnutrition.

MOH staff also mentioned the need to train promoters on SUMI and provide SUMI information to community members. In addition, in areas where FHI is only covering some communities, it was requested that the MOH promoters be included in FHI trainings. Lastly, the MOH is weak in the area of nutrition and FHI should strengthen MOH capacity in this area.

Save the Children

SAVE is helping to build MOH capacity through training in institutional IMCI, SECI, and community IMCI. However, according to accounts from project and MOH staff alike, few government health personnel have been trained in SECI or C-IMCI. Priority was given to training health staff in institutional IMCI given this was necessary for SAVE to proceed with C-IMCI training. The MOH requested that SAVE allow MOH personnel and health promoters from non-SAVE areas to attend trainings held by SAVE. SAVE could improve its relationship with the MOH by considering such requests, though budget implications may hinder this possibility. Perhaps more importantly, SAVE must work closely with the MOH and the municipalities to advocate for resources the MOH needs to support their staff and health promoters.

SAVE is also supporting the MOH CAIs. CAI meetings, especially at the area and network levels are not functioning as well as hoped. MOH staff indicates that there are few functioning area CAIs and network CAIs due to funding constraints that limit MOH staff and promoter participation. SAVE does assist the MOH with some costs related to the CAI meetings, especially for representatives from project areas. There needs to be better advocacy to improve the funding available to support the CAI meetings. Also, the relation between the community CAI and the sector CAI seems weak and there could be better participation by community leaders at the sector CAI meetings.

Rotation of government health personnel is high and this is perceived as a barrier to project progress because of the time and funding that is involved in orienting and training new MOH personnel. The MTE Team did have an opportunity to speak with MOH staff that was relatively new to the project area. The interviews revealed a need for SAVE staff to provide more prompt and thorough orientation for new MOH staff, particularly on the program goals and objectives, achievements, annual plan and sustainability issues.

MOH staff say that the DILOS are not functioning well because members are often not available to attend meetings. This is particularly critical in areas where the MOH is not getting sufficient funds allocated to health activities, and especially preventive health activities. This is an area where SAVE staff could play a role in strengthening the DILOS. It would be useful for CS staff to share DILOS experiences and lessons learned.

Municipal Level

Capacity building at the municipal level was reviewed in ADRA and SAVE project areas. ADRA has had a very positive experience with the municipal officials of Incahuasi, who together with ADRA and MOH staff and other NGOs, formed a committee, CODECO-SAIN (Comite de Desarrollo de Comunidades Saludables de Incahuasi, or Committee for the Development of Healthy Communities in Incahuasi) to better integrate development work. The committee's vice president said that ADRA is providing assistance in project prioritization and management. The initiative at the municipal level and the knowledge of the committee members concerning health and nutrition issues was very impressive. Members could also describe the various other components of the Title II project and their impact without problem.

SAVE is helping municipalities with annual planning and resource allocation for health. Municipal staff say they have gained a new appreciation for the process of creating an integrated development committee and analyzing, designing and sharing projects with SAVE and other institutions. Municipal government staff admit that they have had problems with changes in leadership but they have been able to improve capacity despite these challenges. In some municipalities, such as Sica Sica, SAVE's family centers and health promoters have been officially recognized by the municipality. Some municipalities also noted that families were moving back to villages and attribute this change to improvements seen as a result of the project, such as improved access to water for families and livestock. The municipalities would like to see all its communities included in the program so that greater improvements at the municipal level can be achieved. However, it was disappointing to note that in some project areas municipal and government staff and community leaders had serious problems answering basic questions about the goals and objectives of the project, the current health and nutrition situation in the communities, and their priorities and plans for improving health and nutrition. Although very challenging, it is very important that SAVE improve coordination with municipal staff in order to increase awareness and achieve sustainable improvements.

3.3.3.10. CS Staff Capacity/Organization

ADRA

ADRA's health and nutrition team has one administrator -- a physician, who leads the team, an assistant who is a nurse, five nutritionists, five nurses, and four physicians. The physicians work on strengthening the MOH at the institutional level. The nurses and nutritionists are field professionals who cover 12 to 16 communities, but also concentrate efforts in priority communities, which require more attention. The health promoters train mothers at the CCPF, and ADRA nurses and nutritionists train the health promoters (with help from the MOH). Staff knowledge and capacity is very impressive, and staff are very professional and dedicated.

Particularly impressive is the fact ADRA has five nutritionists who work directly in the field with the promoters and communities.

CARE

The CARE team in Sucre includes one technical assistant/coordinator -- a physician, who heads the team -- one public health technician, one licensed nurse and all other field staff are auxiliary nurses. Staff structure in Tarija is somewhat similar to that in Sucre. There are no nutritionists on staff and for this reason CARE's work with a nutritionist from the program *Socios para el Desarrollo* (Development Partners) is very important. CARE is currently working with the nutritionist on ten modules for training in breastfeeding, complementary feeding, participatory education, recipes, micronutrients and the design of materials.

Field technicians are responsible for 15 -17 communities and generally work 15 days in the field each month. Staff do not feel they have sufficient time to provide quality supervision to the health promoters and community members. CARE should consider ways to decrease the ratio of communities per staff member to allow time for better follow up. Some staff also do not feel they are adequately supervised and desire more motivation, encouragement, and correction. The technical assistants/coordinators lack time and assistance with supervision.

The project lacks leadership in health and nutrition at the national level. The MCH/N technical leader for the project is located in La Paz and works part-time for the project. Staff felt that supervision from this individual was weak, information shared in technical meetings in La Paz does not always reach the regional level, methods are not consistent across regions and coordination and information exchange among regions is poor. The function of the technical assistants/coordinators is not well defined – they have responsibilities for being technical assistants and coordinators but do not feel they have the authority necessary to do their jobs thoroughly. Job expectations must be clearly defined.

FHI

FHI's national health coordinator is a physician, while the health program supervisor in Cochabamba is a nutritionist and the supervisor in Chuquisaca is also a physician. Staff also include physicians who work both with the MOH and FHI CHPs, paid Community Health Promoters who live and work in project communities and supervise and motivate volunteer health promoters. CHPs have relatively good health and nutrition knowledge, though they do require more depth in health and nutrition knowledge. Most CHPs work with six to ten communities, which can be considered a reasonable workload. They are supervised once a month and consider this level of supervision adequate. Although CHPs mentioned that they emphasize use of local foods in educational sessions, they lack knowledge regarding reasonable and appropriate local substitutes for foods provided in the ration.

CHPs said volunteer promoters are at times absent from the communities, leaving no one available to respond to the community needs. It was also noted that in some cases the community members referred to the value of having the CHP in their community but did not mention the volunteer health promoter. Care must be taken to strengthen the volunteer

promoters and ensure the community is not depending too heavily on the CHP, who most likely is not going to remain in the community.

Save the Children

SAVE's health and nutrition team was led by a physician, who worked closely with the project nutritionist. The project also has a field nutritionist and field staff who are primarily nurses. Following the MTE, SAVE changed the leadership of the MCH/N component and was searching for a replacement.

General knowledge of basic nutrition and health among the SAVE staff seems good. However, staff could benefit from in-depth training and more frequent refresher training on nutrition topics such as breastfeeding, complementary feeding and micronutrients in order to improve their capacity and that of their health promoters. Staff also need strengthening of their behavior change and communication skills.

Local SAVE staff who work in MCH activities have a number of individuals who supervise them, both from the head office and their local project area. Some staff who were interviewed had received a supervisory visit in the past two months, while others had not been supervised in several months. The project staff would benefit from consistent, routine supervision and clear identification of their immediate supervisor. Supervisors would also benefit from guidance to make their field visits effective and productive, for example, training in the use of quality assurance checklists.

One major problem for SAVE technicians is the high number of Family Centers and health promoters they must train and supervise. Senior staff have evaluated the current project area and have reduced the number of communities covered by each technician, which should contribute to improving the quality of programming.

3.3.3.11. Monitoring and evaluation (M&E) systems

ADRA

ADRA health promoters collect monthly data on the Ficha Familiar Unico de Datos (Unique Family Data Form, or FUD) from children's health cards and mother's maternity cards with the assistance of ADRA field staff. It is envisioned that after the project the MOH nurse will assist promoters in filling out the FUD. ADRA staff collect the FUD data every three months for entry into MS Excel, comparing the data with MOH figures to ensure accuracy. Health promoters share the data with community leaders and members at the community level CAI. The data entered into MS Excel are consolidated and analyzed in MS Access. At this point the ADRA project assistant reviews the data for accuracy. Lastly, the analyzed results are shared with ADRA staff and stakeholders. Field staff use the data to make tables of results by community and discuss plans to reach goals. The data are then checked one last time and sent to the regional office. The team appears to make good use of data to analyze problems, discuss solutions and plan. Care is taken that data are accurate and error free.

CARE

CARE data are collected monthly by health promoters and quarterly by the field technicians, who check quality and completeness, followed by review by the regional coordinator. The quarterly cross sectional data are sent to headquarters every three months, where they are entered, consolidated, analyzed and results are sent from La Paz to the regional offices, where the data are used to create tables.

There is one national coordinator for the M&E system and one regional coordinator in Potosí. The regional coordinator for Tarija is in La Paz, as is the regional coordinator for Sucre, though this is expected to change soon. The MTE Team recommends that coordinators be located in each region, as this will facilitate data entry and analysis and help ensure quality.

CARE's length boards used for taking anthropometric measures are of very poor quality. The tape measure is fixed loosely in a poor location, the head piece is of poor design, and the boards are only appropriate for taking recumbent length, not standing height. This must be remedied immediately.

CARE M&E staff also reported that recumbent length is measured for all children less than five years of age. It should be noted that "for any child, the length measurement is approximately 0.5 - 1.5 cm greater than the height measurement. It is therefore recommended that, when a length measurement is applied to a height-based reference for children over 24 months of age (or over 85 cm if age is not known), 1.0 cm be subtracted before the length measurement is compared with the reference".[11]

CARE must be careful when reporting data to include information regarding migration in the areas where they work. Collection of data when many families have migrated may not accurately represent program impacts.

M&E staff indicated that the final evaluation will only cover the communities most recently involved in the program, and will not include communities where the DAP has phased out during this project cycle. The MTE Team strongly recommends that the final evaluation also include areas where the CARE Title II program has been phased out during this project cycle in order to determine if improvements have been sustained. Careful planning of the final evaluation may provide very useful information regarding the sustainability of CARE's program efforts.

FHI

FHI's CHPs use palm pilots to collect women's and children's data from home visits/health cards and send the data electronically to headquarters where it is quickly processed and sent back to the field following analysis at the regional level. There is good presentation of data in graphic form and intensive discussions of data for decision making at the local FHI level. FHI should document and share its experience using palm pilots.

[11] WHO. "Physical status: the use and interpretation of anthropometry. " WHO Technical Series, No. 854, Geneva, 1995, pp: 224.

Save the Children

SAVE has an automated M&E system for MCH/N data and a paper system for other project components. The automated MCH/N system is currently being implemented and validated in three of eleven project areas. The system includes both operational and supervisory data. Data are collected monthly by health promoters and summarized by SAVE technicians. Data summarized by technicians are sent to the central level in La Paz where they are analyzed every quarter by the national health coordinator, with assistance from the deputy health coordinator. Quarterly data are shared with field staff. Annual data is tabulated and shared with communities and MOH and municipal authorities.

There should be clear, consistent and timely flow of information to staff, promoters, the community and other stakeholders. The results should be presented in graphs and charts to improve understanding and interpretation. Control and analysis of information should preferably be decentralized, with appropriate capacity building and supervision to allow for this. The project should also ensure that data is being effectively used for decision-making

4. ASSESSMENT OF RESULTS IN THE MAJOR PROGRAM COMPONENTS: WATER AND SANITATION (W&S)

4.1. Program Objectives and Strategy

Food insecurity in Bolivia is caused by a variety of factors: low incomes, stagnant agricultural productivity, limited education and poor health conditions. Each of these factors interacts with the others to influence the food security status of a given individual. For example, lack of access to potable water and improper human waste disposal contributes to diarrheal infections. This in turn, affects the body's ability to absorb nutrients and utilize calories, thus causing malnutrition. Ultimately, malnutrition induced by acute diarrhea disease creates severe health problems and is one of the major causes of childhood mortality in Bolivia.

Lack of adequate water and sanitation is a serious problem in Bolivia, with only 68 percent of rural households in Bolivia using an improved drinking water source in 2002, according to UNICEF data, and 85 percent in urban areas. Lack of use of adequate sanitation was even more of a problem with only 45 percent of Bolivians using adequate sanitation facilities at the national level and only 23 percent in rural areas.

The Title II Water and Basic Sanitation (W&S) Program recognizes the complex linkages among low incomes, stagnant agricultural productivity, limited education and knowledge and poor health conditions. The principal program objective is to increase access to potable water and to improve the sanitary conditions for households in the food insecure areas of Bolivia. Each of the four CSs carries out some combination of hardware (installation of community and family water systems, sewage systems, showers and latrines) and software (community capacity building and hygiene education).

Food-for-work rations, monetization funds and technical assistance are the primary inputs provided by the CSs. For the food-for-work rations, the CSs distribute 50 kilograms of food per family per month. Typically, each family is assigned a specific task to be completed during the course of the month. The task assigned is based upon a completion time of 72 hours. The ration is roughly equivalent to 80 percent of the daily wage rates in these areas. Generally, food-for-work activities are undertaken in non-planting and non-harvest times.

The CSs build sustainability into their programs by training beneficiary "water and sanitation committees" on the management, tariffs, maintenance, operation and appropriate use of water and sanitation systems. Ultimately, sustainability depends on the monitoring, maintenance, and repair of completed infrastructure by community committees. Behavior modification is also a key element. Program beneficiaries are trained to improve their hygiene by washing their hands before cooking, eating, feeding young children, using the bathroom and changing young children's diapers/helping them use the bathroom.

The selection and approval of the projects is based upon community needs and priorities, which are submitted to the municipalities. Prior to execution of this program, the CSs sign agreements with the counterpart institutions (municipalities, and community groups). The CSs also

participate in planning workshops with municipalities so that funds for their projects are included in the municipal operation plans (POAs).

4.2. Types of Interventions and Their Rationale

The four CSs are all implementing a variety of activities in the W&S component. These activities include: construction of water systems, construction of sanitation facilities, community capacity building and municipal government level capacity building. The programs are fairly similar in the types of W&S infrastructure constructed, but differences do exist, such as CARE's use of ferro-cement water tanks and SAVE's construction of a sewage system in Cajuata.

These activities address important constraints to improving hygiene and health for the participant population, including:

- Poor access to potable water systems

Bolivians, especially in rural areas, have little access to potable water systems which are critical to facilitate proper hygiene and decrease the incidence of diarrheal diseases, as well as other illnesses caused by lack of hygiene. Potable water systems also decrease women's time spent transporting water from rivers, springs or other sources, allowing women to spend more time on child care, household duties and where applicable, income generating activities. The four CSs are all working in collaboration with municipal government authorities and communities to construct water systems to meet this important need.

- Poor access to sanitation facilities

A large proportion of Bolivia's poor live in rural areas without access to sanitation facilities. Lack of appropriate disposal of human excreta is a major factor contributing to diarrheal disease and proper discard of human waste is a key component to decreasing illness and improving health. All four CSs work closely with community and municipal authorities and community members to construct sanitation facilities to address this important issue.

- Low community and municipal level capacity to meet water and sanitation needs

Sustainable improvement in access to potable water systems and sanitation facilities is not possible without the effective involvement of municipal government authorities and community members. The four CSs all work closely with municipal leaders to determine water and sanitation needs and priorities, budget for system construction, and design and implement water and sanitation projects. In addition, the four CSs work with community leaders and members to identify needs, develop proposals to be submitted to municipal authorities, and plan community involvement in W&S project implementation, including the training of CAPYS (Comité de Agua Potable y Saneamiento, or Potable Water and Sanitation Committees) to operate and maintain systems. The committees are formed according to the standards and regulations of each region established by the Vice Ministry of Basic Services (Vice Ministro de Servicios Basicos, VMSB) and the Superintendent of Basic Services (Superintendencia de Saneamiento Basico, or SISAB), Bolivia's waterworks regulator.

- Low level of knowledge and appropriate behaviors regarding hygiene

Access to potable water systems and sanitation facilities is important, but project participants will not experience improvements in health without changes in hygiene knowledge and practices. Appropriate hand washing, water storage and handling, cleaning and maintenance of sanitation facilities, and proper food preparation and storage are all key elements to improving health and nutritional status of family members, especially young children. The four CSs have all incorporated hygiene and associated behavior change messages into their programs, with varying degrees of success in altering hygiene behaviors. Health promoters and/or CAPYS members communicate hygiene messages and in the case of SAVE, a special W&S surveillance system, SIVAS (Sistema de Vigilancia en Agua y Saneamiento) has been developed to mobilize and motivate community level improvements in water, sanitation and hygiene practices.

4.3. Progress to Date

The MTE Team was impressed by the progress made by the four CSs in terms of water, sanitation and hygiene, both in terms of technical quality of the programs and the often significant, measurable impact on the lives of the program participants. However, technical quality of implementation is uneven among CSs, resulting in some having very significant impact and others very little, especially in terms of improving access to safe water, access to sewage systems or latrines, and adequate hand washing

4.3.1. Quantitative Analysis Based on Annual Reports and the Mid-Term Evaluation Survey Results

Quantitative results for water and sanitation, based on annual reports and the mid-term evaluation survey are presented with the health and nutrition quantitative results in sections 3.3.1 and 3.3.2 of the report (pages 15-19).

4.3.2. Qualitative Analysis Based on Results of Field Visits

The following section of the report presents the qualitative results for the four CSs with regard to water and sanitation, with particular attention to infrastructure quality, sustainability and implementation performance. The section presents results in three areas, including water supply systems, sanitation systems and organization/community capacity building. Qualitative results in hygiene and behavior change can be found in section 3.3.3. of this report, in the qualitative results sub-sections pertaining to MCH/N education sessions, nutrition rehabilitation of malnourished children, behavior change and communication, and the Chagas pilot project.

In general the CSs' projects are well designed and constructed, incorporating accepted engineering practices and adjusted to conform to established codes, norms and regulations of the Bolivian Government. In particular, CS activities have been generally well adjusted to the guidelines contained in DESCOM (Desarrollo Comunitario, or Community Development), established by the VMSB for implementation of water and sanitation projects in communities with populations less than 10,000 inhabitants. Projects were carried out with good participation

on the part of municipal authorities as well as beneficiary communities. In some cases CSs evaluated and adjusted municipal level plans and designs before project implementation (for example, SAVE), while in others, the CSs themselves designed the projects (for example, FHI).

4.3.2.1. Water supply systems

All potable water systems, with the exception of some SAVE project areas, implement gravity water systems. This results in lower operational costs than systems that rely on pumps for water capture, flow, storage and distribution. SAVE has introduced some pumped water systems where needed in the Altiplano, where water is captured in perforated pits and later extracted with electric pumps. Once extracted, the water is stored in tanks and distributed in the same manner as gravity systems. In all systems, water is distributed by open networks with adequate flow and service pressure and delivered directly to homes. The following provides observations concerning water systems by CS.

ADRA

ADRA has done a very good job of clearly identifying the water supply problems and needs in the target communities. Staff have strong technical abilities and extensive experience. They also have excellent working relationships with the project communities, demonstrate very good negotiation skills with them, and are capable of effectively mobilizing communities to ensure their participation.

However, ADRA's criteria for water system design is not standardized. ADRA should adopt uniform standards for construction based on population figures to ensure systems are not oversized. ADRA should also consider adopting non-traditional technologies such as ferro-cement tanks, in which CARE has much expertise. In addition, ADRA should install flow meters at the outlets of their water tanks in order to monitor water use per capita as outlined in their Indicator Performance Tracking Table (IPTT).

ADRA's service fees are too low to ensure sustainability of its projects and fee structures should be reviewed and revised so they are consistent across project areas and sufficient to keep systems sustainable. In addition, responsibilities for supervision and inspection are not clearly defined, and ADRA should clarify roles of staff members to ensure adequate supervision and inspection of water infrastructure. Lastly, ADRA should improve the interactions between water project staff and NRM staff to make sure that environmental issues are being adequately addressed in the water systems component of its project.

CARE

CARE has very good technical expertise and practices in the design and construction of water systems and complies well with sector norms. CARE also makes very good use of innovative technologies, such as ferro-cement tanks, and has successfully adapted these to local conditions, optimizing systems without compromising their functionality. Exit and sustainability strategies appear to be very realistic, perhaps related to CARE staff's ample experience in similar projects.

However, CARE's water component does not actively complement its other project components, and CARE's water system team should interact more closely with the NRM team to make sure environmental concerns are being addressed. As in the case of ADRA, service fees are not adequate to ensure sustainability and CARE should review and revise fee structures accordingly. In addition, CARE does not have sufficient staff to adequately manage the construction of the systems that are being implemented and team size should be augmented or the number of projects reduced to ensure adequate supervision. Responsibilities for supervision and inspection are not consistently defined and CARE should clarify roles and responsibilities among water system staff. For example, oil contamination was detected in the system in Milanes and the type of material used for the collection chamber covers should be adjusted accordingly, and the application of ferro-cement tanks in Chuquisaca must be adjusted. These are problems that could have been detected and rectified quickly with appropriate supervision and quality control.

FHI

FHI has developed technologically sound water project designs that are consistent with norms and regulations for water systems outlined by the VMSB. FHI constructs and supervises its infrastructure projects, ensuring a high level of quality and also permitting the organization to learn well from past mistakes. Staff are skilled and the team is sufficient in number to ensure good development, construction and supervision of its various infrastructure projects, including water systems. The team has good equipment which allows it to conduct its own studies and modern software that facilitates the work of the design team. One water system uses an on-line sodium hypo-chloride dosifier for disinfection, but all other water systems do not include disinfection because of good water quality, determined by water testing. The fact that field technicians participate in health and sanitation team activities contributes to improving integrated health and hygiene habits. Fees for water system use are correctly established according to Bolivian "uses and customs" rights which allow community members autonomy in setting their own fees, and the provision of services in lieu of fees in cases of extreme poverty. This system is supported by regulations of Bolivian Law 2066 which recognizes the right of indigenous and rural populations to organize.

However, water system engineers should consider a different method to calculate the diameter of the pipes for the distribution network when there are fewer than 30 standpipes (water spigots). Engineers should review formulas for simultaneous water distribution that can be found in norm NB-689 from the Bolivian National Regulations for Water Systems Design, downloadable from the Internet at http://www.sias.gov.bo.

Save the Children

SAVE is trying to cover a very broad geographical area with insufficient staff to supervise the construction of its water projects and train CAPYS members and community participants. SAVE's dependency on municipal level project designs, planning and budgets results in projects of poor quality that are not completed on time. SAVE did respond to these MTE observations by decreasing their operational area and hiring staff to improve institutional capacity and assure appropriate project selection, standards and quality.

In future water systems, SAVE should consider using an additional patent union (unión universal) to permit disassembly of accessories in order to conduct corrective maintenance. SAVE should also implement monthly fee schedules for every water system.

4.3.2.2. Sanitation systems

Sanitation systems constructed by CSs include ventilated improved pit (VIP) latrines, pour flush latrines and bathrooms with sink and/or shower. SAVE is the only organization that has constructed a sewage system (Cajuata). Some sanitation facilities have also incorporated a laundry sink, and FHI has included solar powered public showers. Special care should be taken by all CSs in selection of sanitation facilities to construct, taking into consideration the advantages and disadvantages of each type of facility, community (and especially women's) preferences, and environmental and cultural issues. Given adequate funding and appropriate environmental and cultural conditions, CSs should give preference to the construction of bathrooms over VIP latrines because of the very positive results found in the field -- families very happy, full of pride because of their bathrooms -- and the influence that these results have on motivating community participation, behavior change and sustainability. Future constructions should also consider porcelain toilets instead of concrete toilets due to problems with elimination/cleaning of wastes in concrete toilets. The use of pre-fabricated iron doors and laundry sinks has improved both quality and cost in CARE and FHI sanitation facilities. CS-specific observations and recommendations follow:

ADRA

ADRA has clearly identified communities' sanitation problems and needs and has technically sound staff with good experience in sanitation. Staff also have a strong capacity to mobilize communities for action and good working relationships with them. However, criteria for sanitation system design are not standardized and responsibilities for supervision and inspection are not clearly defined, and this situation should be rectified. Also, staff on the sanitation construction team and the NRM management team must work more closely to ensure environmental issues are being addressed in the sanitation component of its project.

CARE

CARE has very good expertise in the design and construction of sanitation systems, which comply well with sector norms. CARE also seems to have reasonable exit and sustainability strategies. However, sanitation team members and natural resource management team members must collaborate to make sure environmental issues are adequately addressed. Also, responsibilities for supervision and inspection are not consistently defined and CARE should clarify roles and responsibilities among sanitation system staff.

FHI

FHI's sanitation systems are technically very sound, staff skills levels are high, projects are well constructed and supervised and teams have good equipment which all allow for high quality projects. Sanitation facilities and water systems are built together, important to achieve good impacts on health as well as sustainability. FHI has implemented both bathrooms and latrines.

Bathrooms, in some cases, include a toilet, shower and an external laundry. All latrines have a pour-flush toilet with two absorption pits. Field technician participation in health and sanitation team activities contributes to improving integrated health and hygiene habits. However, field visits revealed the inappropriate use of alternate absorption pits. The distribution chamber must deliver the wastewater to one absorption pit and then after it is full change to the other. Rural promoters and field technicians should attend training to reinforce their knowledge on the correct use of this technology.

Save the Children

SAVE is building bathrooms with a toilet, electric shower, hand sink and laundry sink, and is working with a higher cost-benefit ratio than if they only constructed pour-flush latrines. However, field observations from Cotapampa and Teneria indicate that the benefits being obtained in these communities is significant, suggesting that the higher investment cost is justified, although the additional standpipe covered with armed concrete (hormigón armado) adds an unnecessary cost in Cotapampa. Also, SAVE's sanitation program and its water program should be integrated and implemented together in communities to meet family water and sanitation needs simultaneously to improve program impact.

Since SAVE is attempting to cover a very broad geographical area, its technicians have insufficient time to supervise the construction of its sanitation projects and to train participants in operation and maintenance of systems. Staff also lack time to pay sufficient attention to sustainability of sanitation systems. Project designs are not completed in a timely manner and are not of high quality because SAVE depends too heavily on municipal designs, annual operational plans and schedules for disbursement of funds. It should be noted that SAVE did make some changes to its program in response to these MTE findings, including a reduction in its geographical area and hiring staff to enhance institutional capacity and assure appropriate project selection, standards and quality.

Technical aspects of VIP latrines must be revised for future projects. For example, in Churillanga and Piquiñani the ground water table is near the surface and communities are sometimes flooded in the rainy season, so there is the possibility of excreta contamination of groundwater. Latrines in these communities had both a window and a ventilation pipe. However the VIP latrine design does not allow for the use of windows because air circulation must be conducted through the pipe. Lastly, latrine slabs had a circular hole for excreta, but there was no adequate hole or slab slope to ensure urine flow to the hole.

Although there was no opportunity to visit the wastewater treatment system constructed by SAVE in Cajuata due to blocked roads, discussions with technical staff revealed a need for continuous evaluation to verify the quality of the treated wastewater and its environmental impact. A sludge-drier or sludge-bed must be considered for future operations.

The MTE Team believes that SAVE should seriously consider constructing more bathrooms, choosing feasible communities, that is, communities with good water quantity, continuous electrical supply and appropriate cultural aspects. Bathroom costs should be analyzed to adjust costs to national policies. Field staff should also be trained in the correct use of alternate absorption pits for bathrooms. Following community selection, SAVE should follow the criteria

of DESCOM, as established by the Bolivian basic services sector, to elaborate final designs. Under DESCOM and its community participation component, it is highly probable that the latrines in Churillanga and Piquiñani never would have been constructed, but alternate technological options would have been reviewed and selected. A DESCOM Guide is available through the VMSB's PROAGUAS (Programa de Saneamiento Básico para Pequeños Municipios, or Basic Sanitation Program for Small Municipalities).

4.3.2.3. Organizational/community capacity building

CS actions to raise awareness in communities and organizations and to meet the needs of users have been a great force to mobilize community participation in W&S activities. CSs have stimulated the formation of the CAPYS to operate and maintain systems and thereby improve sustainability. CAPYS committees are made up of a president, secretary, treasurer and representatives and are generally very well organized. However, both ADRA and CARE's training and follow-up of CAPYS members were not consistent across project areas. CAPYS training should be standardized in order to ensure proper administration, operation and maintenance of systems.

FHI also needs to dedicate more time and energy to activities to ensure the sustainability of its W&S systems through appropriate community level capacity building. FHI had few training manuals describing CAPYS functions and those that were reviewed were not well understood by the CAPYS president and committee members. The literacy level required to use these manuals is too high and the figures do not logically coincide with or support the content of the text. FHI should develop detailed brochures for operating and maintaining its W&S infrastructure. The literature should be appropriate for the literacy level of the audience and include figures and drawings that clearly relate to and support the text.

The MTE recommends that, since FHI's MCH/N team and community level RPSs are present in communities before, during and after construction of water systems and sanitation facilities, they should train and reinforce training in good hygiene habits and the operation and maintenance of the systems using "training by doing" methods. In addition, FHI should work more closely with teachers in its communities to strengthen hygiene behaviors and environmental sanitation through school children.

SAVE has developed a very good organizational guide for regulation of W&S services. This guide explains the function of CAPYS members and the "rules" regarding service use. SAVE also has developed a water and sanitation surveillance system (SIVAS), with an accompanying manual, to strengthen hygiene in the community by teaching, through CAPYS members or health promoters, the correct use of W&S services in the home. In addition, SAVE is promoting solar disinfection of water, or SODIS, using clean transparent bottles and natural water with low turbidity (under 30 NTU, or Nephelometric turbidity unit), exposed to the sun for a specified period of time (depending on sunlight/cloudiness and water turbidity) to reduce microbiological activity in the water. SAVE is in its initial stages of introducing SODIS to project communities. It should be noted that CARE is also promoting SODIS, and there are intentions to use SODIS by the other CSs as well.

However, similar to FHI's project, SAVE should devote more time and attention to developing the capacity of its communities to operate and maintain their W&S systems. SAVE also does not have sufficient literature covering the operation and maintenance of sanitation systems and the literature that is available is not at a literacy level appropriate for the community participants, jeopardizing the sustainability of SAVE's efforts. SAVE should develop detailed brochures explaining the operation and maintenance of its infrastructure, appropriate to the literacy level of its audience that includes figures and drawings that clearly relate to and support the text.

Field visits revealed that the majority of CAPYS members are men and women's participation in meetings in Churillanga, Piquiñani and Cotapampa was minimal, though this could be associated with the Aymara culture. If it has not done so already, SAVE may benefit from consulting sectoral documents on "Aspects of Gender in Basic Sanitation Services" ("Aspectos de Género en los Servicios de Saneamiento Básico), which can be obtained through the VMSB. World Bank projects, YACUPAJ and PROSABAR, also had good experiences with improving the participation of women and gender issues in W&S projects.

Lessons learned in the communities of Cotapampa and Teneria regarding CAPYS management and hygiene behavior should be assessed, documented and shared within the project. In these communities, bathrooms were observed that had soap, shampoo, tooth brushes and toothpaste, which demonstrated the daily use of each bathroom, particularly in Cotapampa. Participants have also constructed containers to hold the shampoo bottle and rustic toilet paper dispensers. In Cotapampa, the CAPYS, on their own initiative, developed a "monthly fee control" instrument to improve the administration and control of fees and fee collection and are highly commended for this effort.

5. ASSESSMENT OF RESULTS IN THE MAJOR PROGRAM COMPONENTS: INCOME GENERATION (IG)

5.1. Program Objective and Strategy

The main objective of this component is to increase family incomes in food insecure areas through helping farm families increase their agricultural productivity and improve their access to markets. Title II income activities directly support the Mission Strategic Objective of *Increased Income of Bolivia's Poor* with all four of the CSs using a combination of food and cash to achieve their income generation objective. All four use food rations to support the construction of large-scale community-based production infrastructure, for example, including improvements in roads, land reclamation and irrigation systems. Several of the CSs also use food and/or in-kind contributions to encourage farmers to construct/purchase the silos and other small family level infrastructure that they are experimenting with under their current DAPs. All four CSs also use cash to pay for the technology transfer, market development and organization capacity building components of their programs, all three of which consist primarily of technical assistance and training.

