



a U.S. Government initiative

SEE  
FEED  
CHANGE **THE FUTURE**



# GUATEMALA

## FY 2011–2015 Multi-Year Strategy

### U.S. Government Document

The Feed the Future (FTF) Multi-Year Strategies outline the five-year strategic planning for the U.S. Government's global hunger and food security initiative. These documents represent coordinated, whole-of-government approaches to address food security that align in support of partner country priorities. The strategies reflect analysis and strategic choices made at the time of writing and while interagency teams have formally approved these documents, they may be modified as appropriate.

*Document approved April 28, 2011*

[feedthefuture.gov](http://feedthefuture.gov)

# TABLE OF CONTENTS

<b>ABBREVIATIONS AND ACRONYMS .....</b>	<b>3</b>
<b>I. DEVELOPMENT CHALLENGES AND OPPORTUNITIES .....</b>	<b>5</b>
1.1 INTRODUCTION .....	5
1.2 CHALLENGES .....	5
1.3 OPPORTUNITIES .....	6
1.4 COUNTRY-LED STRATEGY .....	7
1.5 MULTILATERAL AND BILATERAL DONOR CONSULTATION .....	8
<b>2. PROGRAM OBJECTIVES AND STRUCTURE.....</b>	<b>8</b>
2.1 STRATEGIC CHOICES AND APPROACH .....	8
2.2 CORE INVESTMENTS.....	12
2.3 INCLUSIVE AGRICULTURE SECTOR GROWTH .....	12
2.4 IMPROVED NUTRITIONAL STATUS OF WOMEN AND CHILDREN .....	17
<b>3. FEED THE FUTURE COORDINATION .....</b>	<b>23</b>
3.1 INTEGRATING NUTRITION AND ECONOMIC GROWTH COMPONENTS .....	23
3.2 MONITORING AND EVALUATION.....	24
3.3 CLIMATE CHANGE AND NATURAL RESOURCE MANAGEMENT .....	26
<b>4. ANNEXES .....</b>	<b>28</b>
ANNEX A: U.S. GOVERNMENT ORGANIZATION FRAMEWORK AND COORDINATION MECHANISMS.....	28
ANNEX B. MONITORING AND EVALUATION .....	33
ANNEX C. INTERMEDIATE RESULTS INDICATORS, TARGETS AND SOURCES .....	36
ANNEX D. BACKGROUND ON GENDER AND THE RELATIVE STATUS OF WOMEN IN GUATEMALA .....	41
ANNEX E. HARNESSING INNOVATION.....	45

## ABBREVIATIONS AND ACRONYMS

<b>ANACAFE</b>	National Coffee Association
<b>AGEXPORT</b>	Guatemalan Exporters Association
<b>APHIS</b>	Animal Plant and Health Inspection Service
<b>CAFTA-DR</b>	Central American Free Trade Agreement – Dominican Republic
<b>CAMAGRO</b>	Chamber of Agro-industry and Farming/Livestock
<b>CDC</b>	Centers for Disease Control and Prevention
<b>CDCS</b>	Country Development Cooperation Strategy
<b>CENOC</b>	National Center of Community Organizations
<b>CONASAN</b>	National Council on Food and Nutritional Security
<b>E-CAM</b>	USAID Central America Regional Program
<b>ENCA</b>	National School for Agriculture
<b>ENSMI</b>	National Survey on Maternal and Infant Health
<b>ERS</b>	Economic Research Service
<b>EWS</b>	Early Warning System
<b>FANTA</b>	Food and Nutrition Technical Assistance
<b>FAO</b>	Food and Agriculture Organization
<b>FAS</b>	Foreign Agricultural Service
<b>FFE</b>	Food for Education
<b>FFP</b>	Food for Peace
<b>FPA</b>	Food for Peace Act (previously PL 480)
<b>FUNDAZUCAR</b>	Guatemala Sugar Association
<b>GHFSI</b>	Global Hunger and Food Security Initiative
<b>GOG</b>	Government of Guatemala
<b>IARNA</b>	Institute for Agriculture and Natural Resources (URL)
<b>ICTA</b>	Institute for Science and Agricultural Technology
<b>IDB</b>	Inter-American Development Bank
<b>IFAD</b>	International Fund for Agricultural Development
<b>IMCI</b>	Integrated Management of Childhood Illnesses
<b>INCAE</b>	Central American Institute of Business Administration
<b>INCOPAS</b>	Advisory Council for Social Participation
<b>INTECAP</b>	Technical Institute of Training and Productivity
<b>IYCN</b>	Infant and Young Child Nutrition
<b>MAGA</b>	Ministry of Agriculture, Livestock, and Food
<b>MDG</b>	Millennium Development Goals
<b>MFEWS</b>	Mesoamerican Food Security Early Warning System
<b>MOH</b>	Ministry of Health
<b>MOSCAMED</b>	Mediterranean Fruit Fly Program in Central America
<b>MYS</b>	Multi-Year Strategy
<b>MYAP</b>	Multiple Year Assistance Program under Title II
<b>NASS</b>	National Agricultural Statistics Service (USDA)
<b>PAO</b>	Public Affairs Office of the U.S. Embassy in Guatemala
<b>PDER</b>	Rural Economic Development Project
<b>PEC</b>	Program for Extended Health Coverage
<b>PESAN</b>	Strategic Plan for Food Security and Nutrition
<b>PIPAA</b>	Integral Agriculture and Environmental Program
<b>PLANOCC</b>	Plan Occidental (Sub-national Food Security Plan for Western Highlands)
<b>PL 480 Title II</b>	Public Law 480 Emergency and Private Assistance
<b>PM2A</b>	Preventing Malnutrition in Children under Two

<b>PRORURAL</b>	National Program for Rural Development
<b>SEGEPLAN</b>	Planning and Programming Secretariat
<b>SESAN</b>	Secretariat for Food Security and Nutrition
<b>SINASAN</b>	National System for Food Security and Nutrition
<b>SOUTHCOM</b>	United States Military Southern Command
<b>SPS</b>	Sanitary and Phytosanitary Standards
<b>SYAP</b>	Single Year Assistance Program
<b>USDA</b>	U.S. Department of Agriculture
<b>USAID</b>	U.S. Agency for International Development
<b>URL</b>	Universidad Rafael Landívar
<b>USAC</b>	Universidad de San Carlos
<b>USG</b>	U.S. Government
<b>UYG</b>	Universidad Del Valle de Guatemala
<b>WB</b>	World Bank
<b>WFP</b>	World Food Program
<b>WHO</b>	World Health Organization

# I. DEVELOPMENT CHALLENGES AND OPPORTUNITIES

## I.1 INTRODUCTION

The Guatemalan Feed the Future (FTF) Multi-Year Strategy (MYS) outlines the U.S. Government (USG) implementation plan for food security and nutrition in Guatemala, the goal of which is to reduce rural poverty and malnutrition in Guatemala. This strategy supports the Government of Guatemala's (GOG) leadership of an inclusive country-led food security planning process that will culminate in a food security Country Investment Plan in June 2011. The goal of the GOG's program is to "implement inter-institutional coordination mechanisms for approaching interventions in an integrated and sustainable form – oriented toward reducing the risk for food and nutritional insecurity and chronic malnutrition, attending the most vulnerable populations in priority municipalities."<sup>1</sup>

In support of this goal, and in close coordination with the GOG and other donors, the USG will focus on two objectives: 1) market-led agricultural development, and 2) prevention and treatment of undernutrition. The MYS will concentrate its support upon the GOG's sub-national plan for the Western Highlands, the area of the country with the highest density of poor and food-insecure people. The FTF MYS will fund activities to increase income, and reduce poverty and malnutrition, in selected municipalities of five departments: Totonicapán, San Marcos, Huehuetenango, Quetzaltenango and Quiché.