Since poverty is the root cause of food insecurity in Bolivia, these income generation programs are critical to the achievement of the CS's objectives. Subsistence agriculture plays a major role with respect to food availability and access in the areas where the four CSs are working. Levels of agricultural productivity are generally low, although some areas have good potential for increasing agricultural potential, with limited potential in other areas. Household incomes are low.[12] The environment is harsh – cold temperatures in some areas, long dry seasons, heavy rains and flooding and hail make agricultural yields unpredictable. Plus, many communities are remote and often widely dispersed and access to markets is difficult and time consuming. Knowledge about agricultural marketing and business and natural resource management is limited. Deforestation, over grazing and soil erosion also are significant problems. Market roads and irrigation systems are few in number. Plus, there is limited access to information on improved agricultural technologies, credit, and markets and market prices.

Conditions can vary significantly among and within the areas that the CSs work in, including between the highlands (Altiplano) and the valleys (Valles). This means that the CSs have to tailor their income generation programs to the conditions in each area, with the result that not all activities are being implemented in all areas. In some of the areas where the CSs are working, for example, agricultural potential is low due to high altitudes, limited or uncertain rainfall, degraded soils, steep slopes or other biophysical constraints. In other areas, the agricultural potential is better but the level of development is low due to lack of infrastructure, long distances to markets, low population densities, and lack of investments and/or political neglect. A combination of activities including small-scale irrigation, improving market access roads and market development is going to be more suitable for areas with high potential for crop production, close to markets and higher population densities. On the other hand, investments in

[12] According to data from their baseline studies, the average annual gross income of households living in communities where ADRA was working was $US 941and $US 419 in the communities where FHI was working.

livestock and pasture improvements may be more suitable for areas with low crop potential, low population densities and long distances to markets.

CS staff also talked about the impact of culture and language (some communities are all Spanish speakers, others all Amarya or Quechua speakers and some mixtures) and the necessity to take this into account in activity design and implementation. Probably less well understood is the impact that migration is having on communities and the structure of economic incentives for individuals and within and among communities. The places that people migrate to differs in different areas of the country, with some traveling to the nearest big city, others to where agricultural labor is needed for harvesting, for example, and others leaving the country. However, all the CSs are affected. The length of time people migrate also varies, as does the number of people involved -- whether only one person goes or the whole family migrates for a period of time. All this affects how people are going to be willing to use their time and what level of return they are going to expect for their efforts.

5.2. Types of Interventions and Their Rationale

All four CSs are implementing a variety of activities under this component. This includes activities related to technology transfer, improved market information and links, the development of productive infrastructure at the community level (including rural roads, irrigation systems, land protection and reclamation), the introduction of family level productive infrastructure (including silos and livestock shelters) and organization capacity building. Although each of the four programs includes some combination of most of these activities, none of the CSs has included all of these activities in their programs. ADRA does not work on livestock, for example, and has not included family infrastructure investments in its programs, and ADRA is the only one of the four that has incorporated the development of agricultural service centers as a key component of its strategy.

CS activities address some of the key constraints to increasing agricultural incomes for the Title II target population, including:

- Low agricultural productivity

Bolivian farmers, the smaller and poorer farmers in particular, make limited use of improved agricultural technologies, which is one of the major reasons that the levels of agricultural productivity in the country are so low. So all four CSs are implementing activities designed to increase the productivity of small farmers, including by identifying and disseminating new, improved agricultural technologies suitable to low input farming conditions. CSs provide technical assistance and develop extension activities to introduce new and appropriate production technologies. Specific activities include training in the use of certified seeds, improved crop and livestock management strategies, appropriate disease and pest control, improvements in harvest methods, and adequate crop storage practices. Depending upon local conditions and economic incentives, crop diversification is another important component.

- Geographical isolation

A significant percentage of Bolivia's poor live in isolated areas with poor road infrastructure. As a result, they face enormous obstacles reaching internal markets to sell products or purchase farm inputs and consumer goods. CSs work with the municipal governments to build and improve rural access roads, with the CSs providing the food to compensate community members for their labor on the road. The main objective is to improve linkages between producing areas and market towns and to increase the volume of products farmers are able to sell.

- Weak and underdeveloped market linkages

Greater agricultural productivity is a necessary but insufficient condition to increase incomes and employment. Without greater market access, the benefits of increased productivity will not be realized. So the CSs also work on activities designed to improve market access and the value of products being sold by their client farmers.

- Water scarcity and lack of access to water

Low annual rainfall coupled with its uneven distribution and little if any water storage capacity also presents serious limitations for crop and livestock production. Bolivia's varied topography, however, provides many opportunities for developing micro irrigation systems, especially gravity-fed water systems, which use narrow primary canals (about one foot wide) to channel water to the growing areas and secondary canals to irrigate individual farm fields. Opportunities also exist for introducing sprinkler systems in areas where surface or subsurface water is available in limited quantities and motorized pump irrigation systems in areas where surface water is either absent or is lower than the field to be irrigated. Many opportunities also exist for building reservoirs in which to store more water to use to irrigate crops and/or to water livestock. Improvements in water storage can often permit communities to expand the irrigation network, giving more families access to water, as well as enable more livestock to survive through the dry season.

- Shortage of farm-level productive infrastructure

Improvements in farm infrastructure can also help increase productivity and incomes. So the CSs assist farm families in the construction of infrastructure designed to help families enhance their own food supply and improve their diets, as well as increase their incomes from agricultural sales. This includes silos, greenhouses and farm buildings designed to house livestock (including cows, sheep, chickens and cuy).

5.3. Progress to Date

The MTE Team was impressed overall with the technical quality of many of the activities that are being implemented under this component and with the progress that is being made by the four CSs in terms of impact. Many of the activities are having a measurable and in some cases substantial impact on household incomes and in the lives of the people in their program areas more generally. The implementation of activities is uneven, however, with some activities an

integrated part of a coherent strategy and/or meeting high technical standards and others needing to be strengthened and some rethought and even phased out. Both CARE and SAVE also are trying to do too many things in too many places, and need to focus their programs more to make better use of their resources and enhance the impact of their programs. Both CARE and SAVE had already begun to recognize that they were spread too thin, given their financial and human resources, and both began to take steps almost immediately after the conclusion of the visits to their field sites, in consultation with the Mission, to address this problem

5.3.1. Quantitative Analysis Based on Annual Reports

Although the four CSs have tried to harmonize the indicators that they are using to measure performance under this component, there is some variation among indicators and considerable variation in how these indicators are defined and measured, making comparisons across CSs difficult. All four CSs have adopted some measure of change in household incomes as their major impact indicator, with CARE, FHI and SAVE standardizing on two indicators. These are: (1) the average annual gross income of rural households assisted by Title II and (2) the percent of households assisted by Title II with increased incomes of five percent or more in the past year. ADRA has also adopted the second indicator, but limits the income that it measures to that earned from the sale of the targeted crops that it is promoting under its program.

All four CSs have adopted similar output indicators, including the percent of farmers adopting improved technologies and practices and value of products sold through a forward contract or a producers' marketing association. Again ADRA has modified these indicators to better fit its own strategy, only collecting data on and reporting separately on the results achieved for each of its target crops and measuring the volume of the targeted crops sold through its agricultural service centers. All four CSs also use several similar input indicators, measuring the number of hectares of land brought under irrigation and the number of kilometers of rural (market access) roads rehabilitated. All four CSs also track the number of participants receiving training under their programs. Because the ADRA program is focused on a limited number of crops with strong market potential, the ADRA performance management system was also set up to track for each crop whether ADRA is making progress with respect to promoting production increases (yields), reducing post harvest losses and meeting sales targets.

Household income is not necessarily the best impact indicator for an income generation project if its ultimate objective is to improve food security. Although better diets are strongly correlated with higher incomes in cross section studies, increases in incomes at the individual household level do not necessarily result in improvements in household diets. Plus, household income is a notoriously difficult indicator to measure, both for definitional reasons and because it is very difficult to get accurate information from respondents who frequently are reluctant to provide information on their incomes. Changes in household incomes also are driven by factors outside of the control of the individual CS, including weather and economic developments elsewhere in the county and world, and can vary considerably from year to year. These are some of the reasons why the USAID Food for Peace (FFP) Office, under its new Strategy, is proposing to adopt a new measure -- changes in household food consumption -- to capture the food security

effects of programs that aim to protect and enhance the access component of food security. This is an easier indicator to measure and is a much more direct measure of food security.[13]

The CSs may have to continue to use some measure of household income in their programs if the Bolivia Mission continues to use changes in "annual average household income" as one of the indicators for its "Economic Opportunities" Strategic Objective, however. If so, all four CSs will need to review the definitions that they are using for their household income indicator (whether they are all including the same components in their definitions of gross income, for example) and make further improvements in how they collect and analyze the data.

The CSs also need to do further work on their technology adoption indicators. This is important, because this is going to be one of the major indicators that they will be expected to report on under the new FFP Strategy. And, all four will need to do considerable more work to clarify and reach more consistency in how this indicator is defined and how the data is collected and analyzed. Some differences are unavoidable. Each of the CSs has different packages of technologies that they are disseminating, for example, and each will have to make decisions about how many of the specific practices a farmer will have to use in order to be considered an adopter. Some technology packages may be more complex than others and where the CS sets the bar in terms of number of practices that need to be adopted will influence the percent of adopters. These differences need to be understood and dealt with in as consistent a manner as possible. Other differences due to differences in how programs are designed and implemented may also affect outcomes and will have to be considered and taken into account. For example, part of the high adoption rate that CARE has reported in its most recent annual report (See discussion in the following section on Agricultural Technology Transfer) may be due to CARE counting the use of its recommended practices on the plots that are being farmed as part of its farmers' schools program, where the real test is the extent to which these farmers use these new technologies on their own individual plots. If food rations are used to encourage adoption, this also can artificially elevate adoption rates.

5.3.1.1. ADRA

ADRA exceeded its target with respect to its major impact indicator – percent increase in average annual gross income of targeted farmers from targeted crops (the achieved level was 142 percent above the FY 2004 target). ADRA attributes this success to its use of market studies to identify target crops with high demand and the clients for these crops and the implementation of technology packages and improvements in product selection, which helped farmers increase the production and improve the marketability of these products. ADRA also exceeded its targets with respect to the percent of farmers adopting improved agricultural techniques for the targeted crops (the achieved level was 111 percent above the FY 2004 target) and the percent of farmers with knowledge of prices of targeted products (the achieved level was 148 percent above the FY 2004 target). ADRA also came close to achieving its targets with respect to the increase in hectares under irrigation (the achieved level was 97 percent of the target), relying primarily on

[13] "Dietary diversity" is one of the indicators that is being proposed. This has been shown to be a fairly robust measure of the status of household food security and is relatively simple and inexpensive in terms of data collection. Work is also underway to develop a standardized methodology for collecting information on a second potential indicator -- "food gap" -- that also should be relatively simple and inexpensive.

the expansion of pump rather than gravity fed irrigation. ADRA did not meet its target with respect to numbers of kilometers of access roads rehabilitated (achieving only 57 percent of the FY 2004 target) and plans to add the remaining portion of kilometers to the quantities to be completed in FY 2005 and expects to be on target for the rest of the DAP. ADRA was also very successful with respect to the marketing of many of its target products, exceeding its targets for the volume of products marketed through its agricultural service centers for onions, broad beans and peaches.

Table 3: ADRA Agricultural and Rural Incomes Program Performance

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	Life of Activity Target
1. Percent increase in yield of selected marketable produce by targeted households	Onions 27MT Broad beans 2.2MT Peaches 9.28MT Plums NA Beans NA Peas NA Garlic 8.84MT Grapes 59.34MT	5% (28.35MT) 5% (2.31MT) 50% (13.92MT) 25% (13.75MT) 27% (0.95MT)	0%(22.97MT) 0%(2.05MT) 1.72%(9.44MT) 18.2%(13MT) 20%(0.9MT)	0% 0% 0% 72.8% 74.1%	12% 10% 60% 60% 33.3% TBD TBD TBD
2. Percent increase in average annual gross income of targeted farmers from targeted crops	$US 941.12	43% (US$ 1,345.80)	60.8% (US$1,513.82)	141.5%	83% (US$1,722.24)
3. Percent of farmers adopting improved agricultural techniques for the targeted crops	1%	45%	49.9%	110.9%	75%
4. Number of farmers assisted with credit-for-input services in the production of the target crops	114	819	783	95.5%	1092
5. Hectares of irrigated land used for production of targeted crops	0	27.7	26.75	96.6%	203.5
6. Percent reduction of post harvest losses for targeted crops	Onions 21.32% Broad beans 25.23% Peaches17.35% Plums NA Beans NA Peas NA Garlic 10.98% Grapes 30.66%	18% 20% 14% 17% 25%			12% 15% 10% 12% 15% 20% 18% 20%
7. Volume of targeted products marketed by the ASC (agricultural service centers) (aggregated by product)(in MT)	Onions Broad beans Peaches Dried peaches Plums Beans Peas Garlic Grapes	400MT 70MT 48.1MT 57.3MT 16.8MT 11.3MT	471.44MT 82.55MT 210.81MT 13.25MT 16.1MT 0MT	118% 118% 438% 23% 96% 0%	480MT 80MT 78MT 96.2MT 28.1MT 20MT 10MT 11MT 4MT
8. Percent of farmers with knowledge of prices of targeted products at a given time	NA	60%	88.8%	148%	80%
9. Number of kilometers of market access roads rehabilitated	0	25	14.38	57.2%	67

5.3.1.2. CARE

CARE came close to but did not meet its FY 2004 targets with respect to its two major impact indicators – average annual gross income of rural households assisted by Title II (the achieved level was 99 percent of the target) and percent of households assisted by Title II with increased incomes of five percent or more in the past year (the achieved level was 80 percent of the target). CARE attributes these increases in income to the successes that it had in getting farmers to adopt new seeds for several traditional crops, to increased sales and a reduction in post harvest losses due the success of its metallic silos dissemination program. Two areas where CARE greatly exceeded expectations were with respect to the percent of the target population that adopted the improved agricultural technologies and practices that CARE is promoting (the achieved level was 214 percent above the target) and the value of products sold through a forward contract or a producers marketing association (the achieved level was 177 percent above the target). CARE also did not meet its targets with respect to numbers of kilometers of roads repaired (the achieved levels was 55 percent of the target) and new hectares under irrigation (the achieved level was only 29 percent of the target). The MTE Team has concerns about whether CARE will be able to meet it LOA targets for kilometers of roads and new hectares under irrigation, given performance to date. The field visits uncovered problems in CARE's roads program, which led the Team to believe that CARE's engineering staff are already over extended. Plus, CARE's more recent annual report cited not being able to identify sufficient water supplies to exploit as the reason that it was not able to meet its FY 2004 irrigation targets. For these reasons, the MTE Team recommends that CARE revisit the likelihood of achieving these targets, and modify them if necessary, to more realistic levels.

Table 4: CARE Agricultural and Rural Incomes Program Performance

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	Life of Activity Target
1. Average annual gross income of rural households assisted by Title II	$US 735	$US 772	$US 763	98.8%	$US 2,344
2. Percent of households assisted by Title II with increased gross incomes of five percent more in the last year	NA	20% 164/820	16% 184/1156	80%	30%
3. The proportion of target population that has adopted improved agricultural technologies and practices	NA	35% 2361/6746	75% 4980/6596	214.3%	50%
4. Number of participants that received systematic agricultural training during the past year	NA	6746	6596	97.8%	10,000
5. Number of kilometers of roads improved/constructed	NA	300	164.5	54.8%	900
6. Number of new hectares under irrigation	NA	125	36	28.8%	350
7. Value of products sold through a forward contract or through a producer marketing association	NA	$US 20000	$US 35481	177.4%	$ US 50,000
8. Number of producer organizations strengthened	NA	24	34	141.7%	36

5.3.1.3. FHI

FHI exceeded its targets in FY 2004 with respect to its two major impact indicators – average annual gross income of rural households (the achieved level was 117 percent above the target) and percent of households assisted by Title II with increased incomes of five percent or more in the last year (the achieved level was 131 percent above the target). Since FHI is using the local agricultural calendar year, which starts in July and ends in June of the following year, to calculate these two indicators, these results were reported as FY 2003 results but actually refer to the results achieved by June 2004. In FY 2004, FHI only achieved 71 percent its target with respect to the value of products sold through a forward contract or through a producer marketing association. This is in contrast to FY 2002 when the achieved level was 173 percent above the target and FY 2003 when it was 192 percent above the target. FHI attributed its success in raising household incomes to its agricultural technology transfer and land reclamation programs. FHI helped farmers increase their production of potatoes by introducing them to higher quality seed and improved fertilization and pest management techniques. In areas where FHI-supported programs introduced irrigation, many farmers are now able to produce two crops per year rather than one. With FHI technical assistance, many farmers also were able to diversify into alternative crops such as onions and carrots, which also helped them increase their incomes. FHI met its target with respect to kilometers of roads repaired (the achieved level was 101 percent of the target) and its performance with respect to bringing new hectares under irrigation was respectable (the achieved level was 85 percent of the target). FHI had already reduced it targets for kilometers of rural roads to be repaired in FY 2003, in consultation with its

Table 5: FHI Agricultural and Rural Incomes Program Performance

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	Life of Activity Target
1. Average annual gross income of rural households assisted by Title II	$US 419	$US 530	$US 823	155%	$US 750
2. Percent of households assisted by Title II with increased gross incomes of five percent more in the last year	NA	750/1800 42%	55%	131%	1620/2700 65%
3. The proportion of target population that has adopted improved agricultural technologies and practices	NA		891/2700 33%	384/760 51% (MTE)	1350/2700 50%
4. Number of participants that received systematic agricultural training during the past year	NA	1600	1222	76%	2295
5. Number of kilometers of roads improved/constructed	NA	26/0	26.5/0	101%	150/0*
6. Number of new hectares under irrigation	NA	55	47.6	85%	240*
7. Value of products sold through a forward contract or through a producer marketing association	NA	$US 30341	$US 21635	71%	$US 171524
8. Number of producer organizations strengthened	NA	16	17	106%	24

*Cumulative

beneficiaries, who, according to FHI, preferred to spend their time on land reclamation and soil conservation projects where they saw a more direct benefit.

5.3.1.4. Save the Children

SAVE exceeded its targets in FY 2004 with respect to its two major impact indicators – average annual gross income of rural households (the achieved level was 112 percent above the target) and percent of households assisted by Title II with increased incomes of five percent or more in the last year (the achieved level was 205 percent above the target). According to SAVE this result was due primarily to an increase in income coming from livestock, with livestock accounting for approximately 75 percent of the gross increase in farm income and cattle alone accounting for 50 percent of this increase. SAVE relates this to its support to the delivery of improved veterinary services and the construction of water reservoirs (qotañas in Amarya) for livestock in the highlands. SAVE also exceeded its targets with respect to the percentage of target population that has adopted improved agricultural technologies and practices (the achieved level was 125 percent of the target). The percentage of new hectares that SAVE was able to bring under irrigation was also respectable (the achieved level was 82 percent of the target), but it fell far short of its goals with respect to the number of kilometers of roads improved, only meeting 6 percent of its 2004 target. Since the MTE Team visit, SAVE reports that it has already initiated three new micro irrigation projects that will make a substantial impact on its "new hectares under irrigation" indicator. With respect to road rehabilitation, SAVE has proposed to reduce a number of its LOA indicators. This includes reducing its indicator for kilometers of roads repaired to 100 and numbers of new hectares brought under irrigation to 100, both of which seem reasonable to the MTE Team, and reducing its indicator for number of producers' groups strengthened from 50, which was unrealistic, to 10.

Table 6: SAVE Agricultural and Rural Incomes Program Performance

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	Life of Activity Target
1. Average annual gross income of rural households assisted by Title II	$US 539	$US 593*	$US 662*	112%*	$US 775
2. Percent of households assisted by Title II with increased gross incomes of five percent more in the last year	NA	20%	41%	205%	55%
3. The proportion of target population that has adopted improved agricultural technologies and practices	0	30%	37.4% 88/235	125%	50%
4. Number of participants that received systematic agricultural training during the past year	NA	2386	1742	73%	3000
5. Number of kilometers of roads improved/constructed	NA	50	3	6%*	100**
6. Number of new hectares under irrigation	NA	50	41	82%	100*
7. Value of products sold through a forward contract or through a producer marketing association	NA				$US 30000
8. Number of producer organizations strengthened	0	4	4	100%	10*

*SAVE has rehabilitated a total of 61 kilometers since program initiation.
** Revised

5.3.2. Qualitative Analysis Based on Results of Field Visits

This section reviews CS progress from a qualitative perspective, identifying achievements and areas where improvements are needed, for each of the major activities being implemented. Much of the information that is presented is drawn from direct observations in the field and discussions with program participants and CS staff. The following matrix lists the activities that will be discussed and indicates which cooperating sponsors are using the specific activity listed.

Matrix 2: Agricultural Production and Income Generating (IG) Activities by CS

Category of Interventions	Type of Activity	ADRA	CARE	FHI	SAVE
Community Infrastructure	Land Reclamation			X	
	Irrigation	X	X	X	X
	Water Reservoirs/Ponds	X	X		X
	Roads	X	X	X	X
Family Infrastructure	Silos		X	X	X
	Greenhouses			X	
	Family Gardens		X		X
	Large Animal Shelters			X	X
	Small Animal Shelters			X	X
Agricultural Technology Transfer	Crops	X	X	X	X
	Post Harvest	X	X	X	X
	Animal Health		X	X	X
	Animal Management		X	X	X
Marketing	Market Information	X	X	X	X
	Market Analyses	X	X	X	
	Market Linkages	X	X	X	
Organization Capacity Building	Irrigation Associations	X	X	X	X
	Producers Associations	X	X	X	X
	Agricultural Service Centers	X			

5.3.2.1. Community Infrastructure

The ability of the Title II program to help farm families and rural communities increase their access to water, through the development of irrigation systems and water reservoirs, and their access to markets, through the rehabilitation of roads, is extremely important. In this sense the program is unique within USAID, i.e. few other USAID development projects now have the resources needed to be able to help rural communities improve their basic productive infrastructure.

Irrigation and Land Reclamation

All four of the CSs are working to expand the amount of land under irrigation in their program areas. CARE, FHI and SAVE have concentrated on developing, improving, rehabilitating and expanding community micro gravity-fed irrigation systems in order to increase production per hectare and extend the planting season. ADRA, on the other hand, has focused more on helping

its client farmers expand the hectarage under irrigation through the use of pumps. (See further discussion in the following section on "Agricultural Technology Transfer) ADRA's income generation program also benefits from the fact that other donors are also working to develop gravity-fed irrigation systems in the ADRA program area.

The field visits really brought home the importance of water to the farmers in the food insecure areas of Bolivia, and what a difference having access to water for agricultural purposes can make to people's lives. Having a more assured access to water has reduced farmers' vulnerability to droughts and made the adoption of new crops and improved agricultural practices more feasible. With a more assured access to water, many farmers have been able to increase their incomes even without adopting the new agricultural technologies and higher valued crops being promoted by the CSs just by increasing the number of crops they are able to harvest per year.

The importance of water and the difference it can make to people's incomes and their lives was clearly demonstrated in Capinota, which was the first field site visited. Here FHI is working with groups of farmers who live in the area but had no access to arable land to build walls to reclaim land from the river. These farmers were enthusiastic about the positive impact of this project not only on their incomes but also on the quality of life in their community. As a result of the FHI project, farmers not only have access to arable land, but also access to an assured supply of water. Now they are able to plant several crops a year and plant higher valued crops, such as onions, as well as potatoes. Their incomes have increased, family diets have improved, and their children are now able to go further in school. However, the farmers were insistent in wanting more help with marketing their products including information on steps they could take post harvest to better meet the demands of different markets.

FHI's Tomoyo irrigation project is another example of the huge difference that access to water can make to household incomes and of the multiplier effects that these increases in incomes can have on a community more broadly. This is a large project for a Title II program, diverting enough river water to irrigate 600 hectares of land spread along the river valley among three communities, and it was a major undertaking for FHI. The construction of the intake that diverts the water from the river and the main canal that delivers water to the three communities was completed during FHI's last DAP cycle. Now FHI is consolidating and expanding the results, helping farmers systematize their plots for irrigation, continuing to work on production technology transfer, providing some marketing support and helping to increase the capacity of the irrigation association to operate and maintain the irrigation system. Farmers here also spoke about the major impact that this project has had on their lives. Farmers are now able to plant more crops per year and also have diversified into higher valued crops. Farm sales have increased. With more income earning opportunities now available, some members of the community who had migrated to Sucre are now returning home. Because some farmers own more land than others, not all community members will benefit equally as producers. On the other hand, the demand for labor is increasing substantially which means an increase in the demand for permanent and temporary labor in the communities. Plus, opportunities for small businesses also are expanding. Farmers will need an increasing number of services – both farm inputs and with marketing their products. Plus farmers will have more money to spend on a wide range of consumer products and services.

Improving people's access to water can also make an important difference to highland communities, as CARE's experience in Quebrada Grande demonstrates. Here CARE was able to help the community double the amount of hectares under irrigation (from 41 to 81 hectares) and increased the efficiency of its system, reducing water losses and increasing the speed of water delivery through the construction of cement canals. This is a spring fed system and CARE, as part of this system, also supported the construction of ferro cement tanks to store the water. As a result of this project, more farmers have access to irrigation water and more farmers are able to plant crops more frequently. Yields also have increased as a result of the package of technologies that CARE introduced. Plus CARE technicians also assisted farmers with the marketing of their higher valued crops such as garlic. CARE estimates that family incomes have been increasing by an average of five percent per year as a result of increased production and sales due to this program.

The MTE Team has no doubt that these irrigation projects are responding to priority needs and the immediate benefits are obvious. However, the Team does have several concerns. The first concern, which is discussed below, has to do with whether the CSs will be able to identify sufficient water sources to exploit to meet the needs of their clients and the sustainability of these resources. The second concern, which has to do with the quality of the engineering work and whether the necessary environmental mitigation measures are being undertaken and their quality, is discussed in the following section on roads, which is the other major community infrastructure activity being undertaken by all four CSs. The third concern has to do with the sustainability of the irrigation systems that the CSs are helping build or rehabilitate and expand. Whether these systems will be sustainable or not will have a lot to do with how successful the CSs are in helping set up and/or strengthen the capacity of the community organizations that will be needed to operate and maintain these systems. This topic is discussed in the later section on "Organization Capacity Building."

The Team is concerned about whether the CSs will be able to identify enough sources of water with sufficient supplies to meet the needs of their client farmers. This problem was identified in the most recent CARE and FHI annual reports in the context of the problems they are having in meeting their irrigation goals and was also raised by technicians in the field. A recent review of water resource management opportunities for the USAID Bolivia Environment Office also stressed the problems with water shortages, competition for limited supplies and conflict over access to and use of water and critical watersheds that arise frequently in the areas where the CSs are working, that is, in the Altiplano and dry valleys regions that make up much of the Departments of La Paz, Cochabamba, Potosí, Chuquisaca and Tarija.[14] The team is also concerned about whether the supplies of water that the CSs are using for their micro-irrigation projects will continue to be sufficient to meet the needs of these new systems. This is one of the concerns that the MTE Team has with respect to Quebrada Grande, for example. The bottom line is that the CSs need to do a better job of assessing water availability, including undertaking better hydrological studies, and to give more emphasis to activities designed to protect priority water sources. Unfortunately, there is still little integration between the CS's IG and NRM programs, and even when the CSs do take an integrated approach to watershed management they are not developing let alone implementing watershed management plans for their micro-

[14] William McDowell, "Assessment of Integrated Water Resource Management Opportunities for UASID-Bolivia Environment Office," A report prepared for USAID Bolivia, La Paz, Bolivia, July 19, 2004.

irrigation projects.[15] The case for the CSs to focus more of their NRM programs on protecting watersheds is made in the following section on the assessment of results in the NRM components. To be most effective, however, the CS's programs also have to be focused on those watersheds that are of major importance to communities, which in the Title II program areas means those that affect the supply of water for irrigation and human use.

Water Reservoirs/Ponds

Projects that enable communities to collect rain to water livestock also are having a positive impact on livestock production. The major difference that these reservoirs can make was most clearly evident in the SAVE program area in the highlands. To date, SAVE has helped communities, mostly in the highlands, with the construction of 1,200 water reservoirs (also referred to as water harvest ponds and water holes in parts of the United States and as qotañas in Aymara). SAVE has provided the food rations and the technical assistance and communities have provided the land and labor. According to one of SAVE's agricultural technicians these qotañas are the most popular program in his area in the highlands, with a long waiting list of participants. The popularity of the program is one testament to its benefits. SAVE also argues in its most recent annual report (CSR4) that this program has contributed to the increase in household incomes in its area, 75 percent of which has come from livestock. Since these systems rely on the collection of rainwater, the number of sites is not limited due to shortages of ground water, although the amount of water that will be collected will be affected by droughts. Land ownership patterns also may preclude building reservoirs in certain locations that are appropriate from a technical point of view. (See the following section on the assessment of results in the NRM components for a further discussion of these interventions.)

Roads

Helping improve the system of rural roads in Bolivia is one of the most important steps that can be taken to improve the lives of people living in rural areas. So, all four of the CSs are involved in road rehabilitation activities. Better roads help improve farmers' access to markets, reducing the time it takes to get products to markets, expanding access to markets further afield and helping reduce product losses. The importance of these effects were explained in detail by the members of one of the communities that was helped by a SAVE project that improved the road that linked their small valley community to the Altiplano and to the main road to La Paz. According to community members, it only takes them a couple of hours to reach the nearest local market now and they can travel by car or truck, where it used to take them six to seven hours by foot or by animal. With the road improvements, many are able to bypass the local markets and take their produce all the way to La Paz where they are able to get even better prices. Easier and quicker access to La Paz also brings savings, since they are able to buy agricultural inputs and consumption goods more cheaply than in their local markets. In this case, as in many, the road improvement also brought them easier and faster access to health care – another benefit they were quick to point out.

[15] Both the USAID/Bolivia Environment Office and the McDowell report recommend that the CSs integrate explicit watershed management plans into their potable water and micro-irrigation projects.

Despite the obvious benefits from roads, all four of the CSs are having problems meeting their road targets. FHI, as indicated earlier, reduced its road targets in FY 2003, although this was done in consultation with its beneficiaries who preferred to spend their time on other activities where they saw a more direct benefit. For the other CSs, the need for more in-house, capable and experienced engineering staff may be part of the problem. It helps to have the years of experience that FHI has in building infrastructure and to have good engineers on staff and to do your own design work. FHI, as the MTE concluded, has sufficient staff with the skills needed to develop, build and supervise all its various infrastructure activities, including its roads and its irrigation and water and sanitation systems. FHI's infrastructure programs also benefit from the fact that it also designs and builds all its own infrastructure, which insures a high level of quality and enables the organization to learn from its mistakes. Even FHI has had some problems with the environmental mitigation measures that are required, however, tending like the other CSs to undertake many of them after the basic construction is completed rather than at the same time. (See the Section 216 discussion for more details on the environmental mitigation problems that were identified during the field visits, by CS.) A number of specific problems also were identified at many of the sites that were visited, many of which were brought to the attention of the CSs at the time and some of which are discussed in the following section on Regulation 216.

The MTE Team does have some concerns about the capacity of the other CSs infrastructure teams. The Team is concerned, for example, that CARE does not have enough technically qualified staff on its infrastructure team to adequately manage and supervise all the infrastructure projects that it currently has underway and that the responsibilities for supervision and inspection are not always clearly defined. The Team has similar concerns about the SAVE infrastructure program and whether its technical staff have sufficient time to adequately supervise all its infrastructure projects, especially given the large geographical area that SAVE was trying to cover. The Team also questions whether SAVE should be relying on the municipalities so much, including for the design work, believing that this strategy has led to lower quality designs and to delays. For ADRA, the main concerns are that the staff in charge of ADRA's road improvement work do not have enough experience, and what experience they have is not recent enough, and that the responsibilities for supervision and inspection are not defined clearly enough.

5.3.2.2. Family-Level Infrastructure

Three of the CSs – CARE, FHI and SAVE – also have projects that help farm families increase their access to farm level infrastructure. This includes green houses (FHI), silos (CARE, FHI and SAVE) and shelters for livestock (FHI and SAVE). The general strategy used in this component is to work with lead farmers who are both willing to try something new and willing and able to contribute labor and in-kind inputs to the effort. The CSs provide the plans and instructions on how the particular infrastructure should be built and also contribute a small amount of materials, the nature of which differs depending on the infrastructure. SAVE also provides its participants with a small food ration as an extra incentive to encourage participation. These are demonstration activities with the expectation that once other farmers see that these structures are feasible and profitable they will adopt the technology without the subsidy. The three CSs also use the construction of this infrastructure as a vehicle for providing farmers with technical information on how to improve the storage of products, in the case of silos for example,

or on improved feeding and animal health practices and services, in the case of the livestock shelters.

Greenhouses

FHI started to work on greenhouse technology and to extend the construction and use of greenhouses – both community and individual household level – several DAP cycles ago, and greenhouse construction was included in the current DAP. The rationale for the greenhouses is to enable households, even those in the highlands, to grow vegetables throughout the year for sale, as a means to increase household incomes, and for household consumption, as a means of diversifying household diets. As in the case with the other small infrastructure, FHI encourages the adoption of these new structures by covering part of the construction costs for the early adopters. In the case of the greenhouses, FHI has provided the designs, shown farmers how to construct the greenhouses and worked with them providing them with information on new crops and technologies for producing these crops. FHI supplied the plastic, which is one of the major cash expenditures required, and farmers contributed their labor and other in-kind inputs.

According to FHI analyses these projects are profitable to farmers and are cost effective. Farmers were able to cover the costs of operating the greenhouses, put some money aside to replace the plastic when needed, and still have a profit. Nevertheless, greenhouse construction did not expand in the absence of FHI subsidies, which is indicative of the cash constraints facing these small farmers and their lack of access to credit for investment purposes. Plus, most farmers were not setting aside the resources needed to replace the plastic and greenhouses were falling into disuse after a period of years.

Based on their analyses and experience in the field, FHI staff indicated that they had recently decided to suspend the construction of greenhouses. Several of FHI's clients who were interviewed in the field mentioned the value of the greenhouses, especially with respect to their impact on the diversity of family diets. However, interest seemed to quickly wane when FHI staff suggested that they were still willing to provide people with the technical assistance but not the contribution of materials.

Silos

FHI and SAVE also work with client farmers on the construction of demonstration silos with the objective of reducing post harvest losses for storable products such as potatoes and onions. FHI estimated that families were easily losing 30 percent of their production, which could be reduced to only 8 percent using the improved silos. FHI also estimated that it was possible for farmers to double the price they could get for selling their storable products by storing them for several months after harvest. The FHI silos cost around $US 500 to construct, with costs shared by the farmers and FHI. Farmers provide the labor and local materials like adobe and FHI provides cement and the hardwood door. FHI staff also provide farmers with technical assistance with respect to storage techniques including proper fumigation techniques.

Farmers appear to be enthusiastic about these silos and FHI has a waiting list of those interested in participating. However, it is really too early to tell how much of this enthusiasm depends on the subsidy and whether or not this activity will move beyond the demonstration stage. On the

positive side, silos have a longer life span than greenhouses and the cash outlay required is smaller. Still, FHI staff will need to keep tabs on whether farmers begin to construct these silos on their own after a couple of years. If not, FHI may need to reassess the cost structure, including exploring whether encouraging and enabling farmers to rent space in their silos might make them more attractive to farmers.

The SAVE program is similar, although SAVE also provides its participants with a small food ration as an extra incentive to encourage participation. However, the SAVE silos did not appear to be as well constructed and tended to vary in size and design. Several specific problems were also observed. For example, in at least two silos the grids that are supposed to be used to keep the produce off the ground were lying on the ground exposing the produce to dirt and insects. These observations suggest that SAVE at a minimum needs to standardize its designs and do a better job of making the designs available and providing technical assistance during the construction phase. SAVE should also undertake a more detailed economic and financial cost benefits analysis of its silos program. Plus, it needs to keep track of what is happening to the silos that have already been constructed, assessing whether and how they are being used and whether there is any indication that farmers are interested and able to construct these silos on their own. Since program initiation, SAVE has constructed a total of 630 traditional silos and 419 metallic silos. Following the MTE recommendations, SAVE has now incorporated permanent design engineers into its program to assure quality of its silos as well as its larger infrastructure projects.

CARE is also promoting silos in its program area. However, the CARE program focuses on metal silos to be used for storing grains. CARE trains the local artisans, who construct the silos, and provides them with the plans and basic materials. The basic design is the same, but the buyers have several sizes to chose from. CARE also organizes the buyers, usually women, and provides them with training in how to maintain the silos and store the grain. According to CARE's most recent results report, almost 1,400 family-sized silos were constructed during FY 2004.

The big difference between the CARE and the FHI and SAVE silos program is that CARE is also trying to use this program to help it achieve broader, developmental objectives, in addition to its objective to improve grain storage. That is, CARE also sees its silos program as a vehicle for encouraging and facilitating groups of women to develop income earning activities and for increasing the amount of investment capital available in the community. To accomplish the latter objective, CARE requires that the buyers contribute part of the cost of the silos, which goes into a revolving community fund that is supposed to be used for additional investment purposes. The MTE Team does not have any concerns with the technical aspects of CARE's silos program. However, it does have concerns about the advisability of adding these other objectives to the program and whether the payoff from this strategy will be worth the extra time and effort required. These concerns are discussed in more detail in the later section on "Organization Capacity Building."

Shelters for Livestock

Both FHI and SAVE also have projects to introduce improved shelters to livestock producers. In the case of FHI, the program is limited to cattle and sheep while SAVE also works with

smaller animals including chickens and cuy (guinea pigs). The rationale for these shelters is that these animals will fare better and produce and reproduce more if they are protected from the harsh environment, including cold temperatures, rain and hail. Both CSs also take advantage of farmer interest in these shelters to educate farmers about improved feeding practices for their livestock and to help upgrade their animals. Again, the idea is that if a few farmers can be encouraged to try these new technologies by reducing the constraints to adoption because the CSs cover part of the costs, other farmers will recognize the benefits and the technology will spread.

At this early stage it is somewhat easier to identify some of the potential problems with these programs by looking at the FHI experience. This is because FHI has collected more data and done much more detailed analyses of the financial costs and benefits to farmers, including how the differences in numbers of animals affect profitability. The potential problems with these programs are the clearest in Capinota where FHI is working with an association of milk producers. In this case, the improved shelters include roofs, which protect the cows from the rain, and cement floors, which make it easier to milk the cows under sanitary conditions. The former contributes to an increase in production and the latter to an improvement in the quality of the milk, both of which help increase farmers' incomes.

The farmers interviewed seem very interested in the program even though the total cost of constructing these sheds is $US 1,600, and seven sheds are under construction. These sheds have a 20-year life span, according to FHI, and FHI's cost benefit analysis suggests that farmers can recuperate their own investment in only two years (recuperating the total cost of the shelter, including FHI's contribution, extends the break-even point by several years). The problem is that farmers have to have at least 10 cows being milked at all times in order to break even, but only 10 percent of the households in the area can meet this criteria, with the average herd size three to five animals.

This seems like a profitable enterprise from the perspective of the farmers who are currently participating in the project. However, it is questionable that any other farmers in this community will be able to participate even with FHI assistance because they lack the number of animals needed to break even. The real issue here is whether FHI wants to use its scarce resources to subsidize an activity that only the better off producers in a community can benefit from when there are other activities whose benefits are more likely to be wider spread. This dilemma was identified and discussed during the field visit, with FHI deciding to phase out of the program.

FHI's program to promote improvements in sheep shelters could be a different story. The objective here is to demonstrate to farmers that shelters that provide full enclosure for sheep will better protect them from the harsh environment and lead to an increase in both meat and wool production. With sheep, the initial investment required per household is smaller. Plus, a larger percentage of farm families have flock sizes greater than the number needed to meet the break-even point. On the other hand, the size of the initial investment required per household is still a considerable one for a poor farm family, and the gains that can be realized from the increased production and sales of meat and wool are still not that clear. This argues that FHI needs to continue to assess the costs and benefits of these shelters to determine their profitability and their potential for replication in the absence of subsidies. In doing so, FHI also needs to keep an eye

on who is benefiting from the program to avoid having a program whose benefits are highly skewed to the better off members of the community.

SAVE also needs to take a very close look at its entire livestock shelter program, because in addition to the economic issues that were identified in the FHI program, a number of implementation problems also were observed during the field visits. For example, one of the stables that was visited was built to house eight to ten cows but only four cows were being stabled there. Here, community members suggested that there was not enough pasture land and crops available to support more than five cows per family. The second stable, in Yaco, which was designed to be considerably larger than the first, had been started at least a year prior to the MTE Team's visit but construction had stopped because the farmer was unable to supply his share of the inputs needed. The SAVE agricultural technician in this latter community had reported earlier that farmers in this area had started to work on 44 stables between 2002 and 2004, but at the time of the MTE visit only three percent of these stables had been completed and were functioning. SAVE reports that all 44 are now functional but not all are operating with the numbers livestock expected. SAVE management also reported that 197 hen houses were built under its program and were properly managed during the first production cycle, but only ten households continued to buy hens and enter a second production cycle. Similarly, according to SAVE management, only three of the 14 cuyeras (guinea pig shelters) built under the program continue to function. In the field, the hen houses and cuyeras that were observed also were of different sizes and shapes and not always well constructed. SAVE's local agricultural technicians and others also reported low survival rates for both the chickens and cuy, especially in the highlands. In other words, these are programs with problems, and SAVE is probably well advised to focus and concentrate its scarce human and financial resources on activities that are more likely to have a positive payoff.

5.3.2.3. Agricultural Technology Transfer

Transfer of improved agricultural practices and technologies is an important dimension of all four of the IG programs. The strategies used to transfer new technologies and practices differ somewhat among the four CSs. For example, all four of the CSs work with groups of farmers, which is more efficient than having to meet with each farmer individually to deliver a message or provide a service. However, the amount of time that the CSs spend organizing these groups and how they work with them varies considerably. FHI's groups tend to be fairly informal, while ADRA organizes its farmers into Technical Assistance Groups (TAGs), whose members become members of the Agricultural Service Centers (ASCs) that ADRA has also organized (See following section on "Creating Agricultural Service Centers). ADRA and FHI also identify and select promising technologies and practices through on-farm validations and use demonstration plots on lead farmer fields as a basis for their extension programs. In earlier programs, FHI had set up its own demonstration farms where FHI field staff lived and where it tested and adapted new technologies. However, it has found through experience that validating new technologies and practices on-farm and using demonstration plots on lead farmer fields is more effective, and this approach appears to be working well for both FHI and ADRA.

CARE and SAVE also work with informal groups of farmers and use demonstration plots on individual farmer's fields. However, both also try to organize farmers into more formal groups,

which they refer to as farmers' schools (escuelas de campo), and to use these schools as a mechanism for disseminating technical information. The two organizations appear to have very different ideas about how these schools should be organized and operated, however, with CARE having a much stronger community, one might even say communal, orientation. At least this was the impression that the MTE Team was left with after its visits to one SAVE agricultural school in Calamarca, on the Altiplano, and two CARE agricultural schools in southwest Tarija, in Huayco Hacienda.

The SAVE school that was visited was being implemented in the corner of a regular community school yard. And, on the day that the MTE Team visited, the lesson being demonstrated to farmers was an environmentally friendly technique for getting rid of one of the major pests that attack potatoes by breaking its biological cycle. In the CARE schools that were visited, in contrast, the new technologies and practices that CARE is recommending were being implemented by groups of farmers on community land that CARE had encouraged them to clear. The expectation was that these farmers would eventually apply these new technologies and practices on their own plots. However, CARE was also encouraging these farmers to sell the production from these communal plots as a group and put the proceeds into a communal fund, which the group could use for further investment purposes. This is a very labor intensive approach to technology transfer, requiring CARE agricultural technicians to spend considerable time on organizing people, including the very time consuming process of helping them set up and learn how to manage communal funds. The result is that CARE technical staff have much less time to provide their clients with technical information and assistance with their production and marketing problems which will make it harder for CARE to meet its production and marketing objectives. Given previous experiences in Bolivia and elsewhere in the world it is also highly unlikely that these groups or the community funds will continue to function beyond a couple of crop cycles.

Another potential problem with CARE's approach to these farmers' schools, at least as it was being implemented in the two communities visited, is that it may also be having a negative, although unintended, impact on land use patterns. That is, in the two communities that were visited, the land that was being used for the communal demonstration plot had been newly cleared for that purpose. And, in at least one case, it was clear that CARE staff was providing the farmers with food rations to encourage them to clear the land.

Crop Production Technologies

All four CSs are introducing their client farmers to improved technologies and practices with respect to crop production, in many cases with considerable success. Activities include introducing farmers to improved varieties of existing crops and new crops, providing instructions on techniques for improving crop management, introducing concepts of integrated pest management and training farmers in ways to improve the management of soil fertility, including the appropriate uses of organic and chemical fertilizers. ADRA's program, which focuses on a limited number of high valued crops, including onions, broad beans, peaches, plums, beans, peas, garlic and grapes, is the most targeted. The other CSs work with some of these crops, including onions, broad beans, peaches and pears, plus others, including potatoes, which is a staple crop in many parts of the country.

Interviews with farmers and CS technicians indicate that there are problems with respect to production technologies that still need to be addressed, many which are common to all four CSs. These include problems related to drainage (instances of poor drainage and increasing salinity were mentioned numerous times), soil fertility and pest infestations. The MTE Team also identified instances of inappropriate uses of fertilizers and pesticides (See Section 216 discussion for more details), which appear to differ among CSs and in different parts of the country. Interestingly, FHI technicians did point out that in some of the areas where they are working, such as Capinota, farmers were already using large amounts of fertilizers. In these cases, FHI's objective is to convince farmers that they should use smaller amounts of fertilizers.

The technology packages that ADRA is promoting are the most completely developed and up-to-date, with both the production and post harvest technologies and practices being promoted for its target crops fully integrated. ADRA's training materials also are well designed, with key messages clearly articulated in text and pictures. The farmers that were interviewed in the field also appeared to be knowledgeable about the information and technology packages that ADRA is disseminating and many were excited about the new opportunities they saw opening up to them. ADRA's demonstration plots also were impressive, with real comparisons being made of alternative varieties and practices. ADRA's success starts from its decision to focus its IG program on a few crops with good market potential. The fact that ADRA has pulled together a strong technical staff also helps as does the fact that ADRA is not trying to go it alone and has picked some strong partners to collaborate with such as PASACH (Programa de Apoyo al Sector Agropecuario de Chuquisaca).

ADRA's decision to collaborate with PASACH has enabled it to help its clients gain access to additional improved technologies, including pumps that farmers are using to expand the number of hectares they are able to irrigate and modern metal plows and harrows. This equipment is not cheap and can represent a considerable cash outlay for small farmers, but funds from the PASACH program are being used to cover half the costs, with individual farmers responsible for paying for the remainder. What frequently prevents small, poor farmers from taking advantage of these types of technologies is that they do not have enough cash on hand or access to investment capital through a credit program to be able to make the relatively large lump sum investment that is necessary at the beginning to acquire the technology. This lack of access to investment capital and the lump sum nature of the investment limit farmers' ability to participate even when it is clear that the investment will be profitable over time. In these cases, when there is evidence that the investment will be profitable over time, a one-time subsidy can be justified as a way to help them escape from what economists refer to as a low-level equilibrium trap. One advantage of the one-time grant approach is its simplicity and efficiency. Another option would be to develop a program to provide these farmers with access to investment credit. However, this latter approach is much more complex, and would require a much greater investment in human resources over years if it is to succeed. Plus, the downside, if it is not managed right and farmers are allowed to default, for example, is that it could undermine other attempts to establish credit programs and instill a credit mentality. These one-time subsidies to cover purchases of capital equipment also are less likely to distort economic decisions than programs that subsidize farmers' operating costs.

The MTE Team also visited sites where ADRA, CARE and SAVE are working with fruit producers. For ADRA and SAVE, working with peaches and plums is a core part of their programs, but the differences that the team saw between their approaches and results raised some questions. ADRA is providing its clients with an integrated package of production and post harvest technologies and marketing assistance. SAVE, on the other hand, is focusing more on the supply side, including by training experts specialized in the cultivation of fruit trees, whom, it hopes will be able to continue to provide technical assistance to fruit producers on a fee for service basis.

In the first SAVE site visited, a valley in Sapahaqui, the orchards are over grown and the trees are infected by "salvajinas" -- a parasitic vine. Here SAVE is recommending that farmers remove the parasitic vines, prune their trees, till the soil and mulch around the trees to improve soil fertility, and upgrade existing trees with higher yielding varieties. According to SAVE technicians, only 25 percent of SAVE's farmers have adopted the pruning and other practices being recommended, which raised some concerns among MTE members about the nature and content of the SAVE recommendations. These concerns were reinforced after the Team was able to visit the ADRA sites and learn more about and observe the reactions to ADRA's package of technologies. As an example, ADRA's strategy for up-grading trees seems to be a more gradual one, based on using grafting techniques to reduce the time it takes to get production from the new varieties and allowing inter-cropping in orchards so that farmers can get some income from other crops while they are waiting for their new varieties to come into production. In other words, the ADRA recommendations appear to be more sensitive to the need that farmers have to maintain some income stream while their orchards are being upgraded. ADRA's ability to have an impact on the value of farmers' sales of their fruit, as a result of its more aggressive marketing program (See discussion in the marketing section), probably also helps explain its greater success in getting its packages of technologies for fruit trees adopted.

In the second valley, in Luribay, where many orchards were wiped out by a mudslide, SAVE is recommending that farmers replant their orchards. The concern here is whether it now makes sense to encourage farmers to replant their fruit orchards given the up-front costs entailed, the time that it will take for the new trees to begin producing and the other economic alternatives available to them. One farmer visited at this site had already begun to produce a variety of produce for sale on his small, irrigated plot, including tomatoes, lettuce, and onions. This strategy could be as or more profitable than going back into fruit trees and less risky, including because he is getting an immediate return with a smaller investment up-front. With produce he can also reduce his risks by producing several products for market and stagger his plantings and harvesting which will lengthen the time period over which he markets his crops and receives an income stream. The problem is that the SAVE technicians did not have any idea about the relative attractiveness of these two markets, the comparative constraints to participation, or the relative costs and benefits – which they should know before advising farmers to undertake such a major investment.

SAVE indicates that it is not its policy to use food rations to encourage the adoption of new agricultural technologies. In one of the field sites visited, however, local SAVE technicians and farmers' interviewed indicated that farmers had been given a food ration to encourage them to adopt SAVE's pruning recommendations. The rationale given was that farmers were not

accustomed to pruning their trees and the food provided them with an incentive to try this new practice. SAVE management also indicated that it has used a relatively small number of food rations to encourage farmers to remove the parasitic vegetation from their trees and to build terraces for fruit trees. SAVE management has also indicated that it stopped this practice after the MTE Team raised its concerns during the SAVE debriefing.

Normally it is not a good idea to pay farmers to adopt practices that are expected to result in a direct and positive benefit to them as individuals. Furthermore, by paying farmers, one could be encouraging them to adopt practices that are not profitable and that will not be maintained once the subsidy is removed. This becomes more complicated when one is dealing with perennial crops, such as fruit trees, because the economic benefits to be gained from adopting the recommended practices may not become apparent for several years. For example, the benefits to be gained from farmers doing a better job of pruning their trees may take a year or more to be realized. And, the benefits to be gained from replacing old trees with varieties that produce better and have a higher demand in the market may not be available for four or more years, depending on the variety.

When farmers do not adopt one or more of the practices being recommended, this could be for a number of reasons. They do not believe that there are any economic benefits to be gained from adopting the recommendations or do not understand the benefits. They cannot afford to wait for the economic benefits to begin to accrue even though they recognize the benefits to be gained over the longer term. They recognize that the changes that are being recommended will not be profitable. A subsidy might be justified in the second case. However, an improved education program is the better response to use in the first case, coupled with a more aggressive marketing program, and a complete rethinking of the technology package is needed in the third case.

The bottom line is that SAVE needs to develop a better understanding of the economics of the fruit producers that it is working with. This means SAVE needs to develop a better understanding of the real constraints facing these producers and the costs and benefits of alternative crops and technology packages. SAVE also needs to reassess and make changes in the current package of technologies that its is recommending in light of this information with the objective of identifying a set of practices that farmers will adopt because they see the real benefits and not because they are provided food. A more aggressive marketing program may also be part of the solution.

Post Harvest Technologies

As discussed earlier, CARE, FHI and SAVE are promoting the construction and use of silos as a part of their programs in order to improve storage and reduce post harvest losses. However, the need for more knowledge and assistance with respect to post harvest technologies goes way beyond storage. From an income generation perspective what is probably more important is to provide farmers with more information about and assistance in implementing the myriad of steps that they can take to increase the value of their products in markets. This includes changing when and how products are harvested, dried, packed, shipped, and presented, and also their size, color and shape. ADRA has gone the furthest in developing detailed packages of post harvest technologies for its target crops, packages that are clearly articulated and appear to be well understood by its client farmers. The other three CSs are moving in the right direction, but are

not as far along as ADRA is in the identification of these best practices and in taking the time and effort to promote and facilitate their adoption.

In some cases, farmers themselves are aware of their needs and are asking for assistance. For example, during an interview with farmers in Capinota, several asked FHI technicians to provide them with more technical assistance in how to better prepare their crops for market. After some discussion, it turned out that one of the farmers in their area had begun working under a contract with the Bolivian Foundation for the Development of Agricultural Technologies (FDTA)[16] for the Valles and was exporting his onions. FDTA provided the seeds and assistance with the production technology. However, what really interested the group of FHI farmers interviewed was the information that the FDTA technicians provided about how to harvest and prepare the onions for marketing and the positive impact that these, in some cases very simple, changes in how the product was handled post-harvest had on the sales price.

There are considerable opportunities for CARE, FHI and SAVE to take advantage of the knowledge and expertise that already exists for some of the products that they are working with. ADRA has already collected considerable information about the post harvest technologies needed for its target crops and has incorporated this information into good training materials, which could be used by others who are working with the same crops. CARE, FHI and SAVE also could take more advantage of the expertise on post harvest technologies and practices that has been developed by the Mission's Market Access and Poverty Alleviation (MAPA)[17] project and the FDTAs. For example, SAVE reported that it has recently persuaded the FDTA Valle to open operations in three municipalities where SAVE is working – Cairoma, Sapahaqui and Luribay. The FDTA for the Valleys, which is headquartered in Cochabamba, is of particular interest because it is working in some of the same areas that the CSs are working in and on some of the same crops.

Animal Health Services

Three of the CSs – CARE, FHI and SAVE– are also training veterinarian assistants in basic animal health practices and providing them with veterinarian supplies and medical kits. Animals are a very important component of many small farmer enterprises, and these programs will help expand farmers' access to veterinarian services for their animals. This is an important part of the SAVE program, especially in the highlands, with SAVE financing the training of 50 veterinarian assistants through an agreement with the Bolivian Catholic University.[18] SAVE envisions that these veterinarian assistants will be able to establish themselves as micro business enterprises, charging enough to cover the costs of their time and to enable them to replenish their supplies. Based on interviews during the field visit, SAVE needs to take the next step and provide its graduates with training in how to set up and run a micro enterprise, set fees, keep books, etc. CARE and FHI have taken a different approach, viewing these activities as more of a community enterprise, with communities setting the fees, and having the veterinarian assistants deposit part

[16] There are several Foundations for the Development of Agricultural Technology (FDTA), including one for the Valles and one for the Altiplano. These foundations are part of the new Bolivian System for Agricultural Technology.
[17] The Bolivia Mission's Market Access and Poverty Alleviation (MAPA) project was designed to improve agricultural producers' access to markets and stimulate new market demands.
[18] This was a distance learning program with participants spending one week each month for one year at the Bolivian Catholic University in Tiahuanco.

of the fee into a revolving fund to be managed by the community. Experience in Bolivia and elsewhere indicates that these revolving funds are not sustainable. So FHI and CARE need to take a more business-oriented approach to the delivery of these animal health services, including by helping the veterinarian assistants that they have trained establish themselves as micro business enterprises.

5.3.2.4. Market Access

The CSs have made progress in adding a market dimension to their programs. ADRA, in particular, stands out as having developed a true market or demand driven program and has assembled the staff, both at the program director level as well as among its field technicians, needed to implement the program. FHI also has made progress in making more effective use of market analyses and has achieved some successes in identifying and helping link some of its small farmer clients to higher valued markets. However, FHI needs to add more marketing expertise to its staff. CARE emphasized the demand driven nature of its program in its DAP and has some staff with marketing expertise. However, in the field, more priority is being given to social objectives, including the organization and development of numerous community-level groups, than to market and business enterprise development objectives. SAVE did have a marketing specialist on its staff, but its IG program is dominated by its agronomists and is supply (production) driven.

The CSs also are beginning to realize that if they really want to succeed in increasing their clients' incomes, they will need to focus on higher valued markets and markets with growing demand. This implies looking more to markets in the country's growing urban centers and internationally, rather than to local markets which are much smaller and where adding small amounts of additional produce can easily depress prices and reduce or eliminate profitability. In fact, three of the four CSs -- ADRA, FHI and CARE -- have already had some successes in facilitating export sales for their farmer clients.

Market Information Systems

One of the first things that farmers need to be able to do to take better advantage of marketing opportunities is to have timely and reliable information on the prices that are being paid for their products in alternative markets. At one point there was talk that the individual CSs were going to have to develop their own price information system. Since the DAPs were designed, however, SIMA (Servicio Informativo de Mercadeos Agropecuarios), under the auspices of the FDTA-Valles and with support from MAPA, has begun to collect information on the prices of over 250 commodities in five major markets – Santa Cruz, La Paz, Cochabamba, Sucre and Tarija. FHI has arranged for several local radio stations to broadcast SIMA's price data, so this information is now available on a daily basis to farmers in the areas where FHI works. ADRA has also developed a radio program, which broadcasts information on prices and other marketing topics. The program was initially broadcast in the ADRA program area three times a week and two times a day for each of seven modules. Now other organizations, including CARE and PASACH, are helping cover the costs and the program is being broadcast throughout the Departments of Tarija, Potosí and Chuquisaca. In the SAVE sites in the Altiplano, several groups of farmers that were interviewed did not have access to price information on the radio, and SAVE technicians indicated that they were focusing on alternative dissemination options

including posting price data in municipal buildings. Later, SAVE management reported that SIMA already broadcasts price information over a number of radio stations in SAVE's impact area and that SAVE plans to assist its clients to make better use of this data, once its new marketing specialist is fully on board.

SIMA also puts on a short course on market information during which it instructs farmers on how to use the market information that it provides and another course designed to help farmers learn the basics of how to assess costs and returns. All four of the CSs are taking advantage of these services, arranging to have SIMA provide these courses to many of their client farmers.

Market Analyses

ADRA, CARE and FHI started their programs with the market in mind, using outside experts, such as BOLINVEST,[19] to help them identify and better understand the marketing potentials that exist for their clients and the products with the highest market potentials. These analyses provided information on the size and nature of demand for a range of products, identified specific markets for the products with high potential, with detailed information on the requirements of these markets and potential buyers. ADRA has been the most focused, targeting its entire IG program on a limited group of crops which were identified as having the highest market potential. FHI followed a similar process, but is working with a larger set of products, including livestock products. CARE has also done market assessments, but with its emphasis on working closely with communities and responding to their needs, has tended to look more closely at more local markets and has ended up working with a broader set of commodities.

SAVE, on the other hand, took a very different approach to the identification of markets, selecting the products that it wanted to focus on using information about sources of household incomes and selecting those products for attention that had been contributing the most to current household incomes. This approach looks too much to the past, rather than to the future and is too supply oriented, a lesson that SAVE has now learned. This approach also led SAVE to put considerable emphasis on potatoes, which are a staple crop for most farmers in the SAVE area. SAVE is introducing improved seeds to the farmers in its areas and promoting improved agronomic practices, including integrated pest management techniques and improved storage. However, these activities are unlikely to have much direct impact on increasing farmers incomes, since local demand is unlikely to grow any faster than population and any significant increases in supply could depress prices.

The team also noted a tendency on the part of some CS staff to think of market analyses as a one-time process to help identify promising products and markets at the start. The reality is that markets change, sometimes rapidly, and to be successful market participants need to keep up with the changes. Again, ADRA has been at the forefront in recognizing the need for and undertaking continuing marketing assessments.

Facilitating Market Linkages

[19] BOLINVEST is a Foundation that was set up to promote exports and attract foreign investment to the Bolivian agricultural sector.

Helping improve farmers' access to information on market prices and supplying them with professional analyses of market demand are important, but this is a relatively passive approach. Small farmers can also benefit from a more aggressive or active approach, helping them identify and make contact with specific clients, facilitating deals with these clients, and encouraging the development and strengthening of these relationships. Again ADRA has been at the forefront, helping make deals for its clients' right from the beginning. ADRA has also looked for buyers within the private sector, recognizing that these firms have an interest in and are more likely to have the capacity to keep track of what is happening in the markets for their products. This is especially important with respect to export markets, where larger firms will have more contacts and find it easier to track what is happening in overseas markets, anticipating and identifying changes early on, than the small farmers whether operating individually or as a group. If the right firms are identified, these relationships can be expanded with these buyers eventually providing technical assistance and even credit to their suppliers.

The MTE Team saw numerous examples of CS successes in facilitating market linkages for their clients. For example, both FHI and CARE technicians have linked some of their farmers with the Association of Haba (broad beans) Producers (ASOHABA), which has bought their beans and exported them along with beans produced elsewhere in the country to Japan. ASOHABA buys under contract, and in the case of the FHI Haba producers in Tomoyo, has provided them with the equipment they need for sorting the beans to insure proper size and is taking over responsibility for providing technical assistance to these farmers on production and marketing. ADRA also has had numerous successes, including linking its Haba producers with two Bolivian private sector firms – ASOMEX and LATCO (Latin American Trading Company) – who are exporting Habas to Asia. Several of the ASCs that were visited had already received sorting equipment from these firms, the costs of which are to be paid for out of future sales. Both firms have also expressed an interest in working more closely with ADRA's producers, providing technical assistance (LATCO) and perhaps suppliers' credit.

Helping facilitate these linkages takes time and requires personnel who have hands on experience in working on marketing and in a business setting in addition to training in marketing and business development. All of the CSs, with the exception of ADRA, need to further develop their technical capacity in marketing. ADRA has the most depth, with its IG program director and many of its field staff having marketing expertise and experience. CARE has some experienced staff, but they need to be freed up from other types of lower priority activities and not only allowed, but encouraged to spend more time on developing and strengthening marketing linkages for CARE's client farmers. FHI needs to replace the marketing expertise and business management expertise that it recently lost. And SAVE needs to replace its marketing specialist with someone with more hands-on business experience[20] and give this person the mandate to spend less time on organizing producers and more time on helping to identify better market opportunities and facilitating market linkages.

5.3.2.5. Organization Capacity Building

[20] SAVE's previous marketing specialist had been scheduled to leave in early fall and by early November Save had already replaced this person with someone with more hands-on marketing expertise as the MTE Team had recommended.

All four CSs are also spending time and effort on organizing and building the capacity of local organizations. Some of these efforts are more essential than others, and the more essential activities need to be given higher priority and less attention given to some of the other organization capacity building activities that are underway.

Organizing and Strengthening Irrigation Associations

The sustainability of the gravity-fed irrigation systems that the CSs have helped develop depends on the communities being able to operate and maintain them. Water is a common resource and needs to be managed as such. These systems are small and the national and municipal governments are not willing or able to maintain and operate them. So the beneficiary communities will have to. Individual farmers cannot manage this water resource working alone. Helping communities get organized and learn how to operate and maintain these systems should be a high priority area for all four of the CSs and all four need to be devoting more time and attention to this effort.

Specific activities that need more attention include helping communities learn how to develop simple operating plans and rules and schedules for water distribution, set up fee structures and collect fees, and manage the funds that are necessary to cover the costs of operating and maintaining the systems. Larger systems may need more help, since the larger the system, the more complex it will be to manage. On the other hand, the need for good management is likely to be more obvious with a large system and the resources needed are likely to be more readily available. A large project such as Tomoyo might even be able to support some professional management, a step that the Tomoyo irrigation association is already considering. Communities also need more technical information on the basics of how to maintain and operate their systems.

Organizing Producers and Other Community Groups

There is no question that it is more efficient to work with farmers in groups than to have to meet with each farmer individually to deliver a message or provide a service. However, the CSs do not have to organize farmers into formal groups in order to take advantage of the economies of scale of groups to deliver messages or even to get farmers to put their produce together to send to markets as both ADRA's and FHI's experiences demonstrate. Buyers can also benefit from economies of scale when small farmers are able to consolidate their products for sale in one place at one time. Groups of farmers are said to have more negotiating power. However, buyers could also be responding to a reduction in their transactions costs, when they buy in bulk, which could be as or more important in explaining why farmers can get a higher price when they sell as a group. The question is how formal do these organizations need to be and how much organization work has to be done up front. What ADRA has found is that farmers are more interested in getting more organized once they see some real concrete benefits and begin to see how further organization can help them expand and sustain these benefits. This motivates them much more than the theoretical arguments about the benefits of producers' organizations.