The Multi-Year Strategy aligns USAID resources, integrates programming with other USG agencies, leverages investments from other donors, the private sector and the GOG, and includes an active monitoring and evaluation component to report on program results and modify approaches. The MYS is also comprised of a diplomatic strategy to advocate for policy changes that increase the likelihood of sustainable poverty reduction in Guatemala.

The FTF program will also strengthen municipal governments' plans to reduce poverty and chronic malnutrition, improve their capacity to deliver basic services, especially water and sanitation, and to support community-based advocacy in order to ensure that sustainable food security is addressed by local authorities. USG will support NGOs advocating for improved health and nutrition; demanding local governments' accountability and addressing the needs of vulnerable groups such as women and children.

## I.2 CHALLENGES

Guatemala has the highest national level of chronic malnutrition (49.8 percent<sup>2</sup>) in the Western Hemisphere and one of the highest in the world. In Guatemala, chronic malnutrition is primarily the result of structural inequality and exclusion. A recent UNICEF study<sup>3</sup> reports Guatemala as having the third highest prevalence of moderate to severe stunting among children under five years old. At 54 percent, this prevalence follows close behind stunting rates in Afghanistan and Yemen.<sup>4</sup>

---

<sup>1</sup> PESAN or Strategic Plan for Food Security and Nutrition 2009-2012

<sup>2</sup> The National Maternal and Child Health Survey (2009). Percentage of children between the ages of 3 to 59 months with chronic malnutrition (height-for-age) using new World Health Organization standards. Using previous NCHS/CDC standards this figure would be 43.4 percent.

<sup>3</sup> UNICEF, November 2009, "Tracking Progress on Child and Maternal Nutrition: A Survival and Development Priority"

<sup>4</sup> Ibid.

Guatemala is a lower middle income country of 14.3 million people, of which approximately 40 percent are indigenous. Guatemala has a young, fast-growing population that doubles every 24 years. Almost half of the population is under 18 years old. Fifty-one percent of the population lives below the poverty line, while women and the indigenous suffer historical exclusion from political and socio-economic participation. Within the rural areas poverty is more extreme (71 percent poor; 24 percent extremely poor), income is least equitable and chronic malnutrition is far worse (65.9 percent overall, reaching over 70 percent in many communities), especially in indigenous communities. More than 74 percent of people working in agriculture are poor, compared to 43.6 and 23.1 percent working within the industry sector and commerce and services.<sup>5</sup> Nationally, education and wages levels are low within the general population. Within targeted regions women's literacy and wage rates are lower than that of men. In order to fully benefit from planned FTF opportunities, women's participation in agriculture production and marketing, including leadership positions within these organizations, will be emphasized during program implementation.

Other significant challenges face Guatemalans. Security issues affect everyday life in all regions of the country and natural disasters appear with increasing frequency, caused by climate change, deforestation and population growth. Guatemala is one of the 10 most vulnerable countries to climate change and natural disasters. Droughts or floods that cause loss of crops or damage to roads that limit access to markets can push marginal households into acute food insecurity. Unfortunately, these natural disasters happen with greater frequency and the energies and resources of the GOG and donor agencies are often diverted to provide relief and recovery to the victims. Finally, the presence and support of national institutions are minimal or absent in remote regions of the country. Local authorities, such as mayors, are the closest, most-accessible government presence.<sup>6</sup>

While numerous challenges exist, there are significant opportunities to increase the income and nutritional status of rural households and increase the efficiency of municipal services in rural Guatemala. The GOG's plan sets the framework for the proposed USG Feed the Future MYS.

### **1.3 OPPORTUNITIES**

Guatemala is recognized as a leader in the development of non-traditional agricultural exports in Central America. Exports of non-traditional agricultural products, such as snow peas, green beans, and mini-vegetables grew by 541 percent between 1999 and 2008.<sup>7</sup> Thousands of small coffee growers in the highlands have production and marketing skills allowing them to participate in a global market niche for high-quality, "specialty" coffees from Guatemala. For example, Starbucks obtains over 30 percent of its coffee from Guatemala. Coffee production creates two million jobs every year for rural families.<sup>8</sup> Further expansion of exports is limited by production and compliance with Sanitary and Phytosanitary Standard (SPS), rather than markets.

Even though corn is the principal staple, horticulture offers a much higher potential to increase rural incomes, both in direct returns to the producer and increased agricultural wage employment. One manzana (.699 hectares or 1.73 acres) of corn produces a profit of Q1,784 (\$232) for a farmer, plus day labor wages worth Q4,300 (\$558). One manzana split evenly between corn and horticulture crops produces a profit to the farmer of Q16,921 (\$2,198) and day labor wages of Q20,090 (\$2,609). The combination of profit and paid labor from horticulture production and limited basic grains is six times

---

<sup>5</sup> ENCOVI: 2000 Encuesta Nacional de Condiciones de Vida (ENCOVI)

<sup>6</sup> "Americas Barometer." Latin American Public Opinion Project. <http://www.vanderbilt.edu/lapop/guatemala.php>

<sup>7</sup> U.S. Trade Representative

<sup>8</sup> ANACAFE estimates

that from just basic grains on the same plot of land.<sup>9</sup> A significant portion of income produced through horticulture goes to hired labor. This is a primary source of income for wage laborers. Thirty-one percent of annual farm family income of the poorest 25 percent of rural households comes from agriculture wage labor<sup>10</sup>. Another source of both increased income for rural farmers and agricultural wage labor is specialty coffee production. Production from one manzana of coffee yields on average profit of Q9,624 plus labor wages of Q10,816, which while not quite as high as horticulture, involves less investment cost and less risk.<sup>11</sup>

The increased production of high value horticulture and coffee and the generation of employment, complemented by improved access to health services, access to potable water, and comprehensive hygiene and nutrition education will result in improved nutrition for western highland rural households. Targeted environmental mitigation/climate change activities (e.g., drought or heat-tolerant seeds, contour cropping, perennial fruit tree production, other canopy crops, etc.) can further reduce food insecurity<sup>12</sup>. However, the FTF strategy fully accepts that income and agriculture growth alone will not improve nutrition, and acknowledges that behavior changes that influence feeding practices and decisions at the household level are key to overall program success. Thus, joint programming with the Global Health Initiative (GHI) will help ensure a comprehensive approach with better chances of measurable and sustainable success, especially by incorporating gender and ethnic-appropriate extension and nutrition information and leadership training opportunities to increase women's participation in income-generating activities.

## **I.4 COUNTRY-LED STRATEGY**

The GOG acknowledges that chronic malnutrition is an enormous and challenging public health problem. Fifty percent of children less than 5 years of age are malnourished; higher than any other country in the Americas and higher than many Sub-Saharan African countries. Additionally, chronic malnutrition among children has a decided ethnic and geographic dimension; malnutrition rates increase significantly for rural and for indigenous children, 59 percent and 66 percent respectively.

Food insecurity in Guatemala does not result from inadequate national or local food supplies, but instead is caused by the inability of the poor to access food due to inadequate incomes. In addition to this inappropriate consumption decisions and feeding practices have lead to poor food utilization.

The GOG's Strategic Plan for Food and Nutritional Security (PESAN): 2009 – 2012, released in June 2009, seeks to ameliorate the risk of food security and chronic malnutrition, focusing on the most vulnerable populations of priority municipalities.<sup>13</sup> The GOG's sub-national implementation plan, Plan Occidental (PLANOCC),<sup>14</sup> addresses these issues in greater detail for the 6 departments of the Western Highlands. The GOG's national and sub-national plans are going through a series of strategic reviews at the national and regional levels to ensure that they are appropriately updated and have the support and buy-in of local officials, regional public institutions, civil society and the private sector.

---

<sup>9</sup> "Achieving Food Security in Guatemala: Opportunities and Challenges", Wingert, Stephen, Abt Associates, September 2010 from Hernandez, Ricardo, Thomas Riordan et al. "Analysis of Encuesta Nacional de Condiciones de Vida (ENCOVI), unpublished paper to be presented to the Agricultural and Applied Economics Association, 2010 Joint Meeting, July 2011.

<sup>10</sup> *ibid*

<sup>11</sup> *ibid*

<sup>12</sup> Guatemala has been selected as a Low Emissions Development Strategies (LEDS) country.

<sup>13</sup> "Plan Estratégico de SAN 2009-2012," SESAN [http://www.sesan.gob.gt/plan\\_estrategico\\_de\\_san\\_2009-2012.html](http://www.sesan.gob.gt/plan_estrategico_de_san_2009-2012.html)

<sup>14</sup> The Plan Occidental targets the region of Guatemala with the highest density of chronically malnourished people and with high levels of poverty.



Ongoing national coordination of all food security programming in Guatemala will be managed by the Secretariat for Food Security and Nutrition (SESAN) through a well-established coordination structure that involves all relevant GOG ministries, donors and civil society at the national level and all relevant actors at the local level as well (see Figure 1 below).

**Figure 1. National System for Food Security and Nutrition (SINASAN) Organizational Structure**



## 1.5 MULTILATERAL AND BILATERAL DONOR CONSULTATION

Donors supporting the GOG's food security efforts are well coordinated. GOG and donor coordination is done formally at the National Council on Food and Nutritional Security (CONASAN) level through the MESAN, the group on Food Security and Nutrition. A donors-only group, the Food Security working group, is co-chaired by the European Union (EU) and Canada. Private and civil society sectors coordinate with PESAN via the Advisory Council for Social Participation (INCOPAS). The USG and the EU have agreed to a pilot country strategic partnership for Feed the Future. The USG and the EU are supporting the leadership role of SESAN in coordinating donor response to the national and sub-national plan including regional meetings and the high-level event planned for May 2011.

## 2. PROGRAM OBJECTIVES AND STRUCTURE

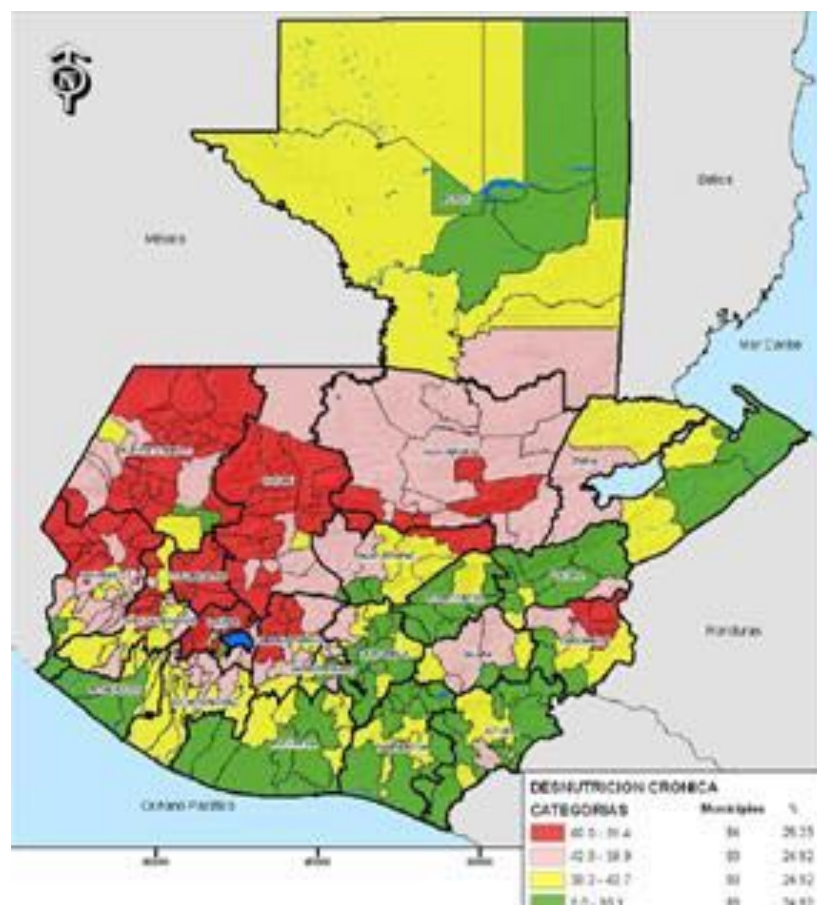
### 2.1 STRATEGIC CHOICES AND APPROACH

The USG believes that a geographically focused, integrated set of programs in three areas will sustainably reduce poverty and hunger in Guatemala. These three focal programmatic areas include agriculture, local governance, and nutrition (see Results Framework below). The USG based these strategic choices on major findings from consultations, analysis and review. First, analysis of the rural economy suggests that a value chains approach holds the greatest potential for moving people out of poverty and improving their access to food. The value chains of horticulture and coffee hold the strongest potential for small farmers. Second, integration of health interventions to improve the



nutrition of targeted populations (e.g., mothers and small children) along with value chain programs holds the greatest promise in reducing chronic malnutrition. Third, local coordination and support will be vital for the sustainability of Feed the Future. More specifically, local governments (i.e., municipalities) hold significant potential to coordinate and deliver sustainable local development.

**Figure 2. Feed the Future Geographic Focus – Malnutrition by Municipalities**



Finally, the multi-year strategy builds on the comparative advantages of multiple USG agencies (see Annex A). Agriculture-led growth support will be delivered primarily through USAID and U.S. Department of Agriculture (USDA) programs. Nutrition support will be delivered primarily through USAID and the Centers for Disease Control (CDC), as part of the Global Health Initiative.

The FTF program also recognizes that not all households are ready or capable of immediately shifting from subsistence to high value cash crops. The ultra-poor generally have less land, less education and less ability or willingness to take risks. However, because the FTF strategy seeks to promote equity and reduce poverty among smallholder farmers, broader value chain activities were chosen in favor of inclusion of the extremely poor to the extent possible. Food for Peace food assistance resources will be targeted to reach the most vulnerable and in order to move groups out of humanitarian assistance and into improved livelihoods through value-chains. USDA food assistance resources will support school feeding in these areas and coordinate with Food for Peace resources to link the value-chains with markets, research, and trade. Food for Peace and USDA food assistance programs will therefore seek to link ultra-poor or rural households who have the assets, capabilities and/or willingness to participate in

value-chain programs with high value horticulture or coffee production activities. USDA programs may include broader initiatives such as research, extension and trade-supporting projects that strengthen value chains and agribusiness.