CARE's more community development focus has led it in a somewhat different direction than the other three CSs. This focus would not be a problem in CARE's IG component if it helped strengthen the other activities and increased the likelihood that CARE will be able to achieve its

income earning objectives. The Team's concern, based on the field visits and interviews, is that CARE's emphasis on group and community organization may be having the opposite effects. One concern is with CARE's agricultural schools. As discussed earlier, this approach to agricultural extension requires CARE staff to spend considerable time organizing the groups and helping them set up and learn how to manage the community revolving funds that are a key component of CARE's approach but unlikely to be sustainable. This has opportunity costs for CARE staff, who could be spending this time on other activities more directly related to achieving more immediate production and marketing objectives. Encouraging its clients to spend so much time on group activities could also be diverting their time and limited capital resources from other, perhaps more profitable, but individually-oriented income earning opportunities.

CARE is also putting considerable effort into organizing groups of women and encouraging and helping them develop income-earning enterprises. CARE sees its silos program as a vehicle for developing women's business enterprises, one that will enable groups of women to enter into the business of buying and selling grains, for example. Although CARE indicates that a number of women's groups are being organized, it is questionable whether these group-based micro enterprises represent a serious business opportunity for these women. For example, the one women's group that the MTE Team did have time to interview in some detail was clearly not a profitable enterprise, with women only having pennies to show for what was a considerable investment in time and effort on their part. And, this group was one of the most advanced.

Helping these groups of women organize themselves into a group enterprise and teaching them to set up and maintain the accounts they need to manage a micro business and a revolving community fund also is time consuming for CARE technical staff and has high opportunity costs for CARE staff. This approach may also have high opportunity costs for these women, making it more difficult, for example, for individual entrepreneurs, including women, to respond to the new economic opportunities that these silos may be providing. For example, similar silos are being distributed in a number of other countries, including Nicaragua. Here individuals, frequently women, are making the purchases and going into business on their own, sometimes renting space to other members of their communities and sometimes buying and selling grains. This approach may also be suitable for Bolivia, and if CARE wanted to make it easier for individuals to purchase these silos, it could make them a one-time grant to cover part of the purchase cost.[21] This approach is simpler, would be less time consuming for both CARE and its clients, and is less likely to distort client incentives.

As part of its community development efforts CARE also likes to work with communities helping them assess their problems and to develop community actions plans. This approach may be useful in CARE's MCH/N and NRM components, but it is not clear that it is providing any value added in CARE's IG program, where much depends on how individuals respond to new economic opportunities and incentives. The MTE Team was only able to explore this issue in any detail in one community southeast of Sucre with a CARE technician and community members. The plan developed in this community followed CARE's standard approach, including an analysis of problems in the community, constraints and identifying actions that

[21] As discussed earlier, ADRA is collaborating with PASACH in a program that facilitates the purchase of modern farming equipment, including irrigation pumps and metal plows, by providing a one-time grant to buyers that cover half the purchase costs. Details about this program and its advantages are discussed in the section on "Transfer of Agricultural Technology."

needed to be taken. The problem here is that the whole analysis was focused on the past. That is, the plan was focused on the activities and crops that had traditionally been undertaken in the community, potatoes, for example, with no acknowledgment of the possibility or necessity of looking for new crops and/or new markets. And, this is in an area where farmers are lining up to participate in a MAPA-supported FDTA program to produce and export oregano (See below for a further discussion of the potentials for producing and marketing oregano).

In other words, the MTE Team is concerned that CARE's focus on community development and other social objectives may be taking precedence over, or at least diverting staff's attention from, its income earning objectives. This seems to be the case in CARE's new program area in Chuquisaca southeast of Sucre. Here much of CARE's initial efforts seem to be devoted to working with groups of women on the development of home gardens. Most of the home gardens that were visited are small and have very limited potential as serious income earning enterprises, except for the most entrepreneurial of women. Nor are these gardens likely to be serious income generating activities on other areas, especially when the produce is destined for local markets which are shallow and where small increases in supply can quickly depress prices and reduce profitability. In CARE's case, these activities are keeping CARE technical staff so busy that they have little time left to focus on other income earning activities with much higher potential. For example, several farmers in this area are already experimenting with growing onions commercially. Plus, the husband of one of CARE's women clients informed the MTE Team about a program that is being supported by the FDTA Valles, which is assisting local farmers with the production and export of oregano. According to this informant, oregano is a promising crop for generating additional income, because it requires less labor and is easier to grow yet has much higher income earning potentials than many other options. One of CARE's technicians arranged for the Team to visit a drying site and the agricultural experiment station, where the team was also able to talk with the MAPA consultant about the project and his views about the oregano market, which he considered to be very extremely promising. However, oregano had not been on the agenda for CARE or its local staff.

Creating Agricultural Service Centers (ASCs)

Under its DAP, ADRA is financing the development of agricultural service centers (ASCs) in its four targeted municipalities. These large, warehouse-like structures are not cheap; the one in Chinimayu cost US $8,000 to build, for example. However, they are key to ADRA's income generation strategy, providing a physical place for ADRA's clients – its Technical Assistance Groups (TAGs)-- to bring their products for consolidation and sale. ADRA also uses these Centers as a locus point for collecting commercial information and transferring information to its clients, grading, limited processing and packaging, sales and other commercial activities. ADRA's objective is to transform these entities into true commercial business enterprises, which serve the broader community, not just the members of ADRA's TAGs. Several of the ASCs are already covering their operating costs, by charging new clients entrance fees and also charging for services performed, including the use of the grading equipment. The possibilities for providing other services also are being assessed, including buying and selling farm inputs.

Whether ADRA will be able to transform these organizations into true commercial enterprises is a major question. This topic was discussed at several of the centers that were visited, and it was clear that participants understand the need, but they were having trouble articulating the steps

that need to be taken to effect this transformation. ADRA plans to focus its efforts during the remaining years of its DAP on this task, a decision that the MTE Team supports. Center clients will continue to need assistance with post harvest technologies and marketing, so ADRA also plans to keep its marketing technicians assigned to the ASCs during the remainder of the DAP, another decision that the Team supports. The centers also will need help in attracting good managers; the inability to attract and keep good managers was one of the downfalls of many efforts to develop producers' and marketing cooperatives in many developing countries. So the provision of training that covers the organization and management of small businesses is also going to be essential.

This is a novel approach, and one that is risky but with a potentially high pay-off. Plus, if ADRA can make it work and the centers are profitable and their clients along the value chain – both producers and buyers – also make a profit, this approach should be sustainable. Replicability elsewhere in Bolivia in the absence of a donor such as ADRA is another question, however, given the size of the initial injection of capital that is required.

5.3.2.6. Exit Strategies

CARE has the most developed exit strategy, which is based on time spent in communities. That is, under its DAP, CARE planned to work in communities in cycles of two and one half to three and one half years, and plans to graduate 230 communities at the end of 2004 that were included in its first DAP (DAP I.).[22] CARE needs to implement this exit strategy if it wants to be able to reach all 782 communities that were identified in its DAP. However, the MTE Team is concerned that CARE's income generation staff may be leaving communities too soon, before its clients are able to consolidate some of the key activities that CARE has helped initiate. This was a concern in Campinari, a community in the highlands outside of Tarija. Here, CARE had been working with two groups of producers, helping them improve the production and marketing of their crops – habas and manzanilla. One of CARE's last actions with these groups was to gift them with some simple machinery to help them enhance the market value of their products. This was an important step, but one that should have been done earlier or CARE staff should continue to work with these groups for a little while longer to give these farmers additional assistance in the use of this new equipment and to help consolidate market links.

The Team believes that it is better to orient an exit strategy to the achievement of certain benchmarks or results rather than time spent in a community. FHI and ADRA are more focused on the activities and benchmarks that they want to achieve before moving on, for example. FHI now plans to phase out of the communities where it has been working in Capinota, having achieved many of its objectives, and to begin work in San Pedro. FHI should also be planning to begin phasing out of Tomoyo by the end of this DAP. However, it still needs to spend time during the remaining years of the DAP to consolidate and expand on its results to date, providing more assistance with post harvest technologies and marketing support, for example, and continuing to help strengthen the Tomoyo irrigation association. ADRA expects to have completed the transfer of the production and post harvest technologies for its target crops by the end of this DAP. However, ADRA's ultimate benchmark is whether it has succeeded in transforming its Agricultural Services Centers into real commercial enterprises. And, these

[22] CARE began this DAP in 430 communities and will finish the DAP in 352 communities, for a total of 782 communities.

centers could continue to require some assistance beyond the time-frame of this DAP, even though ADRA plans to concentrate much of its efforts on this objective during the remaining years of its DAP.

5.3.2.7. Sustainability

In the context of the MCH/N programs, sustainability is going to depend to a large extent on the ability of the Bolivian MOH to take over many of the functions that the CSs are performing under the Title II program. In the IG program, however, sustainability will depend to a large extent on profitability. That is, farmers will continue to use the new technology packages that were introduced by the CSs and the marketing links that were initiated will continue as long as the farmers and others along the marketing chain continue to make a profit. In the longer-run much will depend on what happens in the markets for the products that the farmers are producing, with changes in the demand for their products bound to occur. Responding to these changes will not always be easy, and success over the longer-term will depend to a large extent on how farsighted and nimble farmers and others along the value chain are. Interestingly, some of ADRA's farmers are already aware of the importance of product development and are experimenting with alternative uses of their product as one way to maintain and expand their market. The larger export firms that ADRA has linked many of its clients with are also better positioned to keep up with and anticipate changes in their markets and pass this information on to their suppliers – including small farmers.

6. ASSESSMENT OF RESULTS IN THE MAJOR PROGRAM COMPONENTS: NATURAL RESOURCE MANAGEMENT (NRM)

6.1. Program Objective and Strategy

The over-arching objective of the NRM component is to reduce the unsustainable exploitation and degradation of the natural resource base in the Title II Program areas of influence. More specific objectives include:

- Participant communities effectively manage their natural resources through conservation and rehabilitation programs on communal and public lands.
- Farmers manage and reduce natural resource degradation through conservation and rehabilitation programs on their own lands.
- Community-based organizations (CBOs) effectively lead the development of communal NRM initiatives.
- Natural resource base and water quality is improved through a reduction in contamination from pesticides, fertilizers, human and animal wastes.

NRM activities contribute to improved food security by encouraging sustainable increases in food availability and access through the conservation and rehabilitation of the natural resource base, which sustains agricultural productivity and rural Bolivian economies.

6.2. Types of Interventions and Their Rationale

The populations that the CSs work with are poor and live in very fragile agro-ecological zones. All four of the CSs are implementing a variety of activities under this component to help these populations deal with the most serious natural resources management problems, which include water erosion on arable land, declining soil fertility, forest degradation, and degradation of pasture land. To deal with these problems all CS programs include a mix of activities that focus on micro watershed management, soil and water conservation, and community capacity building and include the use of food in food for work (FFW) programs.

- Water erosion on arable land, particularly steep slopes and river basins

Pressures: Excessive cultivation on sloping land without conservation measures; planting on slopes not suitable for cultivation; inadequate design of productive infrastructure such as irrigation systems; too few and poorly developed water and sanitation systems without adequate mitigation measures; poorly designed and inadequately maintained access roads.
Consequences: On hillside farmland, high erosion rates contribute to loss of topsoil, organic matter and nutrients. Surface water is polluted as soils, manure, human feces, and agro-chemicals are carried into rivers and streams. In river basins, the changing of river courses and flooding destroy crops and erode large areas of scarce fertile cropland.

- Declining soil fertility

Pressures: High cultivation to fallow ratios; excessive monoculture practices; cultivation on marginal lands; improper use of fertilizers and re-incorporation of organic manures into fields; lack of integrated farming knowledge and practices; increasingly small size of land holdings due to inheritance practices; extensive rather than intensive agricultural practices.
Consequences: Visible signs of macro- and micro-nutrient deficiencies are common. Large gaps exist between actual and ideal land use patterns. Soil fertility drops and farmers seek to clear new land to produce enough for their families.

- Forest degradation

Pressures: Well-intentioned but inappropriate clearing of forested areas for cultivation and firewood; sheep and goats consuming new growth trees and illegal cutting of firewood.
Consequences: Deforestation and loss of biomass cover are resulting in unchecked erosion, decreased water retention and reduced flow level of streams. Significant changes in microclimates are reported by some DAP participants. There is insufficient water for adequate hygiene (bathing, washing clothes) and anecdotal increases were reported in cases of diarrhea and skin/eye infections.

- Degradation of pasture lands

Pressure: Imbalances in the ratio of biomass to feed demand; loss of biodiversity; livestock loads, which exceed carrying capacity of pastures; exacerbated erosion.
Consequences: Pastureland degradation is causing fodder shortages and reduced plant cover on rangelands. Pastureland mis- and overuse also increases soil erosion and accelerates the silting of rivers and streams. In addition, adverse changes are occurring in the plant species composition of pastures, which leads to increased frequency of unpalatable species.

6.3. Progress To Date

The evaluation team was impressed with a number of the actions taken and the progress being made by the four CSs in the NRM area. Environmental rehabilitation activities have the potential to change the livelihoods of impoverished communities. Great care, however, must be taken in selecting the right activities, intervention areas and partners in order for families to reap the rewards of improved sustainable environments and the potential of increased agricultural yields. The Bolivia Title II program NRM activities have unquestionably had a positive impact on the livelihoods of participating households and communities and on the ecosystems in the area of program influence. The implementation of NRM activities in Title II programs is somewhat uneven, however, with some activities being carried out with sound strategic thinking and technical quality and others requiring additional support.

The Title II partners overall have maintained excellent collaboration and cooperation with communities, often by planning and implementing activities together throughout the project cycle. Information systems and reporting structures, including monitoring and evaluation systems, however, are somewhat weak overall, too centralized, and data is not easily understood

or utilized by high-level agency decision makers. Improvements also are needed with respect to the coordination and integration of DAP activities within and among CSs and key partners.

6.3.1. Quantitative Analysis Based on Annual Reports

The Title II CSs have done a good job overall in implementing their NRM activities during the first two and one half years of their DAPs. However, the MTE Team does have concerns about the ability of the CSs to reach some of the targets that were established at the beginning of their DAPs. This section reviews some of the principle LOA targets, and comments on why certain targets are being met while others are not. This section also includes observations on whether certain indicators appear realistic given new information learned since the indicators were first developed, and recommendations on whether some indicators should be modified for the remainder of the DAP lifecycle.

Although all four of the CSs have tried to harmonize the indicators that they are using to measure performance under this component, there is some variation among indicators and considerable variation in how these indicators are defined and measured. This makes comparisons across CS difficult and argues that further work is needed by the CSs both as a group and individually to make further improvements in indicator definitions, data collection and analysis.

6.3.1.1. ADRA

Table 7: ADRA Natural Resource Management Program Performance

Indicator	Result at MTE	LOA Target
1. Hectares of "conservation areas" with adequate management	149	225
2. Hectares of designated lands in targeted communities under soil erosion control practices	904	1,704
3. % of targeted households that have adopted improved soil fertility and erosion control practices	40%+	40%
4. Municipalities in targeted areas making improved natural resources management investment	3	4
a. CLUP Development and implementation - Communities - Municipalities	70 3	81 4
b. Nursery sustainability	3	4
c. Allocation of financial resources	3	4
5. Number of households with appropriate and sustainable natural resources management projects for domestic use	261	380

Comments on ADRA's Performance

1. *Hectares of "conservation areas" with adequate management* -- ADRA had achieved approximately 66 percent of the LOA target for hectares of conservation areas with adequate management at the time of the MTE (149 hectares of 225 targeted). ADRA's NRM unit, through work coordinated with local land use plans (Planes de Ordenamiento Predial - POPs), has enjoyed significant success in promoting best management practices through technologies such as infiltration ditches, terraces, reforestation, and live/dead barriers. It appears that Title II

participants have shown great interest in managing their own natural resources more effectively, which has resulted in a significant increase in new hectares utilizing appropriate management practices.

2. *Hectares of designated lands in targeted communities using improved soil erosion control practices* -- Best practice soil and wind erosion control methods are now being utilized on a total of 903 hectares of land according to the ADRA monitoring and evaluation system. This represents 53 percent of the LOA target. ADRA did not experience a "slow start up" period in activities related to this indicator, even though technology transfer in these soil conservation practices is a significant challenge. It should be noted that ADRA has been very successful in gaining support for its interventions, in part due to its close coordination with local Planes de Ordenamiento Predial, and thus it is likely that the ADRA team will reach this LOA target.

3. *% of targeted households that have adopted improved soil fertility and erosion control practices* -- The annual targets for this indicator have been surpassed in both years two and three of the DAP. As such, the MTE Team is confident that ADRA will achieve its LOA goals for changing soil and erosion control practices without difficulty.

4. *Municipalities in targeted areas making improved natural resources management investments* -- By September 2004, 70 communities in four municipalities had developed appropriate land use plans. These plans represent a significant investment by DAP communities and a tangible expectation that local resources will be conserved and managed in a more coherent, equitable and logical manner. The MTE Team was impressed with this NRM practice and noted that ADRA had achieved 75 percent of its LOA goal for this indicator by the time of the MTE. Thus ADRA should have no difficulty in achieving 100 percent or more of this target by the end of the DAP. ADRA has also reached 75 percent of its nursery sustainability target and 75 percent of its financial resources allocation target.

4a. *CLUP development and implementation - Communities and Municipalities* -- At the time of the MTE, ADRA had been successful in reaching 86 percent of its LOA objective for communities, and 100 percent of its target municipalities. Program households clearly see the benefits these activities bring to their on-farm production systems, making it easier for ADRA to impart these new technologies. As such, it appears there will be little difficulty in ADRA fully achieving this target at both community and municipal levels by the end of the DAP.

5. *Number of households with appropriate and sustainable natural resources management projects for domestic use* – This is a newly defined indicator that has an LOA target of 380 households that implement sustainable natural resource projects. To date, ADRA has successfully encouraged 261 households (67 percent) to adopt one or more appropriate projects, such as construction of corrals or water reservoirs, small woodlot formation and household waste management activities. These household interventions appear very popular, and thus there is little doubt ADRA will succeed in reaching its goal by the end of the DAP.

6.3.1.2. CARE

Table 8: CARE Natural Resource Management Program Performance

Indicator	Result at MTE	LOA Target
1. Hectares of "conservation areas" with adequate management	3,209	15,000
2. Number of communities in which the creation of "conservation areas" has been initiated.	90	31
3. Percentage of the target population that has adopted improved soil and water management practices	26%	36%
4. Number of producers that have received training in natural resource management practices	792	3,450
5. Estimate of areas of micro-watersheds that are under "appropriate management"	348	5,000

Comments on CARE Performance

1. *Hectares of "conservation areas" with adequate management* -- CARE has not yet fully reached its objective of ensuring that an additional 15,000 hectares of conservation areas are managed correctly. At the time of the MTE, only some 3,200 hectares of conservation areas (21 percent of the LOA target) were brought under adequate management due to CARE interventions. As this is a difficult area of work for nearly all the Title II CSs, the MTE Team recommends that interested agencies meet to share lessons learned and determine ways to improve the track record of agencies endeavoring to move toward this worthy goal. If no solution is identified soon, CARE should meet with USAID to revise downward the target for this indicator.

2. *Number of communities in which the creation of "conservation areas" has been initiated* -- CARE's LOA goal for this indicator was to ensure that 31 communities initiated the creation of conservation areas during the DAP. At the time of the MTE, CARE had already reportedly succeeded in encouraging 90 communities to initiate such practices. It should be noted that surpassing its target by 200 percent does appear very positive for CARE's DAP. However, the true measure of success will be whether these communities make long-term commitments to maintaining these conservation areas. CARE, working in partnership with the other CSs, should seek to identify mechanisms to ensure long-term commitments by communities. Although difficult, this can be achieved successfully if CSs work in coordination with each other, with USAID and with participating communities. It was also noted that a review should occur of the reasons why certain indicator targets, such as this one, were achieved at levels so far above original targets.

3. *Percentage of the target population that has adopted improved soil and water management practices* -- Information available at the time of the MTE suggests CARE is close to its goal of ensuring that 36 percent of the target population adopts improved soil and water management practices. It should be noted that the start up time needed for CARE to achieve progress toward this indicator was significant. It was not until year three that major progress was made in promoting these desired behavior changes, a common occurrence in changing attitudes and practices.

4. *Number of producers that have received training in natural resource management best practices* -- A total of 792 producers had successfully received training in NRM practices at the time of the MTE. Nevertheless, CARE's goal for the LOA is 3,450, which suggest that this very ambitious target may not be met. The CARE field team was not able to achieve its annual goal vis-à-vis this indicator in any of the first three years of the DAP. The MTE Team considers this an overly ambitious target and one that CARE should revise downward after consultations with USAID.

5. *Estimate of areas of micro-watersheds that are under "appropriate management"* -- As with the previous indicator, CARE targets for years one through three were not met. At the time of the MTE, only 348 hectares of targeted micro-watersheds were considered under appropriate management. This is only 7 percent of the LOA target of 5,000 hectares. So, unless CARE has a strategy beyond what the MTE Team observed, this target should be revised significantly downward in the near future.

6.3.1.3. FHI

Table 9: FHI Natural Resource Management Program Performance

Indicator	Result at MTE	LOA Target
1. Hectares of "conservation areas" with adequate management	400	400
2. Number of communities in which the creation of "conservation areas" has been initiated	20	20
3. Percentage of the target population that has adopted improved soil and water management practices	182/760 24%	2400/5300 45%
4. Number of producers that have received systematic training in natural resources management	872	1,500
5. Estimate of area of micro-watersheds that are under appropriate management	425	500
6. Number of new hectares where soil conservation measures are being implemented	1,163	1,770

Comments on FHI Performance[23]

1. *Hectares of "conservation areas" with adequate management* -- FHI has experienced some difficulty in achieving its target for this indicator. The LOA target of 400 hectares of conservation areas with adequate management is actually subdivided between a) 300 hectares of land within Toro Toro National Park, and b) 100 hectares of land outside the national park. The target of 100 hectares of land managed adequately in communities outside the park is well on the way to being met, as FHI reported an 87 percent achievement of the LOA target at the time of the MTE. Within the park however, due to the difficulties of working within Bolivian laws, and

[23] It bears noting that FHI invested a great deal of effort and time carrying out a very thorough and well-implemented baseline study in FY2002. This effort did unquestionably delay the program start up and achievement of certain indicators to date. The MTE Team, however, applauds the FHI baseline and complementary monitoring system investment, and believes it has made a positive difference during the life of the DAP by increasing FHI's understanding of the impact of the program. As such, the MTE Team is confident that the delayed start-up time will be recouped over the life of the DAP.

the delays in negotiating a contract with the National Parks Service (SERNAP), only 23 of the 300 hectares target have been achieved. Although local and national bureaucracy and other obstacles have hindered FHI success in achieving the progress hoped for by the mid-term of the DAP, the MTE Team still has significant hope that FHI will ultimately be successful in achieving its targets. In the meantime, the Team recommends that FHI re-analyze this indicator, and communicate with USAID if an adjustment in the target is deemed necessary.

2. *Number of communities in which the creation of "conservation areas" has been initiated* -- The achievement of this target is ahead of schedule. Fourteen of the 20 communities targeted (70 percent) have already initiated the creation of conservation areas within or nearby their communities. FHI should keep this momentum and consider expanding the number of communities which could initiate conservation areas between now and the end of the DAP. Care must also be given to supporting these communities adequately beyond the initiation of a conservation area. A critical aspect of conservation and environmental best practice is that sustainability depends upon behavior change over time, and not just when a new idea is introduced.

3. *Percentage of the target population that has adopted improved soil and water management practices* -- FHI has made significant progress toward achieving the FY 2004 target adoption rate of 28 percent of the population. At the time of the MTE, 24 percent of the target population had adopted improved soil and water management practices, representing 85.7 percent of the FY 2004 target. The MTE Team saw very good examples of FHI technology transfer in action. However, the extent to which these good practices reach significant numbers of households and communities was not clear. This indicator may represent an example of very good work being done, but at a relatively high investment compared to the number of participants reached. The MTE Team suggests FHI revisit this target to be sure the organization is striking the best balance possible between "doing high quality work" and "reaching the largest number of vulnerable households possible." There is always a trade-off, thus this additional analysis is merited.

4. *Number of producers that have received systematic training in natural resources management* -- The FHI Team appears to be right on track toward achieving this target. To date, 58 percent of the goal has been achieved, as 872 of the 1,500 targeted producers have reportedly been trained in NRM practices.

5. *Estimate of area of micro-watersheds that are under appropriate management* -- This is another example of significant success on the part of FHI in surpassing the expected rate of success in achieving a given indicator. To date, FHI reports that 425 hectares of the LOA target of 500 hectares are now under appropriate management. The MTE Team recommends FHI seek ways to ensure that the changes in systems and behaviors required to achieve this target be institutionalized to the greatest degree possible. This will help ensure that the positive achievements secured to date become sustainable.

6. *Number of new hectares where soil conservation measures are being implemented* -- An estimated 1,163 hectares of new land are now benefiting from soil conservation measures promoted through the FHI DAP. This advance represents 66 percent of the 1,770 hectare LOA target for this indicator, a significant achievement at this point in the DAP. It appears that using

food donations has provided added short-term incentives to farm households while helping promote production and conservation practices that will have long-term benefits. If the same rate of progress is made during the remaining two and one half years, FHI will easily meet its LOA target for this indicator before the DAP is completed.

6.3.1.4. Save the Children

Table 10: SAVE Natural Resource Management Program Performance

Indicator	Result at MTE	LOA Target
1. Hectares of conservation areas with adequate management	41	161
2. Number of communities in which conservation areas have been initiated	11	20
3. Percentage of the target population that has adopted improved soil and water management practices	TBD	30%
4. Number of producers that have received systematic training in natural resource management	1,490	2,400
5. Estimate of area of micro-watersheds that are under appropriate management	327	630
6. Number of new hectares where soil conservation measures are being implemented	480	700

Comments on SAVE Performance

1. *Hectares of conservation areas with adequate management* -- Only one-quarter of the target for this indicator has been met to date. There are many logical reasons for this, including a late start-up in program implementation and the extra start-up time required to build relationships and advance preparations for the development of adequate management plans. SAVE is using a very formal interpretation of this indicator, focusing more on the establishment of "protected areas" than community conservation areas, as do most other CS. Given the status SAVE has with the communities and adjustments made to date, it feels confident that it can achieve its LOA target.

2. *Number of communities in which conservation areas have been initiated* -- SAVE reports that 11 (55 percent) of the 20 LOA target communities had initiated conservation areas by the time the MTE was carried out. As such, it appears hopeful that the LOA goal for this indicator will be reached. Although statistically advanced toward reaching this target, SAVE could face problems in bringing new communities on-line during the remainder of the DAP. SAVE may not have sufficient time to initiate conservation areas in new communities during the remaining two and one half years of its DAP, for example, unless it has already undertaken a significant amount of advance work with an adequate number of communities. This possibility should be reviewed with USAID and the LOA target modified if warranted.

3. *Percentage of the target population that has adopted improved soil and water management practices* -- Results for this indicator are unknown at present. A knowledge, attitudes and practices (KAP) survey will be conducted in early 2005 to determine the degree to which the target population has adopted the recommended best practices in the area of soil and water management practices. SAVE has already begun the process of data collection for this survey.

4. *Number of producers that have received systematic training in natural resource management* -- The MTE Team observed the positive results of some of the training SAVE had carried out among DAP participants. From the anecdotal observations made, it appeared the SAVE staff was doing an effective job in transferring information and technologies to the program participants. SAVE staff seemed particularly effective at promoting sound forest management practices to participants. SAVE reports reaching 1,200 (52 percent) of the 2,400 LOA target population and appears to be within reach of meeting this objective. Although training has focused on transferring technologies to construct terraces and water-capture ponds, since SAVE has shown significant success in this area during this past year, managers have decided to incorporate additional technologies into the training for the remainder of the DAP.

5. *Estimate of area of micro-watersheds that are under appropriate management* SAVE estimates that 70 hectares of watershed had been incorporated under adequate management at the time of the MTE. The interventions considered to calculate this indicator were bench terraces, construction of qotañas, reforestation, and, management of native pastures, live barriers and individual terraces. This is 70 percent of the proposed LOA target. Due to the increasing interest of the communities in these types of activities, SAVE has proposed increasing this LOA target.

6. *Number of new hectares where soil conservation measures are being implemented* – SAVE has also been particularly successful in promoting behavioral change in the form of adoption of new soil conservation measures. A total of 480 hectares (69 percent) out of a 700 hectare LOA target have been identified as now utilizing conservation measures as a result of SAVE's interventions.

6.3.2. Qualitative Analysis Based on Results of Field Visits

Direct field observations and discussions with program participants and CS staff were used as the basis to analyze qualitative results. The IEEs of each agency were also utilized to generate qualitative analysis for each program area. Further discussion related to these observations can be found in the following section on Regulation 216 Compliance.

Matrix 3: Natural Resource Management (NRM) Activities by CS

Category of Interventions	Type of Activity	ADRA	CARE	FHI	SAVE
Micro-watershed Management	Tree Nurseries	X	X	X	X
	Reforestation	X	X	X	X
Soil Conservation	Live and Dead Barriers	X	X	X	X
	Terraces	X	X	X	X
	Gully Reclamation	X	X	X	X
	Land Reclamation	X	X	X	X
Water Conservation	Infiltration Trenches	X	X	X	X
	Micro Dams	X	X	X	X
	Dikes	X	X	X	X
	Water Harvest Ponds	X	X		X

Community Organization	Local Involvement	X	X	X	X
	Capacity Building	X	X	X	X

6.3.2.1. Micro-watershed Management

CS micro-watershed management activities are directed toward the protection, conservation and optimal utilization of specific geographic areas through sustainable and integrated management practices. During the MTE, it was noted that all CSs are moving toward the incorporation of a micro-watershed management (MWM) approach to their programming. All agencies, however, still need to make significant progress to effectively consider and address key MWM issues and strategies. The CSs also need to establish criteria for the selection and prioritization of micro-watersheds, as all watersheds are not of equal importance. Such criteria could include the degree to which the micro-watershed affects the availability of water for irrigation and human use in the Title II communities.

The CSs currently are uniformly focusing on tree nursery and reforestation activities to promote MWM. This is positive, but not yet a fully integrated approach to MWM planning and program implementation.

Tree Nurseries

Tree nurseries are a critical component of CS DAP reforestation activities. Tree nurseries are sites where seedlings are grown to support both household and community reforestation efforts. Both public and private nurseries were observed during the MTE. The public nurseries were more common than private nurseries. The public nurseries, which are often run by women, are financed and normally subsidized by local municipalities. The private nurseries that were visited were usually housed on private land and many showed potential as viable commercial enterprises. Food for work (FFW) rations were used to support both public and private nursery management. In the case of ADRA and SAVE, the nurseries observed had a direct link with local municipalities, which provide the physical area and staff salaries for the technical supervision of the entire production process. Several of the CARE nurseries that were visited were promoting seedling production through private small-farmer groups. According to FHI, all its nurseries are private micro-enterprises and are family owned and run. The staff of private nurseries evidenced a much greater understanding of the ultimate use and destination of seedlings.

The MTE Team found technical problems related to nursery management in all of the nurseries and the absence of tree production best practices. For example, the improper use of propagation bags was observed in nearly all sites visited and is negatively affecting the future development of the seedlings, tree hardening and subsequent reforestation efforts. Also, the use of excessive shade in the nurseries is weakening seedlings, because when they are replanted in sun prevalent areas, it is harder for them to survive the change in environment.

Finally, the CS staff at the visited nurseries had little if any market-demand information. Although this information may have been available in head offices, it did not appear to have reached the DAP nursery sites. Interviews at nurseries suggested that at least some project

participants were motivated more by FFW rewards than by the market demand for reforestation projects and seedlings. The MTE Team concluded that the potential demand for seedlings for reforestation projects significantly exceeds the availability of seedlings from DAP supported nurseries. Both public and private nurseries lack adequate production standards, market analysis and strategies for profit generation and sustainability. There also appears to be a disproportionately high preference for exotic species over native species.

Reforestation

The CSs overall objectives for reforestation activities are to promote the stabilization of micro ecosystems and soil erosion, as well as the alleviation of shortages of fuel-wood and construction materials. An additional key objective is the regeneration of indigenous vegetative cover through area enclosure activities and the protection of badly eroded areas.