The U.S. Government is confident that a geographically focused, market-led horticulture and specialty coffee value-chain production and marketing program will increase incomes among smallholders. However, because increased income has not always been translated into improved household nutrition levels, the FTF program will target behavior change activities to ensure that populations, particularly women and girls, understand the importance of nutrition during the first 1,000 days or 24 months of life<sup>15</sup>. During this critical 1,000 days consumption of protein, vitamins, minerals, and micronutrients are essential for themselves and their children. To better ensure sustainability, the MYS will strengthen targeted municipal governments to improve their economic development strategies and capacity to deliver basic services, especially water and sanitation.

**Table 1. Priority Feed the Future Interventions in the Western Highlands**

Economic Growth Office/FTF	<ul style="list-style-type: none"> <li>- Introduce improved value-chain technologies</li> <li>- Improve horticulture/coffee yields, production and quality</li> <li>- Expand and strengthen producer and marketing associations</li> <li>- Strengthen enforcement of phytosanitary regulations</li> </ul>
Health Office/GHI	<ul style="list-style-type: none"> <li>- Increase adoption of nutrition behavior change</li> <li>- Implement integrated case management of childhood/ maternal care</li> <li>- Ensure equipment and supplies/commodities to deliver basic package of health/nutrition interventions</li> <li>- Engage community and civil society leaders in promotion of behavior change</li> </ul>
Democracy and Governance Office/Local Governance	<ul style="list-style-type: none"> <li>- Deliver basic services – especially water/sanitation</li> <li>- Strengthen Municipal Economic Development strategies/plans</li> <li>- Support civil society to advocate for improved health/nutrition</li> </ul>
Food for Peace/PL 480	<ul style="list-style-type: none"> <li>- Assist vulnerable families to increase food production, consumption and utilization</li> <li>- Link select households to “value chain” production activities</li> </ul>
USDA	<ul style="list-style-type: none"> <li>- Implement McGovern-Dole and Food for Progress in targeted departments</li> <li>- Strengthen capacity of research institutions to develop and transfer technologies</li> <li>- Advocate for policy reform</li> </ul>
Private Sector	<ul style="list-style-type: none"> <li>- Increase investments in value chains</li> <li>- Increase contributions to nutrition/health activities</li> <li>- Advocate for policy reform</li> </ul>

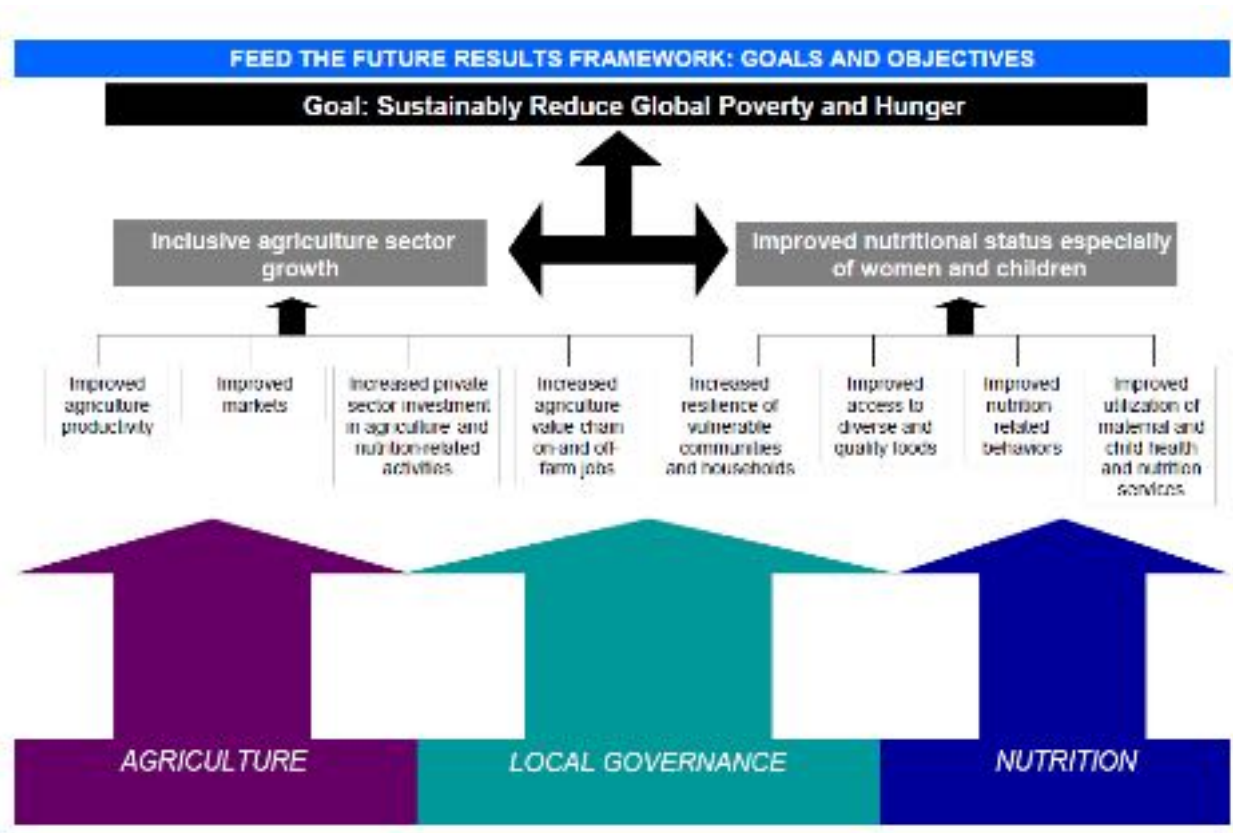
Through Feed the Future in Guatemala, over the next five years:

- An estimated 219,000 vulnerable Guatemalan women, children, and family members—mostly smallholder farmers—will receive targeted assistance to escape hunger and poverty.
- More than 166,000 children will be reached with service to improve their nutrition and prevent stunting and child mortality.

<sup>15</sup> <http://www.thousanddays.org/>

- Significant numbers of additional rural populations will achieve improved income and nutritional status from strategic policy and institutional reforms.<sup>16</sup>

**Figure 3. Feed the Future Results Framework**



<sup>16</sup> Disclaimer: These preliminary targets were estimated based on analysis at the time of strategy development using estimated budget levels and ex-ante cost-beneficiary ratios from previous agriculture and nutrition investments. Therefore, targets are subject to significant change based on availability of funds and the scope of specific activities designed. More precise targets will be developed through project design for specific Feed the Future activities.