The four CSs showed relatively good success with reforestation efforts. The MTE Team observed limited albeit positive results in the highland forestry plantations even with particularly poor soil conditions. These successes include an up to 82 percent survival rate after two years in some of the CS areas of influence. Another success is seen in the utilization of best practice on reforested lands observed in project areas of most CSs. Also worth mention is the effort all CSs are making to utilize native tree species rather than exotic varieties whenever possible, a positive step to help promote resilient ecosystems and an environmental balance. This said, the MTE Team supports the CS interest in using exotics such as eucalyptus in circumstances such as major gully reclamation and soil stabilization, which cannot be achieved using native species. If eucalyptus is used, it should not be planted in areas that have future potential for agricultural production, for example. Rather than attempt a detailed description in this report of all the best practice recommendations for use of exotic species, the MTE Team recommends that guidelines be developed for the use of exotics and other reforestation practices in the future.

Another point worth noting is that a significant portion of DAP seedlings were purchased in nurseries far from the eventual site of planting. These seedlings often have a lower probability of survival due to the environmental differences in the germination site and future planting sites. Transport costs also make such seedling purchase strategies less sustainable, limiting the future expansion of reforestation activities.

6.3.2.2. Soil Conservation

This is one of the most important of all natural resource activities in the Title II projects due to poor soil quality in the project areas and the great reliance of local populations on the productive capacity of the land. All four CSs are exerting great effort to preserve fertile soil and reverse degradation.

Based on observations during the MTE Team field trips, it is clear that soil conservation activities have profoundly improved the environment of large tracts of land. Several of the CS's soil conservation activities include a healthy range of physical structures, biological measures and soil management practices. Food for work (FFW) has encouraged many farmers to adopt new techniques, particularly barriers, terraces, gully reclamation, and infiltration trenches.

Live and Dead Barriers

The use of barriers is an important technique in soil conservation practices. Barriers are constructed with stones and cut vegetation (dead barriers) or planted shrubs, trees or grasses (live barriers) and are constructed on contours perpendicular to the slope of the terrain.

With all CSs, the MTE Team observed various technical errors in the design of the barriers. The most common error was the construction of barriers at incorrect angles relative to the grade of the slope, reducing their effectiveness at soil conservation. Another error observed was the selection of inappropriate materials for the barriers.

In certain circumstances, one type of material was used when further rapid analysis would have suggested using a more appropriate material. CSs should consider using more planted grasses and shrubs as live barriers, from a variety of species. With the increased diversity of species, the same live barriers, which serve to conserve soil, can be used in multiple ways: regeneration of soil fertility, medicinal use of species, and additional fodder for livestock.

The four CSs should also conduct additional benefits/cost analyses of the individual barrier projects before they begin. With the information available on construction costs and the potential profit that could be realized by a farmer, the CSs can clearly demonstrate to the farmers the real long-term benefit of the barriers. This may be crucial for project sustainability when food for work is not available as an incentive to support these types of interventions.

Terraces

The MTE Team observed two manners of terrace construction being utilized by the four CSs. The first type is slow-forming terraces, constructed by live or dead barriers that over time build up soil, forming a platform. The second type of terrace formation is immediate, where the platform is built with slope and gradation specifications appropriate for the design.

The best results observed were when terrace building activities were accompanied by complementary irrigation systems and organic fertilization. For example, the community of Tomoyo, working within the FHI DAP, used irrigation systems in conjunction with slow-forming terraces, and had tremendous results in agricultural production improvements. The MTE Team noted some problems with the slope and level of the slow-forming terraces (rock barriers in this case), which can cause future erosion problems. In the community of Viloco, rock barriers built under the SAVE program did not closely follow the land contours, which made the barriers much less efficient. The women's' groups that made the terraces, in this case, needed more technical support for the design and implementation of these terraces. This same error was seen in barriers supported by other CSs as well.

The MTE Team recommends that additional benefit/cost analyses of terraces be conducted to demonstrate the long-term value to DAP project participants. Several farmers interviewed surprisingly could not articulate the reasons for building the terraces or the relationship to possible future agricultural production. This suggests that, at least in some cases, certain farmers viewed food rewards as the primary motivation for constructing terraces.

Gully Reclamation

The fragility of the soil, steep slopes and the lack of forested areas and ground cover has caused extensive gully erosion in many of the DAP communities. Through interviews and direct observation, the MTE Team found that many farmers continue to lose arable land at an alarming pace, particularly in DAP mountainous regions.

The MTE Team observed various gully reclamation activities being carried out by CS communities, some of extensive breadth and scope. Project participants often constructed stone bases and planted grasses at the source of the gully erosion. The vast majority of participants were able to articulate that conservation and protection of their land were the reasons for their gully work. Participants had seen the loss of soil over time and were motivated to save their fields. This is one soil conservation effort in which farmers appeared to be conducting the work with or without the FFW incentives, at least in some cases. The success of these programs was impressive, because of the farmland conserved, future loss of land avoided and the sentiment of success felt by the participants.

The best examples of gully reclamation were observed in the communities of Ckara Ckara with FHI and in Punquina with ADRA. In these sites there were good designs and implementation, and great community participation. Overall, good results from gully reclamation efforts were evident throughout all the areas where the CSs are working.

Land Reclamation

This set of activities involves the placement of solid cement retention walls or mesh wire structures filled with stones in rivers, for the purpose of recapturing soil and extending farmland.

The MTE Team found positive results in most cases in terms of the quantity and quality of the land that had been reclaimed, with fertile soil being captured and prepared for the future production of food. High-producing farmland however, requires adequate irrigation systems, fertilization and investment, which was not always evident. The farmland reclamation efforts near rivers need to be carried out with proper planning and study for the width and overflow of the rivers. This type of thorough analysis was carried out effectively by FHI in the community of Capinota but was not observed in several other areas where these CS-supported interventions are implemented.

6.3.2.3. Water Conservation

The vast majority of Title II communities have high levels of poverty, poor and moisture starved soils, and lack of precipitation. Water conservation in these areas is fundamental for the production of food and to foment successful agricultural projects and to increase income generation opportunities. Many forms of water conservation techniques are being used by the four CSs and should be expanded in these areas to support agricultural production needs during normal and drought seasons.

Infiltration Trenches

Overall these are well designed and executed activities. However, in most of the cases that the Team observed, there were not enough trenches being constructed to have a significant impact on farming, water conservation or watershed management. The Team also observed that all of the trenches were being built with the support of food for work. This must be changed if this practice is to have a sustainable impact in the DAP areas of influence. In at least one case, the infiltration trenches were constructed too far from the core farming system. As a result, participants perceived that the construction activity was being implemented for the immediate benefit of food for work and did not understand the potential that these trenches have for helping increase agricultural production and improve water conservation and watershed management.

Micro Dams

This is a very important activity in the highlands, where lack of water after the rainy season is one of the major production problems. The success of this technique is very clear in the conservation of water, principally for the irrigation of agricultural crops and for animal drinking water. Even though most DAP-supported micro dams are primarily built of rock, some that were constructed of cement with ADRA support were observed in the area of Culpina. Those made of cement need additional cost-benefit analyses to determine if this approach is merited given the additional costs and environmental impact.

Dikes

Even though dike construction is important to retain water for use by animals, for irrigation and for domestic use, it is an area that needs improved technical design and evaluation of environmental impacts. The dikes observed by the MTE Team were successful in accumulating water, however, plans for the effective utilization of this water were not present nor were there clear methods to maintain the quality of the water over time.

Water Harvest Ponds: (also called qotañas in the Aymara language)

This is one of the most important water harvest activities being implemented to accumulate and conserve water. Pond construction is a relatively effective mechanism to retain and store water, primarily for the use of animals for several months during the dry season. The MTE Team observed good designs and implementation strategies by the three CSs that are implementing these types of activities, especially in the highlands, where SAVE showed significant success using this technique to provide water for extended periods for farm animals, particularly cows and sheep.

6.3.2.4. Community Organization/Participation

During the MTE process, the team observed a high level of local participation at the community, group, and family level, involving both men and women. It was noted that project participants not only made significant labor contributions to DAP activities, but also participated in real decision-making.

Local Involvement

For all four CSs, and especially with project participants of CARE and ADRA, there is a high level of involvement at the household and community levels. This is true not only for project participants but also for local authorities, local committees, municipalities, and "mancomunidades" (the union of various municipalities). The extensive involvement of the local populations and grassroots organizations has increased the social impact of the DAPs. However, this situation may limit the development of private initiatives by small groups, especially with business and natural resources objectives. For example, very few income generation schemes were observed apart from the commercialization of natural resource products. Also, CS subsidies for certain types of communal productive activities may cause a disincentive to private production (such as the case with public vs. private nurseries).

Clarity of Participants' Vision

The MTE Team observed a clarity of vision and conceptual understanding of the program by participants in most of the DAP areas of influence. This was shown by the participants in the clarity of their presentations to the MTE Team, the discussion of their future development plans and their interest in proper management of their natural resources. In certain cases, the Team noted that the participants did not have as clear a vision for the future. In these cases, the participation of households and communities appeared to be influenced significantly by the desire for FFW commodities.

Capacity for Self Organization/Management

The MTE saw capacity for project self-management in nearly all areas visited during this evaluation. From a natural resources perspective, the local groups supported by the CSs through this DAP have great potential to continue the positive advances in protecting their ecosystems and increasing their productive capacity well beyond the life of this and possible follow-on DAPs.

CSs need to continue working with local organizations to ensure Title II supported activities are as truly productive and beneficial as possible to the households and communities they serve. Of equal importance is the need to ensure that households and communities have the skills and access to resources they need to continue these valuable interventions after the CS DAP program resources have been expended. Program participants in Tomoyo for example showed an exceptional capacity for self-organization and management. This is probably due to the sustained support provided by FHI over many years. Similar investment and commitment to communities over many years is suggested to ensure capacity is adequate to continue food security and development efforts after the CSs withdraw from a given community. Exit strategies should be results oriented and based on achievements rather than a calendar.

7. ASSESSMENT OF RESULTS IN THE MAJOR PROGRAM COMPONENTS: ENVIRONMENTAL ASSESSMENT -- REGULATION 216 COMPLIANCE

7.1. Introduction

All USAID-supported projects and activities require compliance with Environmental Regulation (Reg.) 216. The Initial Environmental Examination (IEE) is the principle management tool within Reg. 216 that is used to help analyze potential impacts and identify appropriate mitigation measures for DAPs and other USAID-supported projects. Each of the CSs carried out an IEE at the beginning of their current DAPs, and each is making serious efforts to meet both the letter and intent of Reg. 216. The MTE Team noted happily that Reg. 216 compliance is considered by the CSs as important not only for legal and contractual reasons, but also to ensure sound design and sustainability of projects.

It was clear to both the external and internal (CS) evaluation team members, based on key informant interviews, field observations and group discussions, that each of the four CSs could improve its efforts to abide by both USAID and GOB environmental regulations. Environmental analysis and mitigation activities exist to a degree within all of the four CS projects, however, not to the degree and the consistency that they should. Frequently, the environmental mitigation activities observed focused on environmental restoration tasks that were necessary because of project implementation shortcomings. None of the four CSs were in full compliance with GOB required *fichas ambientales,* although FHI and SAVE have made significant advances in this area.

FHI has created an independent environmental team, which the MTE Team views as a positive acceptable model of how the CSs can help encourage sound environmental analysis and development of appropriate mitigation measures within each project. Such a team should be responsible for assuring the implementation of environmental mitigation activities, Reg. 216 and GOB compliance and environmental capacity building at all levels. The environmental teams should be involved from the beginning in the planning and design of projects to assure minimal environmental impacts. This would help reduce the need to implement corrective and restorative measures by minimizing the potential impacts from inadequately designed projects. Although sound environmental assessment, management and incorporation into CS programs should eventually be mainstreamed, at this stage of organizational development, creation of independent environmental teams appears to be a viable alternative for each CS.

Each of the four CSs could improve program activities, especially the design and implementation of environmental mitigation measures and the reduction of potential impacts. For example, each CS field team could train participants in the safe use of pesticides, even if pesticide use was not part of the original DAP design. Some unsafe pesticides are being used by many DAP participants, even though their use or purchase is not promoted by CS field teams. Supervision and systematic monitoring must be done to assure that the use of pesticides is authorized by USAID and by the environmental team of each CS. Also, no CS has been 100 percent successful at implementing the full range of mitigation measures recommended in the current DAP IEEs. If

all mitigation measures were implemented, DAP activities would be more sustainable and ecosystems would be more productive and profitable.

The MTE Team has attempted to provide a thumbnail summary of CS experiences with respect to Reg. 216 compliance in the following table. This table provides an assessment of the extent to which the CSs have addressed the recommendations that were included in their IEEs in each of their major areas of intervention. A score of 50 percent is average, above 50 percent is good, and below 50 percent requires significant improvement. This table was developed after a series of round table discussions held by the external MTE Team members (after completing visits to the field). Discussions in the field and in regional and La Paz headquarters offices with the CSs, and interviews with both staff and project participants from each CS also guided the impressions of the evaluators. The MTE Team acknowledges that the percentages listed below are purely impressionistic and there is no statistical evidence or documented proof that these percentages are accurate. The impressions, however, were made by professionals with decades of experience in the field, appeared to be shared by at least some staff members of each CS in the field and are shared in a desire to provide useful feedback to each of the CSs.

Table 11: MTE Assessment of the Extent to which the CSs Have Fulfilled the Recommendations Included in Their IEEs

Areas	CARE	SAVE	FHI	ADRA
Storage of grains for distribution	90%	90%	90%	90%
Rural road rehabilitation	30%	30%	80%	40%
Micro-irrigation, water harvesting and on-farm soil and water management	60%	50%	70%	40%
Post-harvest infrastructure	40%	40%	80%	30%
Production of nutritious and cash crops	40%	40%	60%	50%
Construction of potable water systems	50%	50%	70%	40%
Construction of latrines	90%	80%	90%	70%

7.2. General Recommendations for All Cooperating Sponsors

Each CS should develop an environmental management plan for the second half of the DAP. This plan should identify a series of actions needed to implement mitigation and restoration

measures and appropriate environmental monitoring. These plans should be presented to the Environmental Officer of USAID Bolivia for input and approval.
To ensure consistency and effectiveness of these environmental management plans, environmental guidelines should be elaborated to facilitate and guide successful project implementation in the following areas:

- Road maintenance
- Procurement and use of materials for the rehabilitation and maintenance of roads (gravel from river banks and other sources)
- Implementation and management of W&S systems
- Implementation and management of irrigation systems
- Implementation and management of water capture and harvest systems

These guidelines should be developed with appropriate levels of participation and contributions from technical personnel and DAP participants. The guidelines should also be developed in close consultation with the USAID Regional Environmental Advisor and the Mission Environmental Officer.

The CSs should develop and implement practical and appropriate tools for the fulfillment of the recommendations and implementation of the environmental mitigation measures in each DAP activity area. CSs should develop and implement an environmental monitoring system that generates timely information about the environmental issues and concerns that arise during the DAP. This system should form part of the organization-wide M&E system currently found in each CS. The environmental unit (following the FHI model) that could be formed in each CS should have significant input into this M&E system. Each CS should also carry out periodic evaluations in the field to verify the execution of the environmental management plan. These evaluations should review the effectiveness of the mitigation and restoration measures as well as the new activities and unforeseen situations that may occur.

7.3. Specific Observations and Recommendations for Each Cooperating Sponsor

The discussions in the following sections are based on the "Findings and Recommendations" in each CSs IEE.

7.3.1. ADRA

7.3.1.1. Agricultural production

As with a number of the CSs, ADRA does not appear to be consistently using uniform best practice guidance for soil management. ADRA staff seem to be guided by general agricultural studies and knowledge of talented individual team members. It would be useful if consistent best practice guidance is adopted. Even though ADRA field staff readily acknowledged the importance of crop rotation, the MTE Team did not observe this practice being promoted consistently in the field. However, the Team did note the positive production and incorporation of organic materials in the agricultural production cycle.

ADRA reportedly has yet to prepare a Pesticide Evaluation Report and Safe Use Action Plan (PERSUAP) to guide its use of all pesticides in the DAP. Pesticides are reportedly being used in the field by ADRA DAP participants even though they are not being promoted by ADRA staff or bought with DAP funds. A solution to project participants' unsafe use of pesticides should be identified among the CSs.

7.3.1.2. Road rehabilitation

ADRA did not appear to be consistently using recommended best practice manuals for the rehabilitation of roads. Environmental mitigation measures to lessen the impacts of road rehabilitation on the environment are not always implemented to the degree that they should.

Complementary NRM mitigation measures, such as reforestation and slope stabilization, were not observed within the road rehabilitation areas of influence visited by the MTE Team. ADRA is not always utilizing appropriate drainage mechanisms along these roads, principally in works such as furrow drains, sewage systems and roadside ditches. ADRA's infrastructure staff would benefit from additional study of environmental regulations and best environmental practices for road rehabilitation. The U.S. Forest Service's "Low Impact Roads" field guide contains many such examples of best practices.

7.3.1.3. Construction and rehabilitation of irrigation infrastructure:

ADRA does incorporate environmental mitigation measures into some of the irrigation systems that it is implementing, but more can and should be done. Basic hydrological studies by firms carrying out the projects are completed for the municipalities, but these studies lack legitimacy and the confidence of some of the technical personnel.

ADRA has not taken part in training activities with regards to river basin management. The knowledge of the technical team concerning river basin management is inadequate to meet the DAP objectives in this area. Such training is highly recommended.

There also appears to be no direct relation between planning to address the irrigation needs of the agricultural team and the design of irrigation projects by the infrastructure team. The opportunity to increase coordination and synergies between and among DAP project components is significant and should be promoted by ADRA and USAID management.

7.3.1.4. Construction of warehouses

ADRA is fulfilling the majority of the IEE recommendations in this area.

7.3.1.5. Construction of latrines

ADRA is doing an outstanding job following the IEE recommendations in this area. The DAP team is planning for and executing latrine construction projects in the communities in a very effective manner.

7.3.1.6. Installation of water and sanitation systems

ADRA is successfully following all the IEE recommendations in this area with the exception of not training their personnel more fully in the management of river basins. This is important because the technical personnel have little knowledge in this area.

7.3.2. CARE

7.3.2.1. Storage of Title II grains for distribution

CARE and the three other Title II CSs are carrying out the management and storage of Title II food appropriately. Their practices effectively meet with IEE recommendations. Best practices were observed in the transport and distribution of food as well as in the excellent storage infrastructure utilized in the program.

7.3.2.2. Rural road rehabilitation

CARE has engineers who are committed and talented and who have provided important input into its rural roads design, rehabilitation and maintenance activities. Environmental mitigation recommendations set forth in the CARE IEE, however, did not appear to have been implemented fully to date in the field. The MTE Team thinks the main reason mitigation measures are not consistently implemented is due to a lack of time availability due to the extremely ambitious objectives of the CARE program. Either time availability or training has been an obstacle to CARE road rehabilitation efforts. Use of best practice manuals was not observed during the field visits, and the road segments visited did not consistently incorporate appropriate environmental mitigation measures. It is recommended that CARE reduce its DAP coverage area for road rehabilitation, and if possible, organize additional training in environmental mitigation measures for its own and colleague CS personnel, all of whom would benefit from such skills building. It would be even more beneficial if CARE and the other CSs could invite appropriate ministry, municipal and private sector professionals to participate in such a capacity building process. It is also recommended that CARE contract a civil engineer specialized in the subject to provide complementary support. It should be noted that CARE staff participating in the field visit had reached the same conclusions as the external MTE Team in the vast majority of cases, a tribute to the capacity of the CARE DAP team.

The MTE Team visited several quarries where gravel for road rehabilitation is extracted. It was observed in these few sample sites that extraction plans did not always follow mitigation measure best practice. Even though relatively minor amounts of material were extracted, it is recommended that all CSs develop a strategy for site restoration, something not currently being done in the sites visited, but easily remedied with minor investment.

7.3.2.3. Micro-irrigation, water harvesting and on-farm soil and water management

The designs for CARE irrigation projects do not always include a full range of environmental mitigation measures. Technical personnel in the field showed their knowledge and environmental concern through many verbal recommendations, but corresponding tangible

actions were not observed by the MTE Team. This again is likely a result of too ambitious a DAP plan, and should be addressed. To their credit, and as with the road rehabilitation activities, CARE field staff and managers alike identified many of the best practice limitations viewed by the MTE Team external members. Based on the CARE debriefing in Sucre, CARE had already made plans to reduce their area of coverage and improve their program implementation even before the MTE was completed.

In the communities with potable water systems, the sources of water are adequately and appropriately protected. One CARE site was even considered an ideal model and should be followed by other CSs.

7.3.2.4. Post-harvest infrastructure

CARE is reportedly not using any pesticides for the storage of grains or agricultural products. Therefore, the recommendations in the IEE in this area are being adequately met.

7.3.2.5. Production of nutritious and cash crops

CARE is promoting the most appropriate soil conservation techniques possible for each site. Dead barriers made of stone and chaff, live barriers, terraces, and infiltration ditches were observed in the majority of communities visited during the MTE. DAP participants have received previous training on integrated pest management for their crops. With these activities, CARE is meeting the IEE recommendations for this area.

7.3.2.6. Construction of potable water systems

CARE is utilizing best practice water systems manuals as recommended in the IEE. However, the concept of protection and management of river basins for potable water systems does not appear to be applied systematically. This limits activities to the protection of the water source, which constitutes a significant advance and an environmentally sound effort, but falls short of river basin management best practice.

More emphasis should be placed on the IEE recommendations for the implementation of erosion control measures. As recommended in the IEE, environmental mitigation measures should be an integral part of projects and not be postponed until project construction has been completed. In two separate site visits, it was evident that CARE, as with many other CS sites visited, often does not begin implementation of mitigation measures until very late in the construction process.

7.3.2.7. Construction of latrines

CARE has gone beyond the standards and approved norms in latrine construction. The designs and implementation strategies observed were very high quality and cutting edge. Training of participants in proper latrine use and maintenance was also considered very high quality. Best practice mitigation measures were also observed at construction sites and water and soil protection measures were observed at the latrines constructed by CARE in local communities.

7.3.3. FHI

7.3.3.1. Rural road improvement

FHI has one of the most thorough and rigorously applied IEEs in terms of environmental mitigation measures and recommendations. The majority of the IEE recommendations proposed for road rehabilitation are being met in projects within the national park, Toro Toro. However, the application of these measures decreases considerably outside this protected area. FHI effectively utilizes checklists, matrices and other management tools developed by its environmental team for the planning and evaluation of project implementation.

FHI should redouble efforts to implement the IEE recommendations on effectively channeling water at road rehabilitation sites and should develop guidelines for implementing environmental mitigation measures in gravel quarries.

7.3.3.2. Irrigation systems

FHI is complying with the majority of IEE recommendations regarding irrigation systems. Environmental implications are taken into account in the design and construction phases, communities are consulted during the project cycle, and systems are often built on preexisting (but less efficient) systems. An exception was found in the Tomoyo system which, although quite extensive and, apparently, well designed, did not benefit from the implementation of a pre-construction IEE. As a result, potential problems may be occurring from unexpected over-salinization of farmland or down-stream effects from contaminants, such as agrochemicals and human waste.

7.3.3.3. Greenhouses

FHI is appropriately complying with each of the IEE recommendations for the construction of greenhouses. In particular, FHI is effectively promoting wise use and protection of water to avoid the depletion and contamination of water resources.

7.3.3.4. Storage silos

In this area, FHI is meeting all of the environmental measures contained in the IEE. Moreover, because of the small-scale and well-focused activities, the technical teams in charge easily manage the supervision and environmental evaluations.

7.3.3.5. Processing centers for agricultural products

FHI should be prepared to ensure that processing centers planned for FY 2006 meet all Reg. 216 and Bolivian Environmental Law 1333 requirements. Given the challenging task of completing *fichas ambientales* and securing their approval, FHI should anticipate the potential difficulty it may encounter in meeting required regulations for the proposed processing centers.

7.3.3.6. Livestock shelters and drinking troughs

Even though FHI is complying with the environmental measures related to the construction of these small infrastructure, there are many deficiencies in regards to utilization by DAP participants. Internal sanitation and environmental contamination from animal excrement is quite common and a problem that must be dealt with by the CSs.

7.3.3.7. Construction of staff housing

FHI has complied with all of the environmental mitigation measures for staff housing recommended in the IEE.

7.3.3.8. Land reclamation and conservation projects

FHI has extensive experience in this area and is complying with the majority of IEE recommendations, especially in the area related to previous hydrological studies in rivers and the appropriate use of recovered soil.

However, FHI needs to put more emphasis on complying with the environmental measures related to the determination of soil fertility and the training of DAP participants in integrated pest management. In some cases, such as in the outskirts of Capinota, the indiscriminate use of pesticides in recovered lands close to the rivers was observed.

7.3.3.9. Integrated health program water and sanitation

FHI has been implementing a Water and Sanitation component since 1993. Based on the few sites visited, FHI has been successful in securing high levels of community participation and in the execution of the environmental mitigation measures recommended in the IEE.

7.3.3.10. Sustainable rangeland management

FHI has completed these activities applying the respective environmental mitigation measures recommended in the IEE. The one exception to this is that FHI has not been able to fully implement the recommendation about monitoring. Next step measures should include the growing of endemic plant species to help ensure ecological equilibrium and to avoid possible invasions of exotic species.

7.3.3.11. Sustainable forest management

FHI has not complied with the majority of forest management measures recommended in the IEE. For example, soil analyses to determine the appropriate forest species, the elaboration of forest management plans, the implementation of agro-forestry programs, and the monitoring of plant and tree growth to avoid ecological disequilibria have not been completed.

7.3.4. Save the Children

7.3.4.1. Agriculture and market activities

SAVE does not appear to be implementing certain key IEE recommendations in its agricultural and market activities. For example, some agricultural projects are taking place in areas with slopes greater than 45°, recommendations for environmental monitoring of road maintenance are not always being followed; environmental mitigation activities for road segments of five kilometers in length are not consistently occurring, and work is not always being done using technical best practice for river basin management. Again, it should be noted and applauded that SAVE quickly identified these obstacles along with the MTE Team and immediately took steps to correct most shortcomings.

7.3.4.2. Maternal and child health and nutrition

In latrine building projects, most environmental recommendations are adequately being followed. One exception, however, is the construction of potable water systems, where the recommendations are not being followed consistently. Erosion control during construction, micro-river basin protection training for staff and appropriate protection of run-off areas in water sources are not being implemented in all cases.

7.3.4.3. Enhance local capacity to manage natural resources

Many of the IEE recommendations in the area of natural resource management are being met effectively. Some exceptions were observed in the design and placement of soil conservation structures, i.e., terraces and stone barriers, which were constructed on excessively steep, irregular or low priority, low productivity sites. Technical deficiencies were found in some nurseries including poor use of shade, inappropriate watering practices and insufficient plant-hardening procedures. Lastly, it was observed that waste collection and management was inadequate in Viloco. As recommended in the IEE, quality control should play a larger role in project implementation.

8. STRENGTHS AND WEAKNESSES OF THE FOUR TITLE II PROGRAMS

This section of the report is devoted to a review of the strengths and weaknesses of each of the four CSs by program component. The section is somewhat detailed in an attempt to be responsive to the CSs expressed needs for information that was specific to their programs and detailed enough to use to help them improve the management and impact of their programs. Readers need to remember, however, that the team was only able to spend a few days visiting each CS program area and that these observations, by necessity, are based on a very small sample of all the possible sites that could have been visited and people that could have been interviewed. Some of the details also are necessary to help the CSs and other readers better understand the nature of and reasons for some of the Team's recommendations.

8.1. ADRA

ADRA has made great strides under this new DAP significantly improving the technical quality and impact of its Title II program. Compared to its last DAP, this program is much more focused both technically and geographically. The MCH/N, IG and NRM programs are all well designed and have strong technical staff at the helm and in the field. The quality of this program was a surprise to the evaluation team, and is a good example of how the principles of "focus and concentrate" coupled with sound technical design and effective leadership can produce a measurable improvement in results.

Box 2: ADRA – Strengths and Weaknesses

Maternal and Child Health and Nutrition	
Strengths	Weaknesses
• Technically ADRA has a very strong team with a very strong nutrition component. • The team is very open to analyzing and adjusting its program and implementing innovative initiatives (e.g. Healthy Communities program, support groups, early childhood stimulation, the emergency evacuation program, and pilot AFI (Asistentes de Fortalecimiento Institucional) program. • The program has very good support materials for health promoters and community-level participants, such as the CCPF Executive Committee. • ADRA collaborates well with technical partners, for example, Socios para el Desarrollo, local and national level MOH, and PROCOSI.[24] • ADRA also works effectively with local stakeholders who demonstrated good knowledge and appreciation for the program and who also developed initiatives for improving program effectiveness (for example,	• The project does not have a clear behavior change and communication (BCC) strategy. This is especially necessary for application in the areas of nutrition and hygiene. • Health promoters lack skills in counseling and negotiation for behavior change, especially with regard to improving the quality of children's diets and hygiene behavior. • The project could make better use of qualitative methods, such as positive deviance inquiry, to better understand local behaviors that support improvements in nutritional status. • Health promoters in some areas lack an understanding of acute vs chronic malnutrition, confusing the terms when citing malnutrition rates. Promoters also incorrectly recorded nutritional information on the child growth card. • Project staff and health promoters do not

[24] PROCOSI (Programa de Coordinación en Salud Integral) is a non-profit network of 24 Bolivian and international organizations that has been working in a coordinated fashion since 1988 to improve the health of families in Bolivia.

the Comite de Desarrollo de Comunidades Saludables in Villa Charcas, Incahuasi)	provide sufficient attention to children who are not gaining weight or losing weight (regardless of their nutritional status). These children also need to be targeted for follow-up to prevent growth faltering in its early stages. • The sustainability of the AFI program is questionable. • Staff fail to provide support to communities between the development of their operational plans and the targeted date for project completion.
Water and Sanitation	
Strengths	Weaknesses
• ADRA has clearly identified problems and needs within the target population. • ADRA staff have strong technical abilities and extensive experience. • The project staff have excellent negotiation skills with local communities. • Staff also are able to mobilize communities to ensure their participation.	• ADRA's criteria for system design are not standardized. • Service fees are too low to ensure sustainability. • Responsibilities for supervision and inspection are not clearly defined.
Income Generation	
Strengths	Weaknesses
• ADRA's program is demand driven, with market potentials and needs driving the agricultural technology transfer program. • Considerable emphasis has been placed on identifying potential buyers and facilitating market links, including early on, which resulted in product sales and income increases even during the first year. • The program is focused both geographically and on products with strong market demand. • The technology transfer program is strong, with good training materials, and considerable emphasis given to post harvest technology transfer. • The technical staff is strong with marketing as well as agricultural production expertise. • ADRA has identified and makes effective use of strategic partners to support its IG program.	• The main concern is that ADRA still has to demonstrate that the agricultural service centers (ACSs) that it created under this DAP can be transformed into commercial enterprises.
Natural Resource Management	
Strengths	Weaknesses
• ADRA's program benefits greatly from close coordination of actions with locally developed POPs (Planes de Ordenamiento Predial). • NRM and particularly reforestation targets have been met or surpassed in nearly all communities. • Area enclosures appeared to be effectively managed and have significant spin-off potential.	• ADRA has not fully implemented a watershed management approach to planning. • Community participants do not appear to have consistently assimilated project technical skills. • The NRM component has not fully coordinated activities with other DAP components.

• Effective development of environmental education activities at the community level in a number of public schools. • ADRA has enjoyed significant success in the promotion of best management technologies such as infiltration ditches, terraces, reforestation and live/dead barriers.	
Environmental Regulations	
Strengths	Weaknesses
• The DAP IEE was well designed and written.	• Certain road construction activities lacked adequate environmental consideration measures. • Compliance with Bolivian environmental laws was not fully met (*fichas ambientales* were not completed for all required projects).

8.2. CARE

CARE has accomplished a lot under its Title II program, which began in 1999. CARE Bolivia has considerable depth and strengths as an organization, however, its current program is too ambitious relative to the human and financial resources available under the DAP. This is a reality that CARE management and technical staff have begun to recognize and deal with. At this point in time, halfway through the current DAP, CARE needs to rethink its priorities and think more strategically, refocusing its programs more geographically and technically on activities that have a higher probability of making significant contributions to its key objectives.

Box 3: CARE – Strengths and Weaknesses

Maternal and Child Health and Nutrition	
Strengths	Weaknesses
• CARE has good collaboration with Socios para el Desarrollo, which is very important given that there is no nutritionist on the CARE staff. • CARE pays good attention to improving the quality of children's diets through the use of simple to make high energy and protein recipes (for example, the *chapu reforzado*). • CARE's women's groups appear to be very well organized and the women empowered to participate.	• Project staff and health promoters do not provide sufficient attention to children who are not gaining weight or losing weight (regardless of their nutritional status). These children also need to be targeted for follow-up to prevent growth faltering in its early stages. • The project does not have a clear behavior change and communication (BCC) strategy. This is especially necessary for application in the areas of nutrition, care seeking and hygiene. • Health promoters lack skills in counseling and negotiation for behavior change. • The community-level CAIs are not being implemented in many communities. • Community capacity to use WARMI for effective planning is weak in some areas. • The project's length boards are of poor quality.

	• The project does not adjust for the fact they are using a height-based reference to calculate Z-scores for children whose length has been measured. • Health promoters and MOH staff have poor weighing techniques for growth monitoring and make frequent errors in filling out child health cards. • Women did not clearly understand the appropriate methods for solar water disinfection. • It is unclear if the monthly summary data forms used by the project will be sustainable. • Staff and health promoters lack adequate supervision and support. Promoters especially require assistance with filling out the monthly summary data form and planning home visits/follow-up of malnourished children. • The health component lacks strong technical leadership at the national level and roles of regional staff are not clear.
Water and Sanitation	
Strengths	Weaknesses
• CARE has very good practices and expertise in the design and construction of water and sanitation systems. • CARE's designs comply with sector norms. • CARE has innovative technologies and has successfully adapted them to local conditions. • The project appears to have realistic sustainability and exit strategies. • Staff have optimized systems without compromising their functionality. • CARE staff have ample experience in similar projects.	• CARE's W&S component does not actively complement its other project components. • Training is not applied consistently across all areas. • Service fees are too low to ensure sustainability. • CARE does not have enough infrastructure staff to adequately manage the W&S systems and other basic infrastructure that is being implemented. • Responsibilities for the supervision and inspection of infrastructure while it is under construction are not always clearly defined.
Income Generation	
Strengths	Weaknesses
• The DAP was written with the vision of a market driven program. • CARE has some capable technical staff in the field with expertise in marketing and business development as well as agricultural production.	• CARE is trying to undertake too many activities in too many places, many of which are of questionable profitability and sustainability. • Too many activities are driven by community (social) development objectives rather than by markets or business enterprise development objectives even though these latter objectives were emphasized in the DAP. • Technical staff in the field have to spend too much time on activities that are labor intensive but of questionable profitability and/or sustainability, including the development of escuelas de campo and community funds. • Food for work is being used on individual plots,

	a practice that is contrary to CARE policy and is not generally advisable because it can distort farmers' incentives. • The IG program lacks strong technical leadership at the national level and the roles of regional staff are not clear.
Natural Resource Management	
Strengths	Weaknesses
• The program appears to be implementing a strategic mix of soil and water conservation, reforestation, and private nurseries activities. • Strong, positive relationships with local communities have been established. • Effective conservation activities have been implemented within Sama National Park. • Field teams have done an excellent job working with producer organizations, ensuring that they adapt soil and water conservation measures.	• Lack of consistent coordination between NRM and other DAP components. • NRM monitoring targets are too ambitious to be met by existing personnel. • The program geographic focus is too broad given existing resource levels. • The program lacks a coherent watershed management strategy. • Field teams have been unsuccessful in placing extensive areas of micro watersheds under "appropriate management."
Environmental Regulations	
Strengths	Weaknesses
• IEE was carried out effectively overall. • CARE engages community groups in discussions on environmental impacts of community actions and DAP programs.	• Inadequate incorporation of mitigation measures during early phases of project implementation. • Potable water system tanks utilized inadequate doors and lids in some field sites. • DAP only partially in compliance with Bolivian environmental laws (fichas ambientales not consistently implemented). • Some road rehabilitation designs observed did not include adequate drainage and culverts.

8.3. FHI

FHI continues its tradition of having a strong technical program, backed with experienced and capable staff in the field. FHI has gained a reputation for its commitment to technical innovation and a willingness and ability to learn from past experiences. Since the initiation of this DAP, FHI also has taken steps to rationalize its management, shedding certain non-essential functions and decentralizing others to the field. FHI also has added a new dimension to its programs under this current DAP, working with communities to help them develop a broader vision of their long-term goals, one that goes beyond just technical objectives.

Box 4: FHI – Strengths and Weaknesses

Maternal and Child Health and Nutrition	
Strengths	Weaknesses
• FHI has a very dedicated, technically strong staff.	• Project staff and health promoters do not provide

• FHI is willing to implement innovative strategies to meet community needs, such as the Chagas project, Positive Deviance Inquiry/Hearth, the use of palm pilots for the M&E system, the Estrategas community development scheme, and FHI staff (CHPs) residing within project communities. • FHI seems to have a good collaboration with the MOH, especially in areas with prior DAP activities, and some of these areas appear ready to hand over to the MOH. • The Chagas project appears to be functioning well and possibilities for replication could be pursued following a more in-depth evaluation, since this MTE was only able to spend one-day in the Chagas program area. • The MCH/N M&E system provides timely data presented in graphic form that is easy for field teams to understand and analyze, and data is used to make decisions at the local field level.	sufficient attention to children who are not gaining weight or losing weight (regardless of their nutritional status). These children also need to be targeted for follow-up to prevent growth faltering in its early stages. • Field staff and health promoter knowledge about and attention to micronutrient malnutrition is weak, especially iron deficiency. • The project does not have a clear behavior change and communication (BCC) strategy. This is especially necessary for application in the areas of nutrition and hygiene. • The community-level CAIs are weak and not all health promoters and community leaders appear to have the full range of training and skills to adequately collect, present, and analyze community health data and facilitate community decision making based on the data. • The MOH is too weak in its nutrition knowledge and capacity to implement programs to improve nutritional status in its operating area. • In some areas, CHP and health promoter knowledge is poor regarding optimal use of local foods to improve child nutrition, practical ways to improve the quality of children's diets, as well as in-depth knowledge regarding breastfeeding and complementary feeding that is needed to help identify and overcome barriers to behavior change in nutrition. • There are few health and nutrition messages developed for family members other than women. • The DILOS are not functioning well and this situation needs to be analyzed and resolved.
Water and Sanitation	
Strengths	Weaknesses
• FHI's technological solutions are appropriate and complement health, hygiene and family needs. • Having field technicians participate in health and sanitation activities contributes to improving integrated health and hygiene habits. • Final project designs are consistent with the norms and regulations for water systems as stipulated by the VMSB. • FHI designs and builds all its own infrastructure projects, which ensures a high level of quality and allows the organization to learn from its mistakes. NOTE: This and the following two strengths apply to all FHI's infrastructure activities. • FHI technical staff are skilled and sufficient enough in numbers to develop, build and supervise all its various infrastructure activities, including its roads and irrigation and water and sanitation systems.	• Insufficient time and attention is being paid to activities needed to insure sustainability of its water and sanitation systems. • Few training manuals describing CAPYS function were observed, and those that were seen were not well understood by the CAPYS president and committee members. The literacy level required to use these manuals is too high and the figures do not logically coincide with or support the content of the text. • Water engineers used an incorrect method to calculate the diameter of the pipes for distribution networks with fewer than 30 standpipes. • There were cases of inappropriate use of alternate absorption pits in the pour-flush latrines.

• FHI possesses the topographical and informatics equipment necessary to conduct its own studies. Modern software also is available to the design team.	
Income Generation	
Strengths	Weaknesses
• Agricultural technology transfer program is strong technically. • Capable technical staff in the field as well as at headquarters. (Also see discussion under previous section on water and sanitation) • Strong analytical capacity, including ability to conduct and make use of cost benefit analyses. • The ability to assess and learn from experience. • The strategy, which FHI has developed, which starts with investments in increasing farmers access to water through irrigation and land reclamation projects and is followed up with transfers of improved agricultural production technologies.	• Program could be more demand/market driven. • Farmer clients need more assistance with post harvest technologies including those related to enhancing the value of clients' products in markets. • Insufficient marketing expertise on staff. • Insufficient attention paid to taking advantage of expertise and resources available from other organizations/programs such as MAPA and the FDTAs. • Insufficient time and attention is being paid to activities needed to insure sustainability of its irrigation systems.
Natural Resource Management	
Strengths	Weaknesses
• There is excellent communication and coordination within the organization and among participant communities. • The program has strong relationships and coordinates activities well with local participants. • There is great respect for the environment within the FHI organizational culture. • There appears to be a good gender balance within the NRM activities. • Program staff effectively apply lessons learned to new NRM activities. • Environmental education activities at the community level in a number of public schools are being carried out effectively on a limited scale.	• There is a marked lack of coordination between the IG and infrastructure activities. • The placing of terraces is not always consistent with best practice.
Environmental Regulations	
Strengths	Weaknesses
• Excellent focus of staff on environmental analysis and Reg. 216 compliance (i.e. well done). • FHI has developed excellent managerial tools to help document and control environmental mitigation measures. • A satisfactory program of environmental training has been implemented.	• Many projects still require approval of *fichas ambientales* to comply with Bolivian environmental regulations. • A mechanism to summarize field data collection instruments is needed to facilitate a high level of decision-making.

8.4. Save the Children

This is SAVE Bolivia's (SAVE's) first Title II program in Bolivia and to its credit SAVE was able to get a lot of activities underway quickly and to develop close working relationships with its target communities. Like many new programs, however, SAVE tried to do too much in too many places. Now is the time for consolidation. SAVE needs to reassess what it has accomplished in the first half of its DAP and begin quickly to focus its program more geographically and programmatically on those activities and interventions that seem to be most effective and with the highest potential. To its credit, SAVE senior management reacted quickly and decisively to the results of the MTE, taking action immediately to replace several key technical staff and consolidate programming. SAVE has made the decision to withdraw from the Province of Inquisivi, limit its selection of infrastructure projects, shift to a greater market focus, improve its health and nutrition interventions and focus its NRM activities.

Box 5: SAVE – Strengths and Weaknesses

Maternal and Child Health and Nutrition	
Strengths	Weaknesses
• The project has made good progress in a short period of time in participant knowledge and some behaviors, such as immunization and management and care of children's diarrheal episodes. • The project appears to have a good network of health promoters and family centers. • Project participants were positive about the possibility of sustainable health improvements in areas where family incomes had improved.	• Project staff and health promoters do not provide sufficient attention to children who are not gaining weight or losing weight (regardless of their nutritional status). These children also need to be targeted for follow-up to prevent growth faltering in its early stages. • The project does not have a clear behavior change and communication (BCC) strategy. This is especially necessary for application in the areas of nutrition and hygiene. • Health promoters lack skills in counseling and negotiation for behavior change, especially with regard to improving quality of children's diets and hygiene behavior. • The project could make better use of qualitative methods, such as positive deviance inquiry, to better understand local behaviors that support improvements in nutritional status. • SAVE technicians and health promoters need more frequent and systematic supervision. • SAVE's technicians are overextended and they lack time to adequately supervise health promoters.[25] • Staff and promoters lack depth of knowledge regarding breastfeeding, complementary feeding and micronutrients. • The project lacks a standard protocol for following up on malnourished children. • SECI and the community level CAIs have not been implemented in many communities.

[25] Note that this situation was acknowledged by SAVE and workloads have since been adjusted.

	• There is lack of ownership of the project by major stakeholders, such as the municipality, MOH and communities. • It is not clear that SAVE's M&E data is being effectively used for decision making at the field level.
Water and Sanitation	
Strengths	Weaknesses
• SAVE is building bathrooms with a toilet, electric-shower and hand-sink (including a laundry sink); SAVE is working with a higher cost/benefit ratio than they would if they implemented pour-flush latrines. The field observations from Cotapampa and Teneria indicate that the benefits being obtained in these communities is significant, suggesting that the higher investment costs in these sanitation facilities is justified.	• Because SAVE is trying to cover such a broad geographical area, its technicians have insufficient time to supervise the construction of its infrastructure and to train beneficiaries in how to operate and maintain the systems.[26] • Projects designs are not completed in a timely fashion and are not of high quality because SAVE relies too heavily on municipal designs, annual operation plans and schedules for disbursements of funds.[24] • Insufficient time and attention is being paid to activities needed to insure sustainability of its W&S systems. • SAVE does not have sufficient literature covering the operation and maintenance of these systems and what literature is available is not at a literacy level appropriate for community participants. This also jeopardizes the sustainability of the infrastructure. • The latrines built in Churillanga and Piquiñani have the potential to produce ground-water contamination, the latrine slabs are poorly designed, with lack of a slant or oval hole to facilitate deposition of urine, and the structure of the latrine is poorly designed with a window that does not allow for appropriate air circulation through the ventilation pipe. • There were cases of inappropriate use of alternate absorption pits in the pour-flush latrines. • The water systems lack an additional patent union (union universal) in the valve chamber to permit disassembly of accessories in order to conduct corrective maintenance. • Monthly fee schedules are not consistently applied in all water systems.
Income Generation	
Strengths	Weaknesses
NOTE: In response to problems identified during the	• The program lacks a market focus, i.e. it is not

[26] SAVE has decreased its operational area and hired staff to assure project quality, standards and selection in response to MTE findings.

MTE, SAVE senior management have taken a number of key steps, including: • Hiring a new DAP manager with experience in business management and marketing, • Hiring a marketing specialist with hands on experience, who has already taken steps to give the program a stronger demand focus, including helping arrange a futures contract for the sale of haba beans. • Concluding an agreement with the FDTA Valles to facilitate access to its expertise in marketing and post harvest technologies.	demand driven. • SAVE is trying to undertake too many different types of activities in too many places. • The marketing program is weak with too much time spent on organizing farmers and not enough attention paid to market analyses and facilitating market linkages. • The small family infrastructure being constructed is of variable quality, is unlikely to be cost effective for farmers even though subsidized with food for work, and its sustainability is highly questionable. • Food for work was being used in the field to encourage the adoption of new technologies by individuals and on individual plots, a practice that is contrary to SAVE policy and is not generally advisable because it can distort farmers' incentives. • SAVE lacks the necessary capacity to assess the economic benefits and viability of its projects.
Natural Resource Management	
Strengths	Weaknesses
• There appears to be strong community participation in all reforestation efforts. • Constructive relationships exist between the institution and local municipalities. • SAVE was able to respond rapidly to MTE NRM recommendations. • Soil conservation measures have been adopted in many communities as a result of SAVE efforts.	• Exit or graduation strategies were not observed for watershed management activities and/or use of food incentives. • Coordination between the NRM, MCH/N and IG components should be strengthened. • The broad geographic spread of projects reduces the effectiveness of activities. • There is a lack of strong NRM leadership within the organization. • A deficiency of technical support literature hinders the success of some activities.
Environmental Regulations	
Strengths	Weaknesses
• IEE development was taken seriously although improvements are still needed. • Reforestation activities have been carried out very effectively.	• Incorrect procedures were followed when submitting the Bolivian government *fichas ambientales.* • Little consideration appears to be given to environmental guidelines when new projects are designed and implemented.

9. RECOMMENDATIONS

With respect to the Title II program as a whole, the MTE Team was impressed with how far the Bolivian Title program has come since 1995 when USAID began to focus the Title II program on the objective of reducing food insecurity in the developing world. The current programs are more focused on the food insecure, their technical quality is much higher, and their staff, who are still as dedicated, now also have much more technical knowledge and experience to offer.

The Team also was impressed with the high quality of many of the activities being undertaken in the individual CSs programs and with the progress that is being made by the four CSs in terms of impact. Many of their activities are having a measurable and in some cases substantial impact on the lives of the people in their program areas. The implementation of activities is uneven, however, by CS and by program component, with some activities an integrated part of a coherent strategy and/or meeting high technical standards and others needing to be strengthened and some rethought and even phased out.

9.1. By Program Area

Some of the recommendations that the MTE Team is making are common to most or all of the CSs. These are discussed below by program component. All of the CSs' programs would benefit from better integration among program components within the individual CSs and from more collaboration among the CSs.

9.1.1. Maternal and Child Health and Nutrition (MCH/N)

The CSs have made good progress incorporating community-level integrated management of childhood illness (C-IMCI) into their MCH/N programs and have strengthened community health promoter capacity in this area. In addition, women in project areas generally had very good general health, nutrition and hygiene knowledge and have made good use of MCH/N food rations. However, the CSs can strengthen community-level growth monitoring by placing more focus on growth promotion, since the sole concentration on recuperation of malnourished children results in lost opportunities to catch and correct child growth faltering early in its development. The programs should also develop clearly defined and implemented behavior change and communication (BCC) strategies, especially in the areas of nutrition and hygiene. CSs should make better use of qualitative methods to understand participant behaviors and formulate BCC strategies in order to have a greater impact on behavior. ADRA has done a good job of incorporating early childhood stimulation into its program, and all CSs should strategically include this activity. Although the programs appear to have similar monitoring and evaluation indicators, their definition and calculation is not completely harmonized across all CSs, making comparisons of progress difficult. Future DAP programs should focus on harmonizing both indicator definition and calculation in the early stages of program development. In addition, all CSs should have standardized equipment and procedures for gathering and analyzing anthropometric data given the critical importance of the anthropometric indicators. CSs should also work together to develop a basic standard protocol to follow when addressing the needs of malnourished children.

9.1.2. Income Generation (IG)

The CSs have made progress in adding a marketing dimension to their IG programs and have some successes to show for it. ADRA, in particular, stands out as having developed a true market or demand driven program. The programs of the other three CSs vary, with some further along on certain dimensions of their marketing efforts than others. All three need to give more attention to disseminating post harvest technologies and practices to their clients to help them increase the value of their products in higher valued markets, however, and all three need to devote more attention to facilitating market linkages. All three also need to strengthen their in-house marketing expertise and their links with other organizations with marketing expertise, including the Bolivia Mission's Marketing and Poverty Alleviation Project (MAPA) and the Bolivian Foundations for the Development of Agricultural Technologies (FDTAs). All four CSs should also continue to give priority to activities that help increase producers access to water for agricultural purposes. Lack of access to water is a major constraint and helping to relax this constraint opens up many more opportunities for the CSs and their client communities. Because the water supplies are so limited in the areas of the country where the CSs are operating, they need to give more emphasis in their programs to improving water utilization and to protecting water sources. To achieve this latter objective, the CSs will have to improve the collaboration between their IG and NRM programs and give higher priority to working in watersheds that affect the supplies of water that are available to their communities, both for irrigation and human use.

9.1.3. Natural Resource Management (NRM)

Through the course of the MTE, the Team became convinced that CS efforts in NRM activities have made a substantial improvement to ecosystems and livelihoods of many DAP program participants. Soil conservation activities have made farmlands more productive and water conservation interventions have increased moisture content and carrying capacity of the land. Reforestation efforts have increased soil stabilization, created new arable land and increased woodlots and biomass to help families cope with household energy needs. Community organizations also have been strengthened and have increased resources in a sustainable manner through both household and community-level NRM activities and long-term planning. To improve their NRM programs further, all four CSs would benefit from improving coordination between NRM programs and their MCH/N and IG counterpart components. In addition, CSs should more thoroughly incorporate environmental planning and mitigation measures into project designs, implementation strategies and monitoring and evaluation systems. To increase impact, the CSs should also strengthen or adopt watershed management strategies in each of the priority program areas, and concentrate efforts in contiguous geographic areas as much as possible. Exit strategies should be oriented to focus on results rather then time spent in communities. Agro-forestry strategies should complement soil and water conservation activities and be incorporated into on-farm and municipal development plans. ADRA, CARE and SAVE would benefit from the creation of stand alone environmental units, such as FHI has successfully piloted. Environmental guidelines should also be developed (or adopted) for all activities and all four CSs should work together to ensure that the guidelines they develop are in accord with Bolivian laws and USAID regulations.

9.2. For the Four Cooperating Sponsors

This section includes the MTE Team's detailed recommendations for each of the four CSs by program component.

9.2.1. ADRA

Box 6: ADRA Recommendations

Maternal and Child Health and Nutrition
• ADRA should document and share its experience with the mothers' "support groups". • ADRA should document its experience with the AFI, and if deemed appropriate, advocate for AFI inclusion in the MOH cadre. • ADRA needs to develop a clear behavior change and communication (BCC) strategy. The strategy should incorporate, for example, identification of the target population, a BCC assessment, definition of BCC objectives, identification of BCC themes and channels for information, and M&E for the strategy. This is especially important with regard to behaviors in child nutrition and family hygiene. ADRA should also become more familiar with tools and approaches for behavior change and share these with project staff and volunteers. Special consideration should be given to strengthening health promoter counseling and negotiation skills and the use of positive deviance inquiry. • The project should provide health promoters with refresher training in nutritional anthropometry, including comprehension of commonly used terms and correct use of the child health card. • In addition to rehabilitation of moderately (and mildly) malnourished children, the project should also focus on immediate reversal of weight loss or inadequate weight gain among children in any category of nutritional status in order to have a true "growth promotion" program with optimal results. • ADRA staff need to provide better follow up and support to communities after the development of their operational plans to assist them to identify project milestones and take steps to reach their goals.
Water and Sanitation
• To verify per capita water use data (indicator #2 in the monitoring and evaluation system), ADRA should install volume flow indicators at the exit flow point of project water tanks. • ADRA should consider adopting non-traditional technologies, specifically the use of ferro cement techniques. • ADRA should improve the interactions between its W&S and NRM staffs to ensure environmental issues are being adequately addressed in the W&S component of the project. • Training and follow-up for the CAPYS must be consistent and standardized in order to assure proper administration, operation and maintenance of systems. • Since cost efficiency is highly variable from one system to another, ADRA should adopt uniform standards for construction based on population figures to ensure systems are not oversized. • ADRA should review its fee structure to make it consistent across projects. • ADRA should clarify the roles of staff members to ensure adequate supervision and inspection of its W&S infrastructure.
Income Generation
ADRA should implement its current plans to: • Concentrate during the remaining two and one half years of its DAP on strengthening the organization and management capacity of its agricultural service centers (ASCs) and helping them transform themselves into business enterprises. • Keep its marketing technicians assigned to the ASCs during the remainder of the DAP. • Complete the transfer of the production and marketing technology for its focus crops.

- Explore various options for increasing the access of its client farmers to credit, including access to supplier credit.

Natural Resource Management

- NRM decision-makers should coordinate more fully with the MCH/N and IG components and assist with the design and incorporation of appropriate environmental mitigation measures.
- ADRA should promote the incorporation of agroforestry activities in on-farm and municipal development plans.
- NRM project goals should be tailored to community specific problems such as salinization prevention, water conservation, windbreaks and erosion.
- Staff skills should be strengthened particularly in the areas of soil conservation and agroforestry.
- Project activities should be concentrated in contiguous geographic areas as much as possible to increase focus and impact.
- Clarify and strengthen organizational policy about how and where to use food for work.
- Develop a mechanism to permit payment of area enclosure guards by the communities directly rather than through food for work (FFW).
- Establish relevant operation guidelines for each programmatic area (reforestation, soil/water conservation, infrastructure development, etc.) to promote efficiency, quality control and accountability.
- Establish a capacity building plan with each municipality involved in DAP development.
- Ensure incorporation of environmental monitoring indicators into existing DAP M&E systems.
- Increase functional collaboration with other cooperating sponsors, including cross visits, joint training exercises, materials development and strategic planning.

*Environmental Regulations**

ADRA should:

- Create an independent environmental team to assist in compliance and internal auditing.
- Coordinate with other Title II NGOs to develop a simplified mechanism to fulfill Bolivian legal requirements (*fichas ambientales*). One recommendation is to contract one or more external experts to carry out multiple *fichas* at reduced costs.
- Develop and utilize simple management tools to help implement the environmental mitigation measures identified in the last IEE.
- Create an environmental monitoring system that generates timely feedback on compliance with environmental best practice within the DAP. This system should form part of an organization-wide M&E unit, which should have significant input and oversight from the environment and/or NRM teams.
- Develop an environmental management plan for the second part of the DAP.
- As part of this environmental management plan, environmental guidelines should be elaborated to foment successful projects in the following areas:
  - Road maintenance
  - Use of materials for the maintenance of roads (gravel), as in river banks and dry banks
  - Implementation and management of W&S systems
  - Implementation and management of irrigation systems

  These guidelines should be developed with appropriate levels of participation and contributions of the involved technical personnel and beneficiaries of these activities. Also, they should be presented to the Environmental Officer of USAID in Bolivia for approval.
- Carry out periodic evaluations in the field to verify the successful implementation of the environmental management plan. These evaluations should also measure the effectiveness of the mitigation measure results and strategies.

* Many of these recommendations are the same for all four cooperating sponsors.

9.2.2. CARE

Box 7: CARE Recommendations

Maternal and Child Health and Nutrition

- CARE should document information regarding the nutritional value of the *chapu reforzado* and experience with its use in prevention and rehabilitation of malnutrition in children.
- In addition to rehabilitation of moderately (and mildly) malnourished children, the project should also focus on immediate reversal of weight loss or inadequate weight gain among children in any category of nutritional status in order to have a true "growth promotion" program with optimal results. Also, strong consideration should be given to monthly weighing of children during vulnerable stages of development (for example < 24 months) to adequately monitor appropriate weight gain.
- CARE needs to develop a clear behavior change and communication (BCC) strategy. The strategy should incorporate, for example, identification of the target population, a BCC assessment, definition of BCC objectives, identification of BCC themes and channels for information, and M&E for the strategy. This is especially important with regard to behaviors in child nutrition, care seeking practices and family hygiene. CARE should also become more familiar with tools and approaches for behavior change and share these with project staff and volunteers. Special consideration should be given to strengthening health promoter counseling and negotiation skills.
- The project should expand community-level CAIs to all project communities.
- Community capacity to use WARMI should be strengthened, especially in Tarija.
- The project must obtain or construct length and height boards of adequate quality.
- CARE should contract an experienced professional to conduct anthropometric training, including standardization, for all relevant project and MOH staff. Training should be certain to include appropriate quality checks and filling out of growth cards. CARE and MOH data analysts should also be trained in appropriate processing and analysis of anthropometric data.
- The project should provide refresher training on SODIS for all involved staff and health promoters/community members, and include specifics on the types of containers that can be used, the recommended turbidity of the water, how to check for allowable levels of turbidity and the amount of time bottles should be left in the sun taking into consideration sunlight and turbidity levels.
- CARE should analyze the sustainability of the monthly summary data forms and if found unsustainable, work with the MOH to develop/adapt a form that will be sustainable.
- CARE should increase the frequency and quality of supervision for staff and health promoters. CARE also should consider the use of quality assurance checklists to assist staff and promoters improve their performance. Also, the ratio of communities per field staff should be decreased in order to improve staff capacity to provide more frequent monthly supervision to health promoters.
- CARE should reorganize staff responsibilities to provide stronger technical leadership for the health component at the national level and to strengthen and promote more consistency among its regional programs, including by insuring that staff duties at the regional level are clearly outlined and staff are appropriately supported to perform their duties.

Water and Sanitation

- CARE's W&S team should interact more closely with its NRM team to adequately address environmental issues.
- Training and follow-up for the CAPYS must be standardized in order to assure proper administration, operation and maintenance of systems.
- CARE should review its fee structure.
- CARE should increase the number of its infrastructure staff so that it can adequately supervise all the projects it has underway or decrease the number of projects in simultaneous execution to ensure quality. NOTE: This recommendation applies to all CARE's infrastructure activities, including roads and irrigation as well as W&S systems.
- CARE should clarify the roles of staff members to ensure adequate supervision and inspection of its W&S and other infrastructure. NOTE: This recommendation also applies to all CARE's infrastructure activities.

- Oil contamination was detected in the system in Milanes, which requires a change in the type and material used for the collection chamber covers. Note that the quantity and quality of the water source was verified.
- The application of the ferro-cement tanks in SEAS Chuquisaca must be adjusted.

Income Generation

CARE should

- Strengthen the demand driven dimension of its IG program, including by:
  - Reassessing the market demand for products that can be produced in CARE's area of intervention,
  - Reducing the number of products that CARE technical staff work with to those with the highest market potential,
  - Concentrating more on identifying and facilitating links with potential buyers, and
  - Beginning to explore various options for helping farmers makes sales at an earlier stage in CARE's involvement with a community.
- Focus on activities with stronger income earning potentials and reduce attention paid to or eliminate activities such as home gardens whose objectives are more social in nature.
- Enable its technical staff in the field to spend more time on the transfer of key production and post harvest technologies, including by reducing the amount of time they have to spend on teaching groups how to manage community funds, which, as experience elsewhere has demonstrated, have little hope of becoming sustainable.
- Make more use of demonstration plots on individual farmers' fields as a means for transferring production technologies and phase out of escuelas de campo whose communal nature makes them a more labor intensive approach to working with groups that has little chance of becoming sustainable.
- Reinforce and enforce its policy of not using food for work on individual farmers' plots.
- Take a more business-oriented approach to the delivery of animal health services, including by helping the veterinarian assistants that it has trained become micro-enterprises.
- Arrange for key CARE staff both technical and managerial to visit the ADRA IG program.
- Reorganize staff responsibilities to provide stronger technical leadership for the IG program at the national level and to strengthen and promote more consistency among the regional programs.

Natural Resource Management

- Increase coordination with the MCH/N and IG components by incorporating NRM mitigation measures in all sector designs and implementation strategies.
- Promote the incorporation of agroforestry activities in on-farm and municipal development plans.
- Increase technical staff numbers, or reduce geographic coverage, to effectively meet project needs within the area of influence. Concentrate activities in specific high priority areas.
- Implement a consistent policy about food for work. It is recommended that food for work not be used for sole benefit of individual families on private lands.
- Increase technical forestry skills of staff and ensure close coordination with income generation technicians.
- Develop and implement an effective strategy for watershed management for use in coordination with all sectoral activities.
- Apply an integrated watershed management approach for all DAP activities to increase the effectiveness of environmental and livelihood impacts.
- Apply simple cost benefit analysis to all major structural soil and water conservation activities, irrigation projects and rural road interventions.
- Establish a capacity building plan with each municipality involved in DAP development.
- Ensure incorporation of environmental monitoring indicators into existing DAP M&E systems.
- Increase functional collaboration with other cooperating sponsors, including cross visits, joint training exercises, materials development and strategic planning.

*Environmental Regulations**

- Create an independent environmental analysis and compliance team.
- Coordinate with other Title II CSs to develop a simplified mechanism to fulfill Bolivian legal requirements

(*fichas ambientales*). This will likely include contracting one or more external experts to carry out many *fichas ambientales*.

- Develop environmental mitigation plans (or *guias ambientales*) for each road maintenance, W&S and irrigation project.
- Develop and utilize simple management tools to help implement the environmental mitigation measures identified in the last IEE.
- Create an environmental monitoring system that generates timely feedback on compliance with environmental best practice within the DAP. This system should form part of an organization-wide M&E unit, which should have significant input and oversight from the environment and/or NRM team.
- Develop an environmental management Plan for the second part of the DAP.
- As part of this environmental management plan, environmental guidelines should be elaborated to foment successful projects in the following area:
  - Road maintenance
  - Use of materials for the maintenance of roads (gravel), as in river banks and dry banks
  - Implementation and management of W&S systems
  - Implementation and management of irrigation systems

  These guidelines should be developed with appropriate procedures of participation and contributions of the involved technical personnel and beneficiaries of these activities. Also, they should be presented to the Environmental Officer of USAID in Bolivia for their approval.
- Carry out periodic evaluations in the field to verify the successful implementation of the environmental management plan. These evaluations should also measure the effectiveness of the mitigation measure results and strategies.
- Include drainage control measures within construction plans in all road reconstruction and rehabilitation measures.
- In road rehabilitation projects, schedule construction work during the dry season and minimize water crossings in road location and alignment.

* Many of these recommendations are the same for all four cooperating sponsors.

9.2.3. FHI

Box 8: FHI Recommendations

Maternal and Child Health and Nutrition

- The project should clearly document and disseminate information regarding its experience with PDI/Hearth.
- The project should also document and disseminate its experience with the use of palm pilots in its monitoring and evaluation system.
- In addition to rehabilitation of moderately (and mildly) malnourished children, the project should also focus on immediate reversal of weight loss or inadequate weight gain among children in any category of nutritional status in order to have a true "growth promotion" program with optimal results. Consideration should be given to monthly weighing of children during vulnerable stages of development (for example < 24 months) to adequately monitor appropriate weight gain.
- FHI should improve staff and volunteer knowledge regarding micronutrients and promote supplementation. Staff should also raise awareness about micronutrient malnutrition among MOH and municipal officials and advocate for adequate funding for supplies. Attention should be given to vitamin A, iron and iodine, but especially to iron for women and young children 6-36 months.
- FHI needs to develop a clear behavior change and communication (BCC) strategy. The strategy should incorporate, for example, identification of the target population, a BCC assessment, definition of BCC objectives, identification of BCC themes and channels for information, and M&E for the strategy. This is especially important with regard to behaviors in child nutrition and family hygiene. FHI should also become more familiar with tools and approaches for behavior change and share these with project staff and volunteers. Special consideration should be given to strengthening health promoter counseling and

negotiation skills, and the use of barrier analysis.