## 2.2 CORE INVESTMENTS

**Table 2. Core Investments: Sustainably Reduce Global Poverty and Hunger**

IR 1. Improved Agricultural Productivity	Provide technical assistance to increase production and quality of Horticulture and Coffee Value Chains
IR 2. Expanding Markets and Trade	Expand access to markets through Associations and Aggregators to increase income from exports
IR 3. Improved Private Sector Investment in Agriculture and Nutrition-related activities	Partner with Private sector Resources to increase investments in food security and nutrition
IR 4. Increased Value Chain On and Off-Farm jobs	Increase employment opportunities through expansion of labor intensive value-added crops
IR 5. Increased Resiliency of Vulnerable Communities and Households	Strengthen local governance capacity and investment in food security.
IR 6. Improved Access to Diverse and Quality Foods	Introduce Home Gardens, Animal-Based Proteins, and Nutrition Education into target communities
IR 7. Improved Nutrition-related Behaviors	Expand in nutrition, education and counseling at the community level
IR 8. Improved use of Maternal and Child Health and Nutrition Services	Expand access to quality community health services

## 2.3 INCLUSIVE AGRICULTURE SECTOR GROWTH

Guatemala's abundant natural resources, micro-climates and labor force offer tremendous potential for further developing a competitive advantage in horticulture and coffee. Limited infrastructure, poor access to rural finance, incipient market organizations and research and extension constrain the rural economy from reaching its full potential and from generating sufficient jobs and income to reduce poverty for the rural poor.

### Intermediate Result 1-Improved Agricultural productivity (4.5)

High value horticulture production is a technically demanding and highly competitive enterprise. Farmers must be linked into the changing market demand and must meet ever-changing consumer tastes and rigorous market regulations. The program will select and provide technical assistance to producer association groups to increase the production and yield of high value horticulture crops and specialty coffee through the introduction of productivity enhancing technologies to increase income from high value crops. Technical assistance providers will work with farmers and farmer producer groups on quality assurance and certification programs. The USG strategy will specifically target women's participation in intermediate result (IR) activities to increase their income through production and marketing of high value cash crops. These activities will not be limited to only the sorting, grading, and packing aspects of project activities. The impact of global climate change on horticulture, and especially gourmet coffee production, will be examined as part of this intermediate result. <sup>17</sup>

### Activities will include:<sup>18</sup>

- Horticulture crop production (e.g., pest management, pruning, etc.)

<sup>17</sup> "Climate Change Presents A Burr For Coffee Growers", Murray Carpenter, National Public Radio and World Coffee Conference, Guatemala, March 2010

<sup>18</sup> All activities, results and indicators throughout the document are considered illustrative only and are not limited to those cited.

- Introduction of new technologies (i.e., drip irrigation system, low-tunnel greenhouses, new varieties)
- Adopting good agricultural practices to obtain certifications to access markets

Results will be:

- Increased yields
- New producer associations and strengthened existing associations
- Adoption of new technologies (e.g., seeds, planting techniques, use of greenhouses, pest management, etc.) and Good Agricultural Practices, including climate change risk reduction measures
- New value-chains or expansion of existing new crops

Intermediate Result 2 - Expanding Markets and Trade: Improved Markets

The greater trade openness provided by Guatemala's free trade agreements – in particular the Central American Free Trade Agreement-Dominican Republic (CAFTA-DR) – presents an opportunity to expand and diversify the rural economy.

The FTF strategy will link an increased number of small-scale producers to domestic and international markets through training and increased access to better markets and market information. Marketing association/producer groups will assist small-scale farmers, including an increased number of women producer groups, with strategic plans, good management practices, business and marketing plans, market studies, strengthened financial systems and controls and access to credit. Farmers will benefit from improved market information systems and timely dissemination of price data as well as seasonal and domestic markets analyses.

In addition to working directly with producer groups, USG will promote a pilot activity working with private sector wholesalers (or market aggregators) to link smallholders to local, regional and international markets. This model is aimed at catalyzing private sector resources and access to markets. It is expected that engagement with private sector wholesalers will stimulate demand for horticulture products and will expand market opportunities for smallholder horticultural producers. In addition, it is expected that the model will provide jobs for those who are not engaged in production of horticulture products. Under this private sector aggregator model, USAID also plans to establish an "Innovation and Investment Fund" to co-invest and share the risks with private sector organizations to incentivize investment in small scale productive infrastructure, such as a packing facility, irrigation systems, and cold storage rooms.

Activities will include:

- Training association leaders to better understand international market requirements
- Improving access to timely and accurate market information
- Establishing of a Sanitary and Phytosanitary system (SPS) that responds to markets requirements
- Meeting quality assurance and certification programs

Results will be:

- Market price information systems available to farmers
- Small export groups' exports certified
- SPS system established

Intermediate Result 3 - Improved Private Sector Investment in Agriculture and Nutrition-Related Activities

FTF will increase the number of new agricultural value chains and the number of Guatemalan private sector organizations interested in participating in the FTF program. Numerous private sector organizations have participated in the past and have expressed willingness to support FTF initiatives in value chains and health initiatives.

Initial meetings have been held between USAID, USDA and key private sector association leaders to further the dialogue and narrow the focus of potential interventions. This dialogue will continue through the MYS period and partnerships will be created. The USG will also ally with the private sector in order to advocate for increased investments and policy reform in agriculture and in health/nutrition. The USAID/Guatemala Mission is funding a "policy observatory" that will help guide and inform private sector advocacy and USG policy dialogue with the GOG.

Results will be:

- Increased number of private sector partners providing assistance to agriculture or nutrition programs
- Increased dollar value of private sector direct investments
- Tangible support for policy enforcement/reform in agriculture, food/nutrition and health advocacy

Activities will include:

- Meetings with the GOG and private sector in health, agriculture, telecommunications, advertising and banking
- Joint planning and dialogue with the private sector, GOG and USG agencies
- Memoranda of Understanding signed with private sector entities

Intermediate Result 4- Increased Agriculture Value Chain on-and off-farm Jobs

Support for horticulture and coffee production by small farmers is an essential starting point for poverty alleviation, as the earnings generated are spent locally and generate non-farm employment, stimulating the entire economy.

Using FY 2010 data for paid labor costs/hectare of "French" green beans, Q20,608 (\$2,576) are incurred for land preparation, seeding, first and second weeding/fertilization and harvesting, with harvesting representing Q12,880 (\$1,610, or 63 percent) of total paid labor. In addition to these paid



wages for direct on-farm labor, there are also added wages for sorting, packing, grading and transportation as well as expenditures on non-tradable goods. Maximum on-farm job creation will come from expansion of production of the most labor-intensive crops, for example snow peas and “French” green beans. For example, in snow pea cropping harvesting begins at eight weeks and continues for 10-12 weeks; other crops are harvested only once (i.e., broccoli) although these crops are planted and harvested over staggered periods during the season. As small farmers increase their production and income, they generate on-farm employment opportunities and the resultant expenditures of their income and that of farm-laborers circulates in the rural non-farm economy in a manner that reduces poverty.<sup>19</sup>

Project implementation will promote equity for women in the workforce. Special nutritional education attention will ensure that wages earned by women as a result of off-farm employment are used to purchase nutritious snacks to substitute for home-prepared meals. In addition to the unfortunate convenience factor of non-nutritious snack foods, there also appears to be a social statement that is made by the purchase of these snacks. Culturally appropriate nutritional education will target parents and older siblings in order to improve their understanding of proper vitamins, minerals, and micronutrients necessary within age-specific diets. Although total household income may increase due to women’s access to on farm and off farm jobs, this may cause a shift in who controls household income, and this has serious implications for food and non-food expenditures. Therefore, USAID will perform an assessment on source of household income (male or female), its control and utilization.