- The project should train volunteer health promoters and community leaders in the collection, presentation, and analysis of community health data and the facilitation of community decision making based on the data. Special emphasis should be given to analyzing community-level barriers to change and ways to overcome barriers to change. Local MOH staff should also be trained in these methods so they are clearly understood and promoted once the project ends.
- FHI should provide in-depth training to MOH staff on nutrition topics including breastfeeding, complementary feeding, nutrition in pregnancy and lactation, micronutrient nutrition, anthropometric measurement methods, and strategies for improving nutritional impact indicators using local resources.
- The Project should provide in-depth training to CHPs and health volunteers on optimal use of local foods to improve child nutrition, practical ways to improve the quality of children's diets, and information regarding breastfeeding and complementary feeding.
- The project should analyze barriers to effective DILOS operation and advocate for changes to overcome these barriers.

Water and Sanitation

- Since MCH promoters are present in the community before, during and after the construction of W&S facilities, they should train and reinforce training in good hygiene habits and the operation and maintenance of the systems using "training by doing" methodologies.
- Field visits demonstrated inappropriate use of alternate absorption pits. The distribution chamber must deliver the wastewater to one absorption pit and then after it is full change to another. Rural promoters and field technicians should attend training courses to reinforce their technical knowledge in this area.
- FHI water system engineers must consider a different methodology to calculate the diameter of the pipes for the distribution network when there are fewer than 30 standpipes (water spigots). The engineers should review the formulas for simultaneous water distribution that can be found in norm NB-689 from the Bolivian National Regulations for Water Systems Design, downloadable from the Internet at http://www.sias.gov.bo.
- FHI should devote more time and attention to developing the capacity of its communities to operate and maintain their W&S systems (This also applies to its irrigation systems). To support this effort, FHI should develop detailed brochures for operation and/or maintenance of its infrastructure. This literature should be appropriate to the literacy level of its audience and include figures and drawings that clearly relate to and support the text.
- FHI should work more closely with teachers in its communities to strengthen hygiene behavior and environmental sanitation.
- FHI should implement ferro cement tanks for its water systems.

Income Generation

FHI should:

- Add staff with hands on marketing expertise.
- Give more emphasis and strengthen its capacity to provide its client farmers with technical assistance related to post harvest technologies including those related to increasing the acceptability of products in markets and increasing their value.
- Implement its decision to phase out of green houses and stables for large animals.
- Continue to assess the costs and benefits of its other small family infrastructure activities to determine their sustainability and potential for replication in the absence of FHI subsidies.
- Consolidate its results in Tomoyo, including by providing its clients with more technical assistance directed to improving the marketing of their products and small business enterprise development.
- Take a more business-oriented approach to the delivery of animal health services, including by helping the veterinarian assistants that it has trained become micro-enterprises.
- Take greater advantage of the expertise available in other organizations, including by looking for opportunities to collaborate more with MAPA and the FDTAs especially to gain access to their expertise in the areas of marketing and post harvest technologies.
- FHI should devote more time and attention to developing the capacity of its communities to operate and maintain their irrigation systems.

Natural Resource Management

- Increase coordination with the MCH/N and IG components to help ensure incorporation of environmental mitigation measures in all project designs and implementation plans.
- Orient exit strategies to focus on results achieved rather than the time spent in a community.
- Adopt a more comprehensive environmental management system for all projects.
- Work with local municipal leaders to identify and establish an incentive system which promotes soil and water conservation measures.
- Promote the incorporation of agroforestry activities in on-farm and municipal development plans.
- Establish a more comprehensive capacity building plan with each municipality involved in DAP development.
- Ensure incorporation of environmental monitoring indicators into existing DAP M&E systems.
- Increase functional collaboration with other cooperating sponsors, including cross visits, joint training exercises, materials development and strategic planning.
- Identify a mechanism to significantly increase scope of environmental education activities.
- Secure approval from USAID to utilize non-endemic tree species when appropriate (eucalyptus, for example, can be an appropriate species for major gully reclamation and land stabilization efforts).

*Environmental Regulations**

- Ensure that pesticide use within projects, or by project participants, complies with PERSUAP recommendations.
- Encourage integrated pest management strategies in place of pesticide use.
- Integrate environmental management best practices into more DAP activities.
- Coordinate with other Title II NGOs to develop a simplified mechanism to fulfill Bolivian legal requirements (*fichas ambientales*).
- Improve its environmental monitoring system so that it generates more timely feedback on compliance with environmental best practice within the DAP.
- Develop an environmental management plan for the second part of the DAP.
- As part of this environmental management plan, environmental guidelines should be elaborated to foment successful projects in the following areas:
  - Road maintenance
  - Use of materials for the maintenance of roads (gravel), as in river banks and dry banks
  - Implementation and management of W&S systems
  - Implementation and management of irrigation systems

  These guidelines should be developed with appropriate levels of participation and contributions of the involved technical personnel and beneficiaries of these activities. Also, they should be presented to the Environmental Officer of USAID in Bolivia for their approval.
- Carry out periodic evaluations in the field to verify the successful implementation of the environmental management plan. These evaluations should also measure the effectiveness of the mitigation measure results and strategies.

* Many of these recommendations are the same for all four cooperating sponsors.

9.2.4. Save the Children

Box 9: SAVE Recommendations

Maternal and Child Health and Nutrition

- In addition to rehabilitation of moderately (and mildly) malnourished children, the project should also focus on immediate reversal of weight loss or inadequate weight gain among children in any category of nutritional

status in order to have a true "growth promotion" program with optimal results. Preferably, children should be weighed monthly during vulnerable stages of development (for example < 24 months) to adequately monitor appropriate weight gain.

- SAVE needs to develop a clear behavior change and communication (BCC) strategy. The strategy should incorporate, for example, identification of the target population, a BCC assessment, definition of BCC objectives, identification of BCC themes and channels for information, and M&E for the strategy. This is especially important with regard to behaviors in child nutrition and family hygiene. SAVE should also become more familiar with tools and approaches for behavior change and share these with project staff and volunteers. Special consideration should be given to strengthening health promoter counseling and negotiation skills and the use of positive deviance inquiry. The role/capacity of the BCC Specialist should be supported/strengthened.
- The project should increase the frequency and quality of supervision of staff and consider the use of quality assurance checklists to assist staff and promoters to improve their performance.
- The ratio of communities per field technician should be reduced to increase staff capacity to provide necessary supervision to health promoters.[27]
- Staff and health promoters should be provided refresher training in breastfeeding, complementary feeding and micronutrient malnutrition, adding depth to their knowledge to help them better assist caretakers overcome barriers to behavior change.
- The project should develop a standard protocol for following-up on malnourished children.
- The MOH CAI and the DILOS need to be strengthened. The project should analyze barriers to their effective operation and advocate for changes to overcome these barriers. The project should also advocate for improved funding for preventive health activities at the municipal level.
- SECI and community-level CAIs should be implemented in all project communities. Staff, health promoter and MOH capacity to effectively implement SECI and CAIs to promote behavior change should be strengthened.
- There needs to be improved dialogue and effective information sharing and planning with municipalities, the MOH and communities to improve project ownership and sustainability.
- The project should ensure that monitoring and evaluation data are being effectively used to make decisions at the field level. It would be helpful if results were shared and analyzed across components to help staff better understand how the components can work more effectively together.

Water and Sanitation

- SAVE should devote more time and attention to developing the capacity of its communities to operate and maintain their W&S systems. To support this effort, SAVE should develop detailed brochures explaining the operation and maintenance of its infrastructure. This literature should be appropriate to the literacy level of its audience and include figures and drawings that clearly relate to and support the text.
- The latrines built in Churillanga and Piquiñani must be corrected to avoid ground-water contamination.
- Latrine slabs must be designed and made taking into account: (i) the urine flow to the pit or; (ii) the correct construction of a hole for direct disposition of urine.
- Technical aspects of the VIP latrine must be revised for future projects, particularly the aspects regarding appropriate air circulation.
- Field technical staff should be trained in the operation of alternating absorption pits for bathrooms.
- In future water systems, the project should consider using an additional patent union (union universal) in the valve chambers to permit disassembly of accessories in order to conduct corrective maintenance.
- SAVE should seriously consider constructing more bathrooms, choosing feasible communities (those with good water quantity, continuous electrical supply, and appropriate cultural aspects). Bathroom costs must be analyzed to adjust costs to national policies.
- SAVE should consider designing its own infrastructure projects to avoid bureaucratic and other delays in obtaining engineering designs.[28] NOTE: This recommendation applies to all of SAVE's infrastructure activities, including roads and irrigation systems as well as W&S systems.

[27] Save the Children took steps to alleviate this situation immediately following the mid-term evaluation.
[28] SAVE has begun this process in response to the results of the MTE.

- The lessons learned in the community of Cotapampa regarding good hygiene behavior and CAPYS management should be assessed, documented and shared within the project.
- SAVE should implement monthly fee schedules for every water system.
- The Cajuata wastewater treatment plant should be continuously evaluated to verify the quality of treated wastewater and its environmental impact. A sludge-drier or sludge-bed must be considered for future operation.

Income Generation

SAVE should:

- Focus its income generation programs on a more limited set of activities, including by:
  - Giving priority to activities that increase farmers' access to water, including the construction of more water reservoirs in the Altiplano and the construction/rehabilitation of irrigation systems in the valleys,
  - Seriously consider phasing out of all livestock shelter activities, including for cattle, sheep, chickens and cuy, and
  - Continuing with its silos program but only if a thorough assessment of its experience to date indicates that the investment is profitable for farmers, the program has a positive cost benefit ratio overall, and the silos are likely to be sustainable and can be replicated in the future without the SAVE subsidy.
- Recast its program to give it a demand driven focus, including by:
  - Hiring a market expert with hands-on experience,
  - Focusing less on developing producer organizations and more on identifying market opportunities and facilitating market linkages, and
  - Adding more post harvest practices that will help farmers respond to market needs and add value to their products to its agricultural technology transfer program.
- Strengthen its analytical capacity, especially its capacity to conduct and make use of cost benefit analyses.
- Reinforce and enforce its policy of not using food as an incentive to get farmers to adopt new agricultural technologies.
- Reassess the package of technologies that it is providing to fruit growers to better understand the real constraints to adoption in order to identify a set of practices that farmers will adopt because they see the economic benefits. The solution to this problem may well entail a more aggressive marketing program, which also includes the transfer of the improved post harvest technologies needed to improve market access and add value to their products.
- Provide the veterinarian technicians it has trained with the business training they need to establish themselves as micro-enterprises.

Natural Resource Management

- Ensure improved coordination with the MCH/N and IG sectors and incorporate mitigation measures into project designs and implementation.
- Develop exit strategies based on results and conditions, not a specific exit date.
- Clarify leadership roles and responsibilities within NRM team, as well as clarify NRM operational plans and strategic objectives.
- Adopt a true watershed management strategy to implement in each of the priority project areas.
- Implement agroforestry strategies that complement soil and water conservation activities.
- Incorporate NRM indicators into existing M&E systems.
- Establish relevant operational guidelines for each programmatic area to promote efficiency, quality control and accountability.
- Develop self-financing tree seedling production and distribution strategies in order to promote sustainability.
- Establish a capacity building plan with each municipality involved in DAP development.
- Ensure incorporation of environmental monitoring indicators into existing DAP M&E systems.
- Increase functional collaboration with other cooperating sponsors, including cross visits, joint training exercises, materials development and strategic planning.

*Environmental Regulations**

- Create a stand alone environmental unit.
- Implement environmental guidelines for more activities.
- Participate with other Title II NGOs to develop a simplified mechanism to fulfill Bolivian legal requirements (*fichas ambientales*), which is likely to include contracting one or more external experts to carry at many *fichas ambientales*.
- Adequately follow the environmental procedures set by Bolivian laws.
- Conduct site-specific IEEs for all irrigation, gully reclamation, road, and micro dam interventions and train relevant staff in environmental analysis.
- Develop and utilize simple management tools to help implement the environmental mitigation measures identified in the last IEE.
- Create an environmental monitoring system that generates timely feedback on compliance with environmental best practice within the DAP. This system should form part of an organization-wide Monitoring and Evaluation Unit, which would have significant input and oversight from the environment and or natural resource team.
- Save the Children needs to develop an environmental management plan for the second part of the DAP.
- As part of this environmental management plan, environmental guidelines should be elaborated to foment successful projects in the following areas:
  - Road maintenance
  - Use of materials for the maintenance of roads (gravel), as in river banks and dry banks
  - Implementation and management of W&S systems
  - Implementation and management of irrigation systems
  - Implementation and management of the water capture pond systems

  These guidelines should be developed with appropriate levels of participation and contributions of the involved technical personnel and beneficiaries of these activities. Also, they should be presented to the Environmental Officer of USAID in Bolivia for their approval.
- Carry out periodic evaluations in the field to verify the successful implementation of the environmental management plan. These evaluations should also measure the effectiveness of the mitigation measure results and strategies.

- Many of these recommendations are the same for all four cooperating sponsors.

9.3. For the Bolivia Mission

9.3.1. To Strengthen the Current Program

There are several steps that the Bolivia Mission and the Food Security Unit can take to help strengthen the Title II program and enhance program performance and impact. These include:

- **Strengthening coordination and collaboration between the Food Security Unit and other Mission technical offices, especially the Health, Economic Opportunities and Environment Offices**

The MTE Team recommends that the Food Security Unit collaborates more actively and strategically with the Health, Economic Opportunities and Environment Teams in order to share and take advantage of each other's expertise. The Mission's technical teams have a wealth of knowledge and experience internally and among their partners that should be shared and built on. Better communication, coordination and collaboration can help strengthen programs while making more effective use of the Mission's valuable human resources. The Mission should cultivate an environment where collaboration among offices

is encouraged and where personnel acknowledge what each brings to the table and expects to gain from working more closely together.

- **Reactivating and energizing the technical working groups, including by organizing groups to focus on key problem areas and expanding membership to include other relevant actors from within the Mission, the GOB and the development community**

Water, Sanitation and Hygiene -- The MTE Team recommends that the Food Security Unit work with the Health and Environment Teams to facilitate the formation of a water, sanitation and hygiene working group. The May 2004 Environmental Health Project's (EHP) assessment of USAID Bolivia's activities in water supply, sanitation and hygiene included this as one of its recommendations.[29] The MTE Team, based on its own findings, agrees with the EHP assessment that this should be a priority action. The EHP assessment also recommended that the Mission use two consultants – one national and one international – to facilitate this process.

This working group should involve key agencies that operate in water, sanitation and hygiene, such as USAID, the MOH, the four Title II CSs, ACDI/VOCA, Peace Corps, CPS (Center for Communications Programming), UNICEF, PAHO, VMSB (Vice Ministry of Basic Services) and other government agencies as deemed necessary. The group should develop norms and a systematic process for the design, implementation and evaluation of hygiene promotion programs. The norms and standardized process for hygiene promotion should then be applied to C-IMCI and USAID-funded water and sanitation projects. Projects should consolidate the promotion of breastfeeding, improved nutritional practices and hygiene promotion for diarrheal disease prevention, which should be closely linked to referral and treatment of sick children. EHP has direct experience with a delivery strategy in Nicaragua that combines community-based growth promotion, hygiene promotion and nutrition counseling.

The four CSs and ACDI/VOCA should also meet as a sub-group to share experiences and lessons learned. A preliminary list of topics to address, outlined by EHP, includes:

- ✓ Integration of hygiene behavior change and sanitation activities
- ✓ Lessons learned in creating demand for sanitation
- ✓ Use of hygiene as an entry point for sanitation
- ✓ Cost-sharing techniques and their effect on demand
- ✓ Experience and lessons learned with different latrine technologies.

Income Generation (IG) – The MTE Team also recommends that the Food Security Unit work with the Economic Opportunities Team to reactivate and reinvigorate the IG working group. During its review the MTE Team identified numerous areas where the CSs would benefit from a mechanism that would allow them to more easily share experiences and lessons leaned and to tackle common problems. These range from common technical problems such as how to help farmers improve water management and soil fertility to

[29] Rosensweig, F., Weinger, M., and Flores, D. Assessment of USAID Activities in Water Supply Sanitation and Hygiene in Bolivia, EHP and USAID, July 28, 2004.

improving their definitions and techniques for measuring technology adoption. There is also a lot to be gained from closer collaboration among the CSs and with the Mission's MAPA project on market access and linkage activities, which an expanded IG working group could help facilitate. During its field visits, the MTE Team saw several examples where the CSs and the MAPA project were working in the same areas with similar objectives, with little or no contact or collaboration. An active IG working group could also help the CSs take advantage of the economies of scale that could be achieved if the CSs would begin to work together more in their marketing activities. This could range from sharing more information on markets and conducting joint marketing studies to considering the development of joint marketing efforts. To ensure effectiveness, sub-groups would need to be formed for many of these areas.

Natural Resource Management (NRM) -- The MTE found that the CSs have become more interested in and are taking steps to support the establishment of an integrated watershed management approach to program planning and implementation. As with many USAID Missions in Latin America, the Bolivia Mission clearly has great interest in promoting this conceptual framework as well. The MTE Team thinks that this USAID – NGO shared interest could be operationalized more effectively and the cause advanced further and faster if the Mission were to facilitate the establishment of and support an inter-agency NRM working group.

This working group could become an effective vehicle for sharing information on best practices, identification of common problems, development of useful tools and solutions or to plan strategic changes and improvements in current DAPs and future Multi-Year Assistance Programs. Another important task would be to help coordinate specific DAP interventions so that they enhance and leverage more effective results. As a rule, reforestation and soil stabilization activities should be carried out to enhance effectiveness and sustainability of irrigation and water harvesting interventions. Seedling production should be carried out consistently in close coordination with income generation programs, so that seedling demand is met while promoting sustainable private-sector small business development. Road rehabilitation activities should be coordinated closely with area enclosure (bio-mass regeneration) and or tree planting efforts so that the infrastructure investments are protected more effectively over time. More effective utilization of watershed management planning and implementation strategies would promote these synergies and leveraging of program results in ways not currently being optimized.

9.3.2. To Enhance Sustainability of the MCH/N Activities

There are also steps that the Mission can take to enhance the likelihood that the activities being implemented under the MCH/N component of the Title II program become sustainable. True sustainability will only be possible with continued supervision and support by the Bolivian MOH. This is true for CS activities in health and nutrition education, growth monitoring, recuperation of malnourished children, C-IMCI, early childhood stimulation, and behavior change and communication. In other words, the sustainability of CS efforts in MCH/N depends on the MOH staff being well trained, sensitized and supervised to ensure quality programs that function in collaboration with communities. Given high rates of MOH staff turnover, sustainable

achievements ultimately require MOH improvements at the institutional level. The comparative advantage of the CSs is more at the local level. However, there are steps that the Mission could take to help improve the climate and strengthen capacity at this higher institutional level. These include:

- **Adding a public health nutritionist to the Food Security and/or Health team**

The MTE Team recommends that the Food Security Unit or the Health Office hire a professional with public health nutrition expertise who can be shared between the programs. This individual should have a strong background and experience in infant, young child and maternal nutrition, micronutrient nutrition, community-nutrition programming, health and nutrition monitoring and evaluation, and behavior change and communication strategies. The addition of a public health nutrition professional to the team would help strengthen the nutrition component of programs in both the Food Security and the Health offices.

- **Initiating a dialogue with the Bolivian MOH regarding the addition of a community-based growth promotion component to complement C-IMCI**

Community level IMCI is the foundation on which the Bolivian MOH is building its community health program. Although C-IMCI has a nutrition component, this nutrition component is weak and needs to be strengthened. In Central America, C-IMCI has been complemented by community-based growth promotion (CBGP), and together, C-IMCI/CBGP has been adopted by the Ministries of Health of El Salvador, Guatemala, Honduras and Nicaragua as the cornerstone of programming to prevent and treat child malnutrition.

Community-based growth promotion involves collecting and using data on children's growth to enable families to make decisions to improve children's nutritional status using locally available resources.[30] The strategy employs problem-solving methods, including the following steps 1) regular assessment of child growth, 2) decision-making and action needed for the child, 3) decision-making and action at the community and program level to integrate and target available services and resources in order to motivate and enhance actions in the household, and 4) follow-up/feedback on the effects of actions taken.[31] An essential component of community-based growth promotion is improvements in behaviors to address inadequate feeding practices. This involves both participatory family education and individual counseling and negotiation.

The MTE Team recommends that the Mission's Health and Food Security teams dialogue with the Bolivian MOH concerning C-IMCI/CBGP and the possible addition of CBGP to its C-IMCI intervention. The Mission should also consider supporting a study tour of C-IMCI/CBGP programs in the Central American region to exchange information and lessons learned.

[30] Promoting the Growth of Children: What Works" by Griffiths, M., Dickin, K., and Favin, M. World Bank, 1996.
[31] PVO-NGO Experiences with AIN-C in Honduras, Participatory Study, by Serpa, M. and Joya de Suarez, M.J. CORE Group, Aug. 2003.

9.3.3. To Prepare for Future Programs

The focus of the MTE was on the current DAPs, to assess the progress that the four CSs have made to date and to develop recommendations that will help the CSs improve the effectiveness of their programs during the remaining two and one half years of their DAPs. However, the Mission, and the Food Security Unit in particular, also need to begin thinking about the longer-term and what types of programs will be needed after the current DAPs are completed. Although the MTE Team identified many successes in the current DAPs, it is not convinced that the next round of DAPs should just be a repeat of the current DAPs, albeit with some additions and refinements. The Mission has taken steps in the past to help guide the development of new rounds of Title II programs, including through the development of food security maps to help guide the location of the CSs programs. However, what the Mission and the CSs need now is an approach that looks more to the future and captures and better responds to the many changes that are occurring in Bolivia, not the least of which is the growing urbanization of the country and the extensive migration, both internal and external, that affects even the most isolated communities.

Rather than financing the development of a new food security map to help guide the next round of DAPs, the Mission should consider sponsoring the development of a concept paper for the new programs that helps identify the different options available to it and its cooperating sponsors. This concept paper would need to take into account the socioeconomic and political economy changes that are occurring in Bolivia, the evolution of the Bolivian Title II program and the new FFP strategy and its implementation. This concept paper also would benefit from being developed in close consultation with all the major stakeholders.

ANNEXES

ANNEX A: DESCRIPTIONS OF THE FOUR CSS MATERNAL AND CHILD HEALTH AND NUTRITION PROGRAMS

A1. ADRA

ADRA's objective in the area of MCH/N is to improve the health and nutritional status of its target population. ADRA is working to improve its target population's health and nutritional status through efforts aimed at the (1) community, (2) MOH and (3) municipal government levels.

Community Level
At the community level ADRA is working with OTBs (Organizaciones Territoriales de Base, legally established community structures), the CCPF (Centro Comunitario para Promoción Familiar, or Community Family Promotion Center) and health promoters (ACS, Agente Comunitario en Salud, or Community Health Agent). ADRA's activities with the OTBs involve assistance in the construction and maintenance of the W&S systems, organization of W&S committees, training in basic plumbing, the development of emergency evacuation plans for pregnant and postpartum women, and strengthening the health plans of the OTBs. ADRA is working with the CCPF to conduct training/educational sessions for women/families in health, nutrition and hygiene, growth monitoring, distribution of MCH rations, early childhood development and sustainable human development. Health promoters are being trained in Community Integrated Management of Childhood Illness (C-IMCI), maternal and neonatal health (a new component to C-IMCI), promotion of SUMI (the Seguro Universal Materno-Infantil, or Universal Maternal and Child Health Insurance), and SIVICS (Sistema de Vigilancia Comunitaria en Salud, or Community Health Surveillance System). Promoters are also organizing themselves into committees and associations of promoters and are an important link between the community and the local health services.

Main activities at the community level include the evaluation of the health and nutritional status of children less than five years of age, education and food preparation sessions for mothers of malnourished children, training of "support groups" for women who are breastfeeding or providing their children with complementary feeding, and weekly meetings for educational sessions on health, nutrition, hygiene and sanitation and early childhood stimulation. ADRA also constructs W&S systems and organizes the CAPYS (Comité de Agua Potable y Saneamiento, or Potable Water and Sanitation Committee), responsible for operation and maintenance of W&S systems.

MOH Level
At the MOH level ADRA is working with health posts/centers and the municipal health networks. Health staff receive training in community and institutional IMCI, analysis and presentation of health data for the SNIS (Sistema Nacional de Informacion en Salud, or National Health Information System), strategic planning for IEC (Information, Education and Communication), and improved quality of care and cultural sensitivity. ADRA has also helped the MOH establish a system for emergency evacuation. In addition, they are working to

strengthen the administrative capacity of the MOH at the health center/post level and in the larger health network and promoting integrated MCH meetings in the health network.

Municipal Level
ADRA is working with the municipalities to strengthen their municipal health plans, specifically through building the management capacity of key individuals at the municipal level and the DILOS (Directorio Local de Salud, or Local Health Directorate). The DILOS are composed of three members: the municipal mayor, the technical director of the Departmental Health Service, and the representative from the community surveillance committee. The DILOS constitutes the maximum authority of the health system at the local level.

A2. CARE

CARE's strategic objective for the MCH/N component of its SEAS (Seguridad Alimentaria Sostenible, or Sustainable Food Security) Project is the reduction of illness and poor health among women of reproductive age and children less than 5 years of age. Intermediate results of the project include improved practices in the home related to health and nutrition for women and children under five years of age, increased access to locally available primary health care services and increased access to potable water and basic sanitation. CARE works directly with local organizations, health promoters and Ministry of Health personnel to implement its activities.

Improved Practices in the Home
CARE's main strategies to improve practices in the home include education and growth monitoring provided in organized groups and through education provided during home visits. These activities are being performed by health promoters, who are trained by CARE and the MOH in C-IMCI, health education, home visits and nutritional practices. Education is provided in order to improve knowledge, attitudes and practices among families to ensure adequate health, nutrition and sanitation/hygiene, and to assist women in their role as decision makers in the home. Organized groups use participatory monitoring, in which women who have satisfactorily learned a specific theme sign their name to a poster on the wall of the meeting area.

CARE also works to empower communities through the use of the community development methodology referred to as WARMI, in which communities diagnosis their problems, develop a participatory community plan (PCP) together, implement the plan and conduct participatory evaluations in a cyclic fashion. WARMI has been used extensively in Potosí but requires more work in the newer areas of Tarija and Chuquisaca. In addition, CARE works with health promoters, community leaders and members and health staff to implement CAI at the community level, though in Chuquisaca this is in its beginning stages. CARE also uses health fairs and festivals to bring communities together to share information, ideas and activities.

CARE uses food rations as a temporary assistance to families with children less than three years of age, pregnant women, and malnourished children aged three to five years, but the latter only for a period of six months. They also promote establishing gardens to improve access to foods, an activity coordinated with the rural IG component.

Increased Access to Locally Available Primary Health Care Services
CARE increases access to health services by training health staff to provide quality care in the prevention and treatment of illnesses such as diarrheal disease and respiratory infections, providing immunizations, administering iron and vitamin A supplements, and proper use of the child health card. They also empower women to exercise their right to access health services through SUMI. In addition, they improve the management capacity of the local MOH, and improve roads (access) to health institutions. CARE also works to strengthen the OTBs and their responsibilities regarding health and nutrition, especially management of the health promoters, analyzing and presenting monitoring data and mediation with local health authorities.

Increased Access to Potable Water and Basic Sanitation
CARE increases access to potable water and basic sanitation by building W&S systems with active involvement of the government and local communities. They also improve knowledge about adequate use of water and sanitation through community level education, and establishing and strengthening the CAPYS and municipal technical units for infrastructure. In addition, CARE incorporates education about water and sanitation in primary schools.

A3. FHI

The MCH/N objective of the FHI program is to improve the integrated health of its target population, women of reproductive age and children under five in food insecure areas of Bolivia. In order to improve the health of the target population FHI is working in conjunction with the Bolivian MOH to strengthen the local health systems, to strengthen the implementation of C-IMCI, to conduct growth monitoring sessions at the community level, to provide education in nutrition and health to community members, to distribute food rations to vulnerable groups, and to conduct integrated development of W&S systems.

Strengthen Local Health Systems
FHI is working to strengthen local health systems and provider skills through coordinated health planning and decision making, and training of MOH personnel in new health and nutrition curricula stressing active participation, problem solving and behavior change. Training topics include clinical and community IMCI, quality assurance and positive deviance methods.

Strengthen Implementation of C-IMCI
FHI is working with the MOH to integrate materials from the nationally adopted C-IMCI strategy into existing training protocols and program components. FHI began training in C-IMCI in 2001 and is continuing during the DAP to train local municipalities, volunteer health workers and medical and other MOH staff.

Growth Monitoring Sessions at the Community Level
IMCI is being complemented by growth monitoring and reporting for children under five years of age. Data conforms to the SNIS and is used by the local CAIs, or Comités de Análisis de Información en Salud (Health Information Analysis Committees) for health planning on a tri-monthly basis. During growth monitoring sessions, children are also checked for acute respiratory infections and diarrheal disease and appropriate education/treatment is provided, and

children are provided with vitamin A and iron supplementation, paid for by the local municipalities. Children's height for age is monitored annually.

Provide Education in Nutrition and Health
FHI is providing women with nutrition and health education which focuses on behavioral change. Health meetings with women provide education sessions on children's health, including nutrition and prevention and treatment of child illnesses, in order to change behaviors in breastfeeding, complementary feeding, prenatal care, and hand washing, among other health issues.

Educational sessions are led by the volunteer health workers, known as the RPS (Responsable Popular de Salud). To improve the effectiveness and sustainability of RPSs, FHI introduced a paid facilitator called a Community Health Promoter (CHP), who lives in the community and supports the training and motivation of the RPSs. Trainings for RPS include topics on C-IMCI, child health cards, acute diarrheal disease, respiratory infections, nutrition including practical sessions using local and Title II foods, breastfeeding, positive deviance, growth monitoring, prenatal visits, leadership, and community organization. CHPs and RPSs also conduct monthly home visits where they follow-up with: infants less than six months of age for exclusive breastfeeding, children for immunizations, pregnant women for prenatal consults and children with global malnutrition.

FHI is integrating the Hearth Model into the C-IMCI nutrition component, mother's committees and health promoter activities. The model includes identification of positive nutrition and health practices among caretakers with few resources but whose children are growing well, and adaptation and promotion of these positive practices in nutrition sessions with caretakers of moderately malnourished children.

Distribution of Food Rations to Vulnerable Groups
The program is working to improve food access by temporarily providing food rations to at-risk women and children and promoting equitable food allocation within the household. Monthly food rations are provided for children up to 35 months and for pregnant women.

Integrated Development of W&S Systems
FHI is working to improve the biological utilization of food by improving access to clean water and sanitation services. FHI identifies sources of water for community water systems, constructs W&S systems with community input, and trains CAPYS members in the operation and management of W&S systems.

Chagas Project
Lastly, FHI has a pilot project for Chagas control in Potosí. FHI is working with the Pro-Habitat Foundation to gain experience in rehabilitating homes to prevent Chagas infestation and educate community leaders, members and school children about hygiene and specific practices to prevent Chagas infestations and infections.

A4. Save the Children

SAVE's MCH/N strategic objective is to improve the health and nutrition of children less than five years of age and women of reproductive age through improving the ability of communities, the MOH and municipalities to confront the priority needs of the MCH/N program.

Improve the Capacity of Communities
In the area of community capacity building, SAVE trains community health promoters in C-IMCI, including treatment and follow-up for diarrhea, recognition of signs and symptoms of pneumonia and dehydration and timely referral of ill children to health centers. Promoters are also trained in various other topics including promotion of child vaccination, breastfeeding, complementary feeding, meal preparation using local and donated foods, interpretation of child growth and vaccination status from health cards, and monitoring weight and height of children with assistance from the program's technical staff. Promoters facilitate educational sessions with mothers at the community "Family Center", or "Centro Familiar" each month. They also teach mothers effective use of local and donated foods through food preparation workshops and provide participants with recipe booklets. Promoters are expected to conduct ten home visits per month for the C-IMCI program, when they cover issues related to child health and also maternal health. SAVE also sponsors Food Security Fairs that allow promoters and mothers to share their health and nutrition knowledge and recipes/cooking skills with their communities.

Health promoters, with assistance from SAVE staff, consolidate community health data with MOH data and use graphics to communicate results and stimulate dialogue among community members, the MOH and municipal representatives. This process forms part of SAVE's SECI (Sistema Epidemiológico Comunitario Integral, or Integrated Community Epidemiologic System) method. SECI involves the use of the colors of the Bolivian flag to analyze the nutritional status of children in the community (figures of children with normal weight for age are pinned to the green section of the flag, children with mild malnutrition to the yellow section and children with moderate or severe malnutrition to the red section). The health information is used to make community-level decisions and action plans.

The project also works with communities and municipalities to facilitate access to potable water systems, sewage systems, latrines and family bathrooms to improve family hygiene. SAVE promotes solar disinfection of water at the community level, organizes and trains CAPYS who are responsible for operation and maintenance of W&S systems, and implement SIVAS (Sistema de Vigilancia en Agua y Saneamiento, or Water and Sanitation Surveillance System) to mobilize communities to plan and make decisions regarding water, sanitation and health in order to achieve positive behavior change. CAPYS receive training and a special training manual in order to prepare them to lead the SIVAS community mobilization.

Improve the Capacity of the Ministry Of Health
In order to improve the capacity of the local health services, SAVE's program is strengthening the MOH's management model, including its health network and implementation of SUMI, the DILOS and CAIs in order that the MOH, health promoters and community leaders and members fully participate in decision making and health planning. SAVE assists the MOH with analysis of health information and decision making, both technical and operational. SAVE coordinates

with the MOH area- and sector-chiefs to implement activities in the family centers in order to promote a focus on food security and nutritional recuperation among MOH staff. MOH staff also join SAVE staff and community promoters during monthly meetings with mothers at the family centers, during which time MOH staff provide vaccinations, vitamin A and iron supplements, de-worming, growth monitoring and maternal health care services. SAVE also improves MOH capacity through training in clinical IMCI.

Improve the Capacity of Municipalities

SAVE is working to improve the capacity of municipalities through participating in monthly planning and budgeting meetings and also through training the DILOS to improve management and allocation of resources for health activities in annual action plans. SAVE is helping form DILOS in some areas, to prepare radio spots about the DILOS and SUMI so they can be better understood, and to conduct workshops on the analysis of the health situation at the municipal level. In the future SAVE plans to strengthen the participation of women's groups and syndicates, among others, in actions and decision making regarding health.

ANNEX B: HEALTH AND NUTRITION INDICATORS IN BOLIVIA AND PERFORMANCE RESULTS TABLES FOR THE MCH/N PROGRAMS

Table B1: Health and nutrition indicators in Bolivia (total, urban, rural and by department), DHS 2003.

	Bolivia (total)	**Urban**	**Rural**	**Chuquisaca** (ADRA, CARE)	**Cocha-bamba** (FHI)	**La Paz** (SAVE)	**Potosí** (CARE, FHI)	**Tarija** (CARE)
Infant Mortality[32]	54/1000	44/1000	67/1000	67/1000	61/ 1000	52/ 1000	72/1000	29/1000
U5 Chronic malnutrition (ht/age < -2 SD)	26.5%	18.5%	37%	36.6%	28.8%	28.5%	42.3%	17.8%
U5 Underweight (wt/age < -2 SD)	7.5%	4.8%	11.1%	10%	8.9%	6.8%	14.4%	5.5%
U5 Acute malnutrition (wt/ht < -2 SD)	1.3%	1.1%	1.5%	0.9%	1.5%	0.8%	0.6%	1.6%
Children's Anemia 6-59 mos, mild, moderate and severe)	51%	46.7%	56.3%	46.9%	51.6%	60.3%	67.6%	38.6%
Women's anemia (15-49 yrs)	33.2%	30.0%	40.2%	26.1%	28.0%	43.4%	35.6%	25.6%
Care-seeking behavior for children with ARI	49.0%	52.2%	44.3%	51.9%	43.4%	37.1%	51.5%	66.2%
Care-seeking behavior for children with diarrhea	36.3%	36.7%	35.8%	45.4%	36.2%	27.0%	37.0%	43.9%
ORT/liquids given to children with diarrhea	66.4%	68.5%	63.9%	75.0%	65.8%	58.9%	66.4%	76.9%
Children 12-23 months completely vaccinated	50%	52.1%	47.8%	67.2%	48.3%	37%	52.6%	70.7%
Pregnant women w/ pre-natal check ups w/ doctor	70.2%	84.7%	47.7%	66.4%	71.3%	61.5%	44.7%	82.5%
Institutional births	57.1%	75.5%	32.7%	50.5%	58.6%	40.7%	36.3%	78.3%

(CSs are indicated under the departments in which they operate)

[32] Infant mortality: deaths per 1,000 live births

Table B2: ADRA MCH/N and W&S Program Performance Results, FY 04

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	LOA Target
Maternal and Child Health and Nutrition: Impact indicators					
1.[33] % Children 24 – 59 months of age (boys) with chronic malnutrition	46.8%	41.8%	TBD		36.8%
% Children 24 – 59 months of age (girls) with chronic malnutrition	40.9%	35.9%	TBD		30.9%
2. % of infants less than 6 months who were breasted exclusively during the last 24 hours	46.2%	51.2%	83.7%	163.5%	56.2%[34]
3. % Infants 6 – 11 months receiving appropriate complementary feeding	7%	17%	45.6%	268.2%	55.6%
4. % Women who know 3 danger signs during pregnancy, labor, delivery and postpartum period (respectively)	28.5% 6.6% 1.7%	38.5% 16.6% 11.7%	61.5% 20.3% 13%	159.74% 122.29% 111.11%	71.5% 30.3% 23.0%
5.[35] % Children under five years of age with diarrhea in the last two weeks who were treated with ORS, recommended fluids or increased fluids.	62.7%	65.8%	75.5%	114.7%	78.5%
6. % Health services providing integrated care to women and children	0%	10%	TBD		15%
7. % of health services reporting error-free SNIS	0%	10%	TBD		15%
Maternal and Child Health and Nutrition: Monitoring indicators					
1. % Children 3 – 35 months in Title II MCH program that are above minus 1 standard deviation of the normal weight for age	41.5%	56.5%	57.6% (1802/3126)	102%	66.5%
2. % Children 3 – 35 months in targeted areas that participate in MCH growth monitoring programs	61.9%	95%	74.8% (3126/4177)	78.7%	80%
3. % Children under one year of age in the target area who receive the third dose of DPT (or pentavalent vaccine)	32.7%	62.7%	56.5% (995/1761)	90.1%	82.7%
4. % Pregnant women in target population with al least one prenatal visit before the fifth month of pregnancy	71.9%	74.9%	70.4% (655/930)	94%	76.9%
5. % Communities have an emergency medical evacuation (E.M.E.) system in use	0	10%	11.02% (57.3% of communities have an EME system organized (73/128)	110%	40% (100% of communities have an EME system organized)

[33] The age range was changed from 24 – 60 months to 24 – 59 months because it is focused to families with children under five years.

[34] ADRA is making an adjustment for the expected results for FY05 and LOA from 56.2% to 88.7% considering the potential demonstrated up to the present time.

[35] This indicator replaces the "% of children under five years of age with diarrhea in the last two weeks treated at the health facilities" due to the impact expected through better practices at family level.

Table B2 continued

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	LOA Target
Water and Sanitation: Impact indicators					
1. % of child caregivers and food prepares with appropriate and washing behavior	0%	10%	11.2%	112%	15%
2. Quantity of water used per capita per day in targeted household	17.4 liters	21.75 liters	TBD		50 liters
3. % Targeted household using hygienic sanitation facilities	19.2%	24.2%	33.82%	139.8%	43.82%
Water and Sanitation: Monitoring indicators					
1. % Targeted households with year round access to water sources.	57.7%	60%	47.9%	79,8%	64%
2. % of communities regularly paying water and sanitation facilities operation and maintenance fees	79%	82.6%	TBD		85%

Table B3: CARE MCH/N and W&S Program Performance Results, FY 04

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	LOA Target[36]
Maternal and Child Health and Nutrition					
1a. Percent of children 3-35 months of age, by sex, with chronic malnutrition (height for age Z-scores)	46%	43% (2814/6545)	39% (1750/4481)[37]	110%	23.5%
1b. Children 36-59 months of age, by sex, with chronic malnutrition	51%	48% (1149/2393)	47% (936/1985)[6]	102%	37%
2. Percent of children from 3 to 35 months in target areas that participate in Title II MCH growth monitoring programs	51%	80% (6545/8181)	76% (7519/9859)	95%	34%
3. Percent of children from 3 to 35 months enrolled in the Title II MCH program that are above -1 standard deviation of the normal weight for age	51%	57% (3731/6545)	56% (2643/4729)[38]	98.2%	76.5%
4. Percent of children from 3 to 35 months enrolled in the Title II MCH program below -2 standard deviations from expected normal weight for age (< -2 S.D.)	14%	13% (851/6545)	13% (620/4729)[7]	100%	14.5%
5. Percent of children less than one year of age in the target area who receive the first dose of DPT (or Pentavalente vaccine) that never receive the third dose of DPT (or Pentavalente vaccine)	9%	10% (183/1833)	9% (148/1657)	111%	5%
6. Percent of children under one year of age in the target area receiving third dose of DPT or pentavalente vaccine	0%	18% (344/2291)	24% (459/1901)	133%	68%
7. Percent of pregnant women in target population over the past calendar year who had at least one prenatal visit	79%	80% (1424/1780)	90% (1983/2209)[39]	112.5%	80%
8. Percent of pregnant women with one prenatal visit during the trimester that made their first prenatal visit during this pregnancy before their 5th month of pregnancy	66%	68% (968/1424)	65% (1203/1847)	95.5%	53%
9. Percent of infants less than 6 months old who were breastfed exclusively during the last 24 hours	60%	65% (130/200)	80% (87/109)[40]	123%	90%
10.Percent of children under 5 years of age with diarrhea in the last two weeks who were treated with ORT, recommended fluids or increased fluids	65%	68% (204/300)	88% (819/934)[41]	129%	90%

[36] Source: CARE DAP Proposal. No LOA provided in FY 2004 Results Report.
[37] Indicator measured in the month of November.
[38] Total of children participating in growth monitoring during July-September, 2004.
[39] Estimated data.
[40] Data source: KAP Survey, September, 2004.
[41] Data source: monitoring data, reference period is the month prior to date of data collection.

Table B3 continued

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	LOA Target[42]
Water and Sanitation					
1. Percent of child caregivers and food prepares with appropriate hand washing behavior	77%	80% (656/820)	75% (471/631)[9]	93.7%	70%
2. Percentage of population using hygienic sanitation facilities	0%	60% (492/820)	66% (69/104)[9]	110%	None provided
3. Percentage of households with year-round access to new or improved safe water source	44%	67% (549/820)	87% (1690/1942)[43]	129%	80%
4. Percentage of households with access to latrines and sewerage	20%	65% (533/820)	90% (1782/1980)[44]	138%	80%
5. Percentage of constructed water supply systems adequately operated and maintained by the community	0%	80% (46/57)	56% (19/34)[45]	70%	80%

[42] Source: CARE DAP Proposal. No LOA provided in FY 2004 Results Report.
[43] Total number of families who were beneficiaries of water systems during 2004
[44] Total number of families who were beneficiaries of sanitation systems during 2004.
[45] Number of systems constructed and completed during 2004.

Table B4: FHI MCH/N and W&S Program Performance Results, FY 04

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	LOA Target
Maternal and Child Health and Nutrition					
1. Percent of children 3 to 35 months of age, by sex, with chronic malnutrition (height / age / Z scores)	59% (177/302)	56%***** (1190/2125)	40% MTE	140%	49%**
2. Percent of children from 3 to 35 months in target areas that participate in Title II Integrated Health growth monitoring programs	22% (66/302)	70% * (1275/2125)	90% MTE	128%	90%
3. Percent of children from 3 to 35 months in the Title II Integrated Health program that are above -1 standard deviation of the normal weight for age	32% (97/302)	40% (765/1913)	49% (939/1913)	122%	55%*
4. Percent of children from 3 to 35 months enrolled in the Title II Integrated Health program below -2 standard deviations from expected normal weight for age (>-2 S.D.)	36% (110/302)	30% (574/1913)	20% (392/1913)	150%	15%
5. Percent of children less than one year of age in the target area who receive the first dose of DPT (or Penta-valent vaccine) that never receive the third DPT dose (or Pentavalent vaccine)	55% (21/38)	31% ***** (180/383)	13% (70/529)	175%	8%*
6. Percent of children under one year in the target area receiving third dose of DPT or Pentavalent vaccine	15% (17/111)	60% ***** (455/759)	61% (459/759)	102%	80%*
7. Percent of pregnant women in target population over the past calendar year who had at least one prenatal visit*	50% (55/111)	70 % ***** (434/624)	70% (434/624)	100%	85%
8. Percent of women with one prenatal visit during the trimester that made their first prenatal visit during this pregnancy before their fifth month of pregnancy	23% (26/111)	55% ***** (240/436)	37% (163/436)	67%	60%
9. Percent of infants less than 6 months who were breastfed exclusively during the last 24 hours	67% (31/46)	80% ***** (140/175)	74% (256/348)	92%	80%
10.Percent of children 3-35 months of age with diarrhea in the last two weeks who were treated with ORS, recommended fluids, or increased fluids	53% (94/178)	62% (1186/1913)	68% MTE	109%	82%

Table B4 continued

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	LOA Target
Water and Sanitation					
1. Percentage of child caregivers and food preparers with appropriate hand washing behavior	0% (0/775)	Rural: 40% Urban: NA	10.8% MTE	27%	Rural: 60% Urban: NA
2. Percentage of population using hygienic sanitation facilities	7% (384/5226)	Rural: 20% ***** Urban: NA	29.6% MTE	148%	Rural: 30% ***** Urban: NA
3. Percentage of households with year-round access to new or improved safe water source	Rural 30% (1568/5226)	Rural 47% (2463/5226) Urban 240 families	Rural 49% (2559/5226) Urban 0 families	104%	Rural 57% (2923/5226) Urban 2,078***** families
4. Percentage of households with access to latrines or sewerage	Rural: 22% (1150/5226)	Rural 39% (2063/5226) Urban 1,500 families	Rural 41% (2138/5226) Urban 9,642 families	105%	Rural 49% (2583/5226) Urban 19,616 families
5. Percentage of constructed water supply systems adequately operated and maintained by the community they serve	24% (24/101)	Rural 95% (16/17) Urban NA	Rural 76% (19/25) Urban NA	80%	Rural 95% (42/44) Urban NA

** It is important to note that many of the communities in which a dramatic reduction in chronic malnutrition has been experienced are also communities that have been already targeted in the previous DAP, in the years since 1997. Thus LOA for chronic malnutrition (Indicator 1) has not been adjusted from 49% in order to allow those communities that have not experienced a great reduction in their indices of chronic malnutrition to reach this target. In addition, FHI is planning to enter new zones in 2005, and given the fact that we have only two remaining years under the current DAP, it would be difficult to expect a very significant impact on levels of chronic malnutrition in these new work zones.
* LOA target modified according to FY04 achievements and program entrance into new areas like San Pedro de Buena Vista Municipality.

Table B5: Save the Children MCH/N and W&S Program Performance Results, FY 04

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	Life of Activity Target
Maternal and Child Health					
1. Percent of children from 3-35 months of age, by sex, with chronic malnutrition (height-for-age Z-score)	37.0%	20% ROBL 29.4% (3-35 m)	38.2% MTS 38.1% SISME		30% ROBL 25.8% (3-35 m)
2. Percent of children from 3-35 months in target areas that participate in Title II Integrated Health Growth Monitoring Program	47.0%	60%	90.4% (540/597)	151%	95%
3. Percent of children from 3-35 months in the Title II Integrated Health Program that are above -1 S.D. of the normal weight for age	48.0%	12% IOBL 53.7%	43.0% MTS	80.1%	15% IOBL 55.2%
4. Percent of children from 3-35 months enrolled in the Title II Integrated Health Program below -2 S.D. for expected normal weight for age (< -2 S.D.)	16.6%	20% ROBL 13.3%	16.6% MTS	80.0%	30% ROBL 11.6%
5. Percent of children less than one year of age in the target area who receive the 1st dose of DPT (or Pentavalent vaccine) that never receive the 3rd dose of DPT or Pentavalent	68.0%	40% ROBL 40.8%	59.5%	68.0%	50% of population < one year of age
6. Percentage of children under one year in the target area receiving 3rd dose of DPT or Pentavalent vaccine	10.7%	14.8% of population < 1 year of age	28.6% (436/1525) MTS	191%	40% of population < 1 year of age
7. Percent of pregnant women in target population over the past calendar year who had at least one prenatal visit	56.0%	25% IOBL, 70% (1295/1850)	51.0% (944/1850)	72.9 %	30% IOBL (662/ 2208)
8. Percent of women with one prenatal visit during the quarter that made their 1st prenatal visit during this pregnancy before their 5th month of pregnancy	31.0%	25% IOBL, 38.8% (718/1850)	22.9% (424/1850)	59.1%	30% IOBL (662/2208)
9. Percentage of infants less that 6 months who were exclusively breastfed during the last 24 hours	75.4%		73.8%		80.0%
10. Percentage of children 3-35 months of age with diarrhea in the last two weeks who were treated with ORS, recommended fluids, or increased fluids	77.8% (141/179)		93.4% (199/213)		95.0%

Table B5 continued

Indicator	Baseline 2002	FY 04 Target	FY 04 Achieved	FY 04 Achieved vs. Target	Life of Activity Target
Water and Sanitation					
1. Percent of child caregivers and food preparers with appropiate hand washing behavior	22.3%	15%of target HH	59.1% MTS	394.0%	70% of target HH
2. Percentage of population using hygienic sanitation facilitites	30.6 %	20% IOBL, 36.7%	34.9%	95.1%	25% IOBL, 38.75%
3. Percentage of households with year-round access to new or improved safe water source	59.3%	450 HH (accumulative) 10% IOBL, 65.23%	571HH	127.0%	15% IOBL, 68.19%
4. Percentage of households with access to latrines or sanitation	30.6%	483 HH (accumulative)	744 HH	154.0%	25% IOBL, 38.3%
5. Percentage of constructed water supply systems adequately operated and maintained by the community they serve		14 Systems (accumulative)	1.00		100%

Table B6: MCH Indicator Results from ADRA, CARE, FHI and SAVE Baseline and Mid-term Surveys

	ADRA		CARE		FHI		SAVE	
Indicator/Description	**Baseline (adjusted)**	**MTE achieved**	**Baseline (adjusted)**	**MTE achieved**	**Baseline (adjusted)**	**MTE achieved**	**Baseline (adjusted)**	**MTE achieved**
Nutrition								
% of children 3-35 months with chronic malnutrition (height-for-age Z-score < -2 SD)	47%	31.6%	46%	39%	55%	40.3%	34.7%	38.6%
% of children 3-35 months with underweight (weight-for-age Z-score < -2 SD)	10.6%	20.3%	14%	14%	34.9%	27.3%	16.0%	16.0%
% of children 3-35 months with normal nutritional status (weight-for-age Z-score > -1 SD)	41.5%	45.0%	56%	54%	31.6%	36.6%	49.9%	43.5%
% of children 3-35 months with weight-for-height Z-score < -2 SD	n/a	0.9%	n/a	n/a	3.9%	1.3%	0.9%	0.3%
% of children less than 6 months of age exclusively breastfed	46.2%	83.7%	60%	80%	82%	85.7%	78.3%	73.9%
% of children 20-23 months still being breastfed	45.9%	47.5%	n/a	n/a	28.9%	36.6%	51.7%	68.1%
% of children 6-11 months that receive breastmilk and complementary foods	n/a	89.3%	n/a	n/a	71.2%	82.3%	80.6%	86.3%
Immunizations								
% of children less than 5 yrs of age with health card	74.3%	88.7%	51%	62%	50.3%	90.3%	52.9%	86.0%
% of children less than 5 yrs of age never vaccinated or weighed as reported by caretaker	n/a	11.3%	n/a	n/a	16.0%	9.7%	11.8%	0.90%
% of children 12-23 months with access to vaccines (with DPT 1 or Pentavalent)	76.6%	89.3%	n/a	n/a	48.7%	93.6%	54.1%	91.1%
% of children 12-23 months with DPT 3 or Pentavalent	72.4%	87.8%	n/a	n/a	37.8%	89.4%	39.0%	86.6%
% attrition (abandonment) of DPT among children 12-23 months	6.1%	3%	n/a	n/a	22.2%	5%	29.0%	5.4%

Table B6 continued

	ADRA		CARE		FHI		SAVE	
Indicator/Description	**Baseline (adjusted)**	**MTE achieved**	**Baseline (adjusted)**	**MTE achieved**	**Baseline (adjusted)**	**MTE achieved**	**Baseline (adjusted)**	**MTE achieved**
Morbidity and illness management								
% of children less than 5 yrs of age with diarrhea in last 2 weeks	34.9%	39.0%[46]	n/a	n/a	37.7%	17.3%	26.8%	31.5%
% of caretakers who appropriately managed child's diarrheal episode in the home (ORT or increase in liquids)	62.7%	75.5%	65%	88%	52.2%	68%	45.6%	78.7%
Water and hygiene								
% households with access to safe water in past two weeks	57.7%	59.2%	44%	83%	52%	77%	71.0%	78.0%
% households with access to sewage system or latrines	35.8%	38.0%	20%	90%	24.4%	29.6%	32.2%	30.5%
% of child caretakers and food preparers with adequate hand washing[47]	0.7%	11.2%	77%	75%	8.4%	10.8%	22%	59%

[46] Initial MTE results indicated 2-week diarrhea prevalence was 26.4%, while the MTE final draft indicated the figure was 39%. The consultant has been questioned but has not provided input as to which figure is correct.

[47] Indicator was calculated differently by CARE and Save the Children in comparison to ADRA and FHI. CARE counted as correct the ability to name three scenarios necessary to wash hands + need for water + soap/ash + basin; Save the Children counted as correct the ability to name 3 of 5 scenarios when it is necessary to wash hands + soap/detergent. ADRA and FHI used a more stringent definition: correctly naming 5 scenarios when necessary to wash hands + water + soap/ash + clean towel/air dry.

ANNEX C: FIELD SCHEDULES

Table C1: Schedule for the First Phase of the Bolivia Title II Mid-Term Evaluation (August 16 - September 7, 2004)

Monday August 16	Tuesday August 17	Wednesday August 18	Thursday August 19	Friday August 20	Saturday August 21	Sunday August 22
			Morning			
MTE Team arrived in La Paz	MTE Team had initial meeting with USAID Food Security Unit MTE Team met with Save the Children staff for briefing on their programs, including major program components	MTE Team members met individually with USAID Bolivia staff dealing with health and nutrition, agricultural marketing and natural resource management and the environment	MTE Team met with Save the Children staff to review logistics for field visits MTE Team met with Mario Guttierez to review data from the mid-term survey	MTE Team visited FHI project sites with FHI staff in Capinota	MTE Team visited FHI project sites with FHI staff in: • Tapacari • Toro Toro • Julo Grande (Chagas Site)	Remainder of MTE Team returned to La Paz
			Afternoon			
	MTE Team met with FHI staff for briefing on their programs, including major program components MTE Team met with staff from all four CSs to review overall objectives and approaches	MTE Team continued meetings with USAID staff MTE Team met with FHI staff to review logistics for field visits MTE Team met with Food Security Unit	MTE Team flew to Cochabamba	MTE Team separated with part of team continuing visits in Capinota and part traveling to Toro Toro	MTE Team continued visits in: • Tapacari • Toro Toro • Julo Grande (Chagas Site) Part of MTE Team returned to La Paz	MTE Team met on own to compare notes and analyze data
Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in Cochabamba	Evening spent in Cochabamba	Evening spent in La Paz	Evening spent in La Paz

Monday August 23	Tuesday August 24	Wednesday August 25	Thursday August 26	Friday August 27	Saturday August 28	Sunday August 29
			Morning			
MTE Team flew to Sucre MTE Team split with part of team traveling to Tomoyo and the remainder traveling to Ckara Ckara	MTE Team visited FHI project sites with FHI staff in and around Tomoyo and Ckara Ckara	9:00 am to 12:00 noon -- MTE Team met with FHI staff to discuss results of field visits	MTE Team returned to La Paz	MTE Team met with ADRA staff to review logistics for field visits during Phase Two Individual MTE Team members met with Save the Children staff for additional briefings		MTE Team left for the Altiplano with Save the Children staff to visit Save the Children project sites in Calamarca
			Afternoon			
MTE Team visited FHI project sites with FHI staff in and around Tomoyo and Ckara Ckara	MTE Team continued visits in and around Tomoyo and Ckara Ckara MTE Team returned to Sucre	Flights delayed due to bad weather in La Paz	Individual MTE Team members met with Save the Children staff to review logistics			MTE visited Save the Children project sites with Save the Children staff in Sapahaqui
Evening spent in Tomoyo & Ckara Ckara	Evening spent in Sucre	Evening spent in Sucre	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in Tholar

Monday August 30	Tuesday August 31	Wednesday September 1	Thursday September 2	Friday September 3	Saturday September 4	Sunday September 5
Morning						
MTE Team visited Save the Children project sites with Save the Children staff in Sica Sica	MTE Team met on own to compare notes and analyze data	MTE Team split and visited Save the Children project sites with Save the Children staff in: • Luribay • Patacamaya • Sica Sica	10:00 am – 2:00 pm MTE Team met with Save the Children staff to discuss results of field visits	MTE Team met with CARE staff to review logistics for field visits during Phase II Individual MTE Team members had meetings with USAID technical staff	MTE Team (FANTA) scheduled departure delayed due to Hurricane Frances	MTE Team (FANTA) scheduled departure delayed due to Hurricane Frances
Afternoon						
MTE Team visited Save the Children project sites with Save the Children staff in Yaco and Cairoma	MTE Team visited Save the Children project sites with Save the Children staff in Cairoma	MTE Team continued visits in: • Luribay • Patacamaya • Sica Sica MTE Team returned to La Paz	MTE Team met with USAID staff for exit interview			
Evening spent in Cairoma/Teneria	Evening spent in Cairoma/Teneria	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz

Table C2: Schedule for the Second Phase of the Bolivia Title II Mid-Term Evaluation (November 1 - 21, 2004)

Monday November 1	Tuesday November 2	Wednesday November 3	Thursday November 4	Friday November 5	Saturday November 6	Sunday November 7
Morning						
MTE Team arrived in La Paz	Bolivian Holiday MTE Team members review and work on reports for Phase I of MTE	9:00 am – 10:00 am MTE Team met with Mario Gutierrez of PODEMA to discuss questions related to quantitative results of MTE	MTE Team worked individually on revising reports from Phase I of MTE MCH/N Specialist met with Albina Torrez of Socios para el Desarrollo	9:00 am – 10:30 am MTE Team met with representatives of ADRA to review MTE schedule 11:00 am – 12:30 am, MTE Team met with representatives from CARE to discuss MTE schedule	MTE Team members worked individually on reviewing and revising report from Phase I of the MTE	Individual work time for MTE Team
Afternoon						
4:00 pm Team Leader and MCH/N Specialist met with USAID Food Security Unit Chief, Walter Shepherd	MTE Team meets to discuss plan for Phase II of MTE and progress with reports for Phase I	MTE Team met with USAID Food Security Unit Team members held separate meetings with USAID staff as needed	MTE Team members continued work on reports for Phase I MCH/N specialist met with Bolivian Ministry of Health's National Nutrition Coordinator MCH/N Specialist met with staff from PROCOSI	2:30 pm – 3:30 pm MTE Team met with Save the Children Bolivia to receive update on actions taken since Phase I of midterm evaluation 4:00 pm – 5:00 pm MCH/N Specialist met with Dr. Maria del Carmen Daroca of PAHO	Continuation of work on Phase I results 9:00 pm – 2:00 am MCH/N Specialist worked with Engineer from Phase I on water and sanitation portion of FHI and Save the Children reports	3:00 pm – 4:00 pm MTE Team departed for Tarija 7:00 pm – 9:00 pm MTE Team met with ADRA staff for briefing on program, including major components
Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	Evening spent in Tarija

Monday November 8	Tuesday November 9	Wednesday November 10	Thursday November 11	Friday November 12	Saturday November 13	Sunday November 14
Morning						
MTE Team traveled to Culpina	MTE Team split: IG visited Chinimayu & Andamarca; NRM visited Andamarca, Tirahoyo & Mishk-amayu; Health visited Pucarita & Villa Charcas; Infrastructure visited Chaquimayu - La Banda	9:00 am – 12:30 MTE Team met to compare notes and analyze data	9:00 am – 12:00 am MTE Team held debriefing with ADRA staff	MTE Team split to visit CARE project sites: IG, NRM and Health visited Huayco Hacienda; Infrastructure visited Canaletas Trancas	MTE Team split to visit CARE project sites: IG, NRM and Health visited Quebrada Grande and Pucsara; Infrastructure visited Quebrada Grande (only)	MTE Team met to compare notes and analyze data
Afternoon						
MTE Team split: IG visited Yuquina, Huancarani Bajo; NRM to Thojlasa, Charcoma, San Lorenzo, Sulltaca Centro; Health to Quizana, Los Pinos; Infrastructure to Rodeo Campo and Rodeo Pampa; all ended with Centro Villa Charcas	MTE Team split: IG visited Corma, & Sivingamayu; NRM visited Punquina, Quewayllani & Yapusiri; Health visited Jolencia & Huancarani Centro; Infrastructure visited San Cristobal & Sivingamayu.	MTE Team viewed a presentation by community members concerning the White Ribbon campaign to decrease maternal mortality (ADRA offices in Camargo) MTE Team returned to Tarija	3:00 pm – 6:00 pm MTE Team members met individually with ADRA staff to clarify remaining information needs 6:00 pm – 9:00 pm MTE Team met with CARE staff for briefing on program, including major components	MTE Team split: IG, NRM and Health visited Ro de Lajitas; Infrastructure visited Huayco Hacienda and Las Lomas.	MTE Team split: IG and NRM visited Campanario; Health visited Vizcarra; Infrastructure visited Tucumillas 8:00 pm – 10:00 pm MTE Team had dinner with CARE staff, Mayors and Municipal leaders	MTE Team continued discussions and analysis 4:30 pm – 5:30 pm MTE Team returned to La Paz
Evening spent in Culpina	Evening spent in Camargo	Evening spent in Tarija	Evening spent in Tarija	Evening spent in Tarija	Evening spent in Tarija	Evening spent in La Paz

Monday November 15	Tuesday November 16	Wednesday November 17	Thursday November 18	Friday November 19	Saturday November 20	Sunday November 21
Morning						
Team Leader and MCH/N Specialist held breakfast meeting with USAID Chief for Office of Health MTE Team attempted to leave for Chuquisaca, however, strikes and demonstrations in El Alto prevented team from getting to airport.	MTE Team members worked individually 11:30 am – 12:30 am, MTE Team departed for Sucre, Chuquisaca	MTE Team members visited CARE sites in Milanes (all components)	8:00 am – 10:00 am MTE Team gave debriefing to CARE staff in Sucre 10:30-12:00 MTE Team traveled to La Paz	MTE Team worked on /discussed CS-specific strengths, weaknesses, and recommendations by component	MCH/N Specialist met with USAID Chief for Office of Health MTE Team continued discussions and work on CS-specific strengths, weaknesses, and recommendations by component	FANTA MTE Team members returned to USA. Sun Mountain team members held team meeting and returned to home countries on Monday, November 22
Afternoon						
MTE Team worked individually and as a group on reviewing and writing up results	MTE Team split to visited CARE sites: IG & Health visited Pampas Abajo & Tarabuquillo; NRM & Infrastructure visited Pampas Punta; 8:00 pm – 11:00 pm, MTE Team had dinner with CARE staff, Mayors & Municipal leaders	MTE Team split: IG and Health visited Corso; NRM and Infrastructure visited Kuri 6:-00 pm – 9:00 pm MTE Team returned to Sucre.	MTE Team met to prepare for debriefing with USAID staff MCH/N Specialist met with CARE M&E staff	MTE Team presented debriefing to USAID staff in La Paz MTE Team held exit interview with USAID Bolivia's Food Secuirty Unit	Continuation of MTE Team work on strengths, weaknesses and recommendations	
Evening spent in La Paz	Evening spent Sopachuy	Evening spent in Sucre, Chuquisaca	Evening spent in La Paz	Evening spent in La Paz	Evening spent in La Paz	