#### Activities Include:

- Expansion of value chains (e.g., coffee, high value horticulture crops, and handicrafts)
- Expansion of the number of farmers and farmer associations participating in labor-intensive value chain production and marketing

#### Anticipated Results:

- Increased number of jobs on farms producing high value horticulture and coffee
- Increased income from off-farm agriculture-related employment

#### Intermediate Results 5- Increased Resiliency of Vulnerable Communities and Households

Poor, rural communities in Guatemala are highly vulnerable to natural disasters, climate change, and resulting spikes in food insecurity.<sup>20</sup> Often these communities lack basic health, water, and sanitation services, which complicate their ability to recover from crop losses. Farming families often lack access to credit to adopt new technologies. With little or no savings, drought or floods that cause loss of crops or access to markets can push marginal households from chronic to acute food insecurity. Often the poorest of the poor in these communities are not ready to engage in value-chain agriculture that may be seen as high risk.

The activities outlined in the MYS will increase the resiliency of vulnerable communities and households within its geographic focus by aligning local governance and USG food assistance resources with FTF

---

<sup>19</sup> Mellor/IARNA found that 80 percent of employment growth in their model is directly or indirectly linked to agriculture (horticulture) production

<sup>20</sup> Guatemala is one of the 10 most vulnerable countries to climate change and natural disasters. UNISDR, Global Assessment Report on Disaster Risk Reduction (2009).

economic growth and health and nutrition programs. To help build up the resilience of these communities and of their most-vulnerable populations, the MYS will invest in the capacity of local governments to provide basic services (including water and sanitation) and to foster local economic growth. Expanding the availability of potable water will be a special focus. The MYS will also support civil society organizations, NGOs and citizens to advocate for improved health and nutrition; monitor the food security status of their communities and contribute to a national food security early warning system; demand accountability; and address the needs of vulnerable groups, such as women and children. This added civil society dimension will increase the sustainability of all MYS interventions.

Food for Peace and the USDA will align food assistance resources in complimentary activities to reach subsistence farmers and graduate them into USG value chain agriculture programs. They will also support small and medium sized farmers through research, training and technical assistance and extension activities; develop high value crops and food products; and create and strengthen agribusinesses within the MYS geographic focus. Complementary USDA activities will also establish and strengthen broader policy and trade frameworks to support overall food security. By improving livelihoods of the poorest of the poor, the Multiple Year Assistance Program under Title II (MYAPs) will improve those families' access to food and economic resilience. By providing maternal and child health services to areas without access to health services, the MYAPs will also contribute to better health and nutrition outcomes.

Finally, the MYS will invest in improving crop productivity to reduce the household risk associated with moving out of subsistence farming and into commercial production. One of the challenges to expanding poor rural household participation in rural value chains is to reduce the financial and food risks associated with change – of moving from subsistence to commercial production. Financial risks are the result of the increased expense of producing horticultural crops and coffee. Food risks are the result of a decrease in food crop production when land is used for other crops. Increasing the productivity of food crops grown for home consumption can therefore reduce food risk, and enable the transition to commercial production. Therefore, the MYS will assist poor rural households to increase staple food productivity to mitigate risk.

Activities include:

- Technical assistance to local governments on participatory planning, investment and social auditing methodologies
- Technical assistance to develop and implement local economic plans and infrastructure development plans
- Training of civil society and municipal leaders in early-warning systems and impact of global climate change
- Integrated provision of maternal and child health services and food assistance to the most-vulnerable communities
- Training to subsistence farmers on improved agricultural techniques
- Identification of market linkages for subsistence farmers ready to advance to small-scale, horticulture exports
- Livelihoods projects

- School feeding programs

Results will be:

- Diversification of household income
- Reduced number of rural households in targeted area experiencing food insecurity
- More effective planning and management of local resources
- Improved access to potable water
- Improved provision of health and nutrition services
- Improved livelihoods for the poorest of the poor
- Improved student nutrition and attendance in elementary school
- Improved surveillance of food security and nutrition
- Increased resilience of rural households to adverse climate change

## **2.4 IMPROVED NUTRITIONAL STATUS OF WOMEN AND CHILDREN**

As the complement to inclusive agriculture sector growth, the second objective of FTF will be to improve the nutritional status of the household, especially that of women and children working within the same municipalities targeted by the agriculture program. The focus of nutrition interventions under the MYS will be on the “1,000 Days” approach, which focuses on the period of human beings’ highest vulnerability to undernutrition: during the first nine months of pregnancy and the first 24 months of life. Improving nutrition in these 1,000 days leads to immediate gains in mortality and morbidity reduction, and lifelong gains in educational achievement, poverty reduction and economic growth.

Guatemala’s very high levels of chronic malnutrition are well-known.<sup>21</sup> This undernutrition is primarily caused by lack of access to food and poor utilization of food. The former is caused by low income and dependence on low-yield, small-scale agriculture. The latter is the result of low levels of education, low socioeconomic status and poor family planning.<sup>22</sup> The situation is even more complicated for the Mayan population living in rural areas due to the lack of basic services, poor feeding and hygiene behaviors, cultural and language barriers and lack of employment opportunities. During drought or other stresses, the high rate of chronic malnutrition tips over into acute malnutrition, demonstrating the extremely precarious position in which almost half of all Guatemalans find themselves.<sup>23</sup> The USAID/Guatemala Mission expects to:

- Reduce malnutrition in children under five;
- Develop sustainable food security and nutrition capacity systems for health workers, NGOs, and municipalities;

---

<sup>21</sup> Reynaldo Martorell, Rafael Flores, Morgan Hickey, Emory University, “Stunting in Guatemala: analyses of change over 15 years,” August 2002.

<sup>22</sup> See UNICEF, State of the World’s Children, 2000-2007 and National Maternal and Child Health Survey, 2009.

<sup>23</sup> Action Against Hunger (2009) recently evaluated 10 municipalities in the Dry Corridor and reported a loss of 37 percent of first crops and estimated a 73 percent loss of second crops and a rate of acute malnutrition of 7.7 percent

- Develop municipal food security and nutrition plans in municipalities;
- Improve logistics system for delivery of Vitamin A, iron, folic acid, and zinc;
- Establish national norms for iron supplements and prevention of anemia in children under 24 months of age;
- Increase immediate and exclusive breastfeeding in the first 6 months of life;
- Improve weaning and complementary feeding practices;
- Increase access to potable water; and improve home and community management of childhood illness.

The basic nutrition package to be delivered consists of seven proven essential interventions widely known as “Essential Nutrition Actions.” They are consistent with evidence on intervention effectiveness.<sup>24</sup> FTF will implement these interventions using existing national and local health/nutrition platforms – including: a) Program of Extension of Coverage (PEC), b) the Integrated Child and Women Care approach (AINM) – to ensure sustainability and institutionalization from the inception of the program and to ensure ample participation of GOG, NGOs, the private sector and the community. The FTF MYS will seek to create momentum, awareness and actions to address stunting and expand dialogue around growth promotion programs.

While the GOG has demonstrated a commitment to tackling undernutrition at the highest political levels, the lack of budget resources limits its ability to execute the required large-scale, multi-sectoral response to effectively prevent and treat undernutrition.<sup>25</sup> The MOH has an ample underutilized installed capacity, for instance coverage with micronutrient supplementation is very low, growth monitoring and counseling does not follow national standards, local health providers do not provide counseling to mothers and other caretakers during growth monitoring sessions and most of the time health workers lack of equipment, job aids, and basic supplies to carry out their duties. As such, the FTF response is to collaborate in programming investments, jointly designing programs and selecting implementing partners with the Global Health Initiative in the shared, targeted five departments.

#### Intermediate Result 6- Improved Access to Diverse and Quality Foods

The maize- and bean-based diet of low-income, rural highland households is rarely adjusted appropriately for infants and young children, who are fed the same food as adults in the family. A 2009 study showed that infants aged 9 to 12 months had a higher dietary variety and diversity than those aged 6 to 9 months. However, plant sources constituted a large part of the diet for all infants and children.<sup>26</sup> This lack of dietary diversity and the resultant macro and micronutrient deficiencies that have particularly negative consequences for physical and cognitive growth of children, beginning at

<sup>24</sup> Bhutta, Z.A., T. Ahmed, R. Black, S. Cousens, et al. “Maternal and Child Undernutrition 3 – What Works? Interventions for Maternal and Child Undernutrition and Survival.” *Lancet*, 371:417–440, February 2, 2008.

<sup>25</sup> Actions in support of this priority include the development of the National Strategy for the Reduction of Chronic Malnutrition, the formation of the multi-sector Secretariat for Food Security and Nutrition (SESAN), the passing of the Food and Nutrition Security Law of 2005, and the launching of the extension of coverage NGO model for the Guatemalan Integrated Health Care System (AIEPI-AINM-C) program. In addition, the GOG established the “Mi Familia Progresá” conditional cash transfer program for 453,622 families in 143 of the poorest municipalities to provide a social safety net for the poor.

<sup>26</sup> “Dietary characteristics of complementary foods offered to Guatemalan infants vary between urban and rural settings” Enneman A., Hernandez L., Campos R., Vossen M., Solomons, NW. *Nutr Res.* 2009 Jul;29(7):470-9.

conception, that is often exacerbated by insufficient feedings of the corn and bean diet by infants and young children during the weaning and early growth period (6 to 24 months). The almost immediate growth faltering of an inadequately fed infant is dramatically visible on a growth chart showing the World Health Organization (WHO) global standards for weight gain month after month. According to this global standard if there is no dietary change made within two years of birth, then this is a sign of chronic undernutrition, which can result in irreversible stunting and neuro-cognitive underdevelopment. An integrated set of nutrition interventions include home gardens/livestock raising, and agriculture production. These nutrition interventions will be undertaken by FTF partners using health, Title II and economic growth funds to improve access to diverse and quality foods. Health partners will provide the community-based health and nutrition interventions in all communities with FTF agricultural value chain productivity projects, including the promotion of home gardens and livestock-raising for family diet diversification. To ensure that diverse foods are available, including animal protein sources, women will receive training in planning and managing home gardens and in raising chickens for eggs or meat, milk goats, rabbits or pigs. In FY2012, Title II partners may carry out similar nutrition and community health interventions as well as contribute directly to more diverse and nutritious foods through their home gardening, poultry and livestock production activities in communities within the selected focus municipalities. Targeted behavior change education of parents and care-givers on the importance of dietary diversity using locally available foods may accompany the income-generation, farming and livestock promotion activities.

Planned activities include:

- Educating of mothers and other caretakers including fathers on immediate and exclusive breastfeeding for six months, appropriate feeding of the child during the weaning period, including continuous breastfeeding for two years, feeding the child during and after illness and use of locally available nutritious foods
- Introducing home garden and live-stock production activities for local consumption
- Linking households with value-chain activities and agriculture extension programs
- Partnerships with private sector to encourage home gardening and animal husbandry promotion and assistance

Expected results will be:

- Increased access of the household to foods other than corn and beans that include dairy products, meat, eggs, and fruits and vegetables, particularly those high in vitamin A
- Increased consumption of these foods on a daily basis by women, adolescent girls and infants and young children
- Increased adequacy of meal frequency for infants and young children
- Increased use of immediate breastfeeding, within half an hour after birth
- Increase use of exclusive breastfeeding during the first six months of age and continues breastfeeding during the first 24 months of age
- Increased access to vitamin and mineral supplements

## Intermediate Result 7-Improved Nutrition-Related Behaviors

While average income in Guatemala has improved over the last decade, high rates of chronic malnutrition, particularly in rural areas and among indigenous populations, have remained high. While government systems to deliver micronutrient supplements, potable water and health care services to vulnerable families need to be strengthened, improvement of these external factors alone will not address the heart of the matter, which is changing knowledge, beliefs, attitudes and practices around feeding infants and young children as well as adequate nutritional intake for adolescent girls and women of reproductive age.

Immediate and exclusive breastfeeding, as well as adequate weaning and complementary feeding practices, are inadequate in the Western Highland communities targeted by FTF. Breastfeeding for the first six months is one of the most cost-efficient interventions for reducing diarrhea and infant deaths, ensuring normal growth and lengthening birth intervals, yet it is practiced by only 66 percent of indigenous mothers. Likewise, WHO recommendations for feeding children 6 to 24 months frequently with an energy dense and diverse diet along with continued breastfeeding are not being followed. This under-feeding starts early in life in poor families and the effects are accumulated quickly. The most recent national survey (ENSMI 2009) showed a doubling in stunting between the period of 3-5 months of age and 12-23 months of age.

Priority will be placed on ensuring that all the elements of the essential nutrition actions are addressed in the target communities. FTF will support culturally appropriate, language-specific behavior change programs in target communities, working through USG's health partners, who will be responsible for a full range of health and nutrition activities in these communities. Women, and older children responsible for taking care of younger siblings, will be trained in "active feeding" practices to ensure that weaned children under two years of age receive the quantity, diversity and frequency of feeding that they require. Additional complementary efforts will contribute to improved nutritional behavior throughout the five departments of the Western Highlands targeted by the USG in a coordinated, non-duplicative, design. Title II partners will carry out nutrition and health behavior change programs in communities where health partners do not work. USDA, through its primary school feeding program, will reach teachers and parents as well as students with key messages on diet diversification. The Peace Corps, through its community health education program, will place volunteers in key communities throughout the Western Highlands, thus achieving a united, whole-of-government USG effort.

### Planned activities include:

- Use results of existing or new anthropological research on traditional and evolving beliefs, attitudes and practices regarding food, cooking, eating and infant and young child feeding and their contribution to health and growth to produce culturally appropriate and language specific nutrition messages for target indigenous populations
- Coordinate messaging and production of education and counseling materials across all USG programs addressing improved nutrition-related behavior in the Western Highlands
- Address specific messages to mothers and caretakers regarding special nutritional needs of ill or severely malnourished infants and children
- Participatory demonstration to mothers and caretakers of new recipes incorporating foods from diversified food groups for an improved diet



- Engage private sector partners and university and technical school food security and nutrition programs in behavior change efforts under municipal government-led planning and coordination
- Integrate nutrition behavior change efforts into FTF agricultural production programs through cross-training of extension agents and other community-level workers
- Develop, in a joint effort with local health providers and municipal representatives, yearly operational plans detailing the social and behavioral change communication (SBCC) activities and resources required in any given year
- Train community volunteers and NGOs local staff on the proper procedure to weigh all children under age 2 and record results accurately
- Health provider and community volunteers counsel women whose children are not growing well. Home visits to reinforce messages and monitor children that are not growing well. These visits will be carried out by NGO's staff and community volunteers to ensure that mothers and other caretakers are implementing the right actions to improve mothers' and infants' health and nutrition status

Expected results will be:

- Improved maternal nutrition during pregnancy and lactation
- Increased levels of immediate breastfeeding after birth and exclusive breastfeeding of infants 0 to 6 months
- Improved complementary feeding from 6 months of age, with continued breastfeeding until 2 years of age
- Improved hygiene and potable water storage practices
- Appropriate nutritional care of sick and severely malnourished children

Intermediate Result 8- Improved Use of Maternal and Child Health and Nutrition Services

Guatemala has an extensive system of public and NGO-run primary health clinics as well as standards of care for each level of facility. However, preventive health services within health centers and health posts are generally weak. The Ministry of Health has implemented the Program of Extension of Coverage (PEC) since 1997 which contracts with NGOs to deliver basic health services to rural communities without a health post through a once-a-month visit to vaccinate children, distribute micronutrients, provide contraceptives, monitor growth of infants and young children and give educational talks to mothers on a variety of health and nutrition topics. Women are encouraged to go to a health facility for prenatal care and to deliver their babies. Even with this effort, the MOH health posts and mobile services do not reach all communities in the Western Highlands and the community outreach efforts are of variable quality. One of the weakest points is adequate follow-up to the growth monitoring, which is sometimes seen as an intervention in itself. Once the child is weighed and the weight is marked on the child's chart, the follow-up education of mothers on nutrition and feeding and the specific counseling and ongoing negotiation needed with the mother of an undernourished child has not produced positive results. USAID's health partners will work in the FTF intervention communities, in partnership with the MOH, to strengthen the community aspects of nutrition and health services. Additionally, technical assistance will be provided to the MOH to strengthen systems to procure and

distribute key commodities (e.g., micronutrients, vaccines, essential drugs for treating childhood illness) to target communities.

Other efforts will address the cultural and language barriers that keep indigenous women from using health facilities for pregnancy, childbirth and the integrated maternal and child illness (IMCI) care. Assistance will be provided to the MOH to improve the quality and timeliness of health and nutrition data in the National Health Information Management System (SIGSA) which is needed to monitor and manage the interventions at the local level, both for project managers as well as community and municipal government authorities.

Planned activities will include:

- Assess, revise or update national protocols and guidelines for essential nutrition actions and other preventive care within Program for Extended Coverage (PEC) services and the other MOH service networks and ensure their distribution to service providers and train relevant staff
- Training and on-site supervision of community educators, community facilitators and “mother educators” in nutrition counseling and preventive health interventions.
- Improve linkages between community and health facilities to address barriers to use of facilities for prenatal, obstetric, postnatal and child illness care
- Assess and improve the MOH logistics and information and monitoring systems to improve distribution of basic commodities (iron, folic acid and zinc), report and monitor USG-supported health and nutrition interventions. Monthly growth monitoring of children, especially children under two years of age
- Early diagnosis and treatment of childhood illnesses
- Micronutrient supplementation for pregnant and lactating women, and children under two years of age

Expected results will be:

- Decreased prevalence of anemia in women of reproductive age and children
- Increased percentage of children completely vaccinated
- Increased percentage of childhood diarrhea and acute respiratory illness managed in the community
- Increased percentage of children under 5 years of age receiving twice-a-year vitamin A supplements
- Increased percentage of children under 5 whose regular growth monitoring shows increases within WHO global standards for acceptable weight and height gain

### 3. FEED THE FUTURE COORDINATION

#### Coordination and Integration with Donors and National Partners and Efforts

Bilateral and multilateral donors and international agencies (e.g., World Food Program and The Food and Agricultural Organization) will be coordinating their food security and nutrition work in the Western Highlands. A mapping exercise is underway to highlight the geographic focus of this work. The country investment plan process will document the level of their participation. USAID programs and other USG agencies such as the USDA, will concentrate their programs in targeted municipalities within the selected five departments of the Western Highlands. The Guatemalan private sector is investing in some municipalities, but less so in the more remote communities. FTF efforts to improve the nutritional status of women and children will be complemented by other initiatives to address malnutrition from the private sector. Some of these initiatives include micronutrient food fortification, production and distribution of enriched weaning foods like Vitacereal, and support for community agricultural extension services. Within the academic, research and government sectors these initiatives include the conditional cash transfer program Mi Familia Progresá, along with municipal government Food Security and Nutrition programs. USAID will also help strengthen the capacity of participating municipalities to deliver basic services, and to support community-based advocacy to ensure that food security and rural development are addressed by local authorities. The USG Feed the Future strategy will also help municipalities produce local economic development plans.

#### Collaborative Programming and Implementation of U.S. Government Resources

A USG Food Security Task Force, chaired by the Deputy Chief of Mission under the direction and policy guidance of the U.S. Ambassador, will ensure overall collaboration, coordination and effective use of Mission-wide resources. USAID leads the coordination through an FTF Working Group. The table below reflects the participating agencies (see Annex A for a detailed description of specific agency roles).

**Table 3. Feed the Future Participating Agencies**

<b>USG FTF Working Group</b>	
USAID/Guatemala	Department of Treasury
State Department	Department of Commerce
USDA	U.S. Military Group
Centers for Disease Control and Prevention (CDC)	
Peace Corps	

#### **3.1 INTEGRATING NUTRITION AND ECONOMIC GROWTH COMPONENTS**

The USAID-funded Infant and Young Child Nutrition (IYCN) study<sup>27</sup> concluded that positive and significant nutrition impacts are most likely to occur from agricultural interventions when: 1) household members regularly consume the food commodity being produced, 2) the intervention includes explicit nutrition counseling, 3) the intervention includes home gardens, and/or 4) the project introduces micronutrient-rich plant varieties.<sup>28</sup> The Title II and GHI-funded projects will offer a combination of

<sup>27</sup> Infant & Young Child Nutrition Project

<sup>28</sup> Nutrition and Food Security Impacts of Agriculture Projects: A Review of Experience summarizes more than 30 years of project and research experience on food security and nutrition impacts of agricultural interventions in low-income countries.

improved child rearing and feeding patterns, improved access to health services and reduced morbidity (through hygiene and sanitation) and will promote home and school garden activities as well as poultry and dairy activities. The Economic Growth Office's value chain project will instruct its partners to be innovative in transferring technologies (i.e., drip irrigation and use of low tunnels) used for production of high value horticulture crops for use within home-based gardens, while also encouraging nutrition counseling for producers and workers. Partners will be encouraged to train workers on nutrition using "transfer by analogy", which involves transferring knowledge from one domain to a target domain. For example, farmers recognize that corn plants that are not well fertilized will not produce as much as crops that receive the required plant nutrients at the right time. Animals that are under-fed or have parasites will not thrive. These analogies to household nutrition may be understood, but not practiced. Title II partners have some training material utilizing a similar approach. Agriculture/economic growth and health partners will utilize this material to train their staff as an additional means of influencing behavior in the homes.

Finally, at the household level, many of the health, Title II and value chain programs share specific Feed the Future indicators that are related to nutritional improvements. These indicators will be part of the FTF activity grants and contracts. This additional level of accountability will reinforce the programmatic linkages that are being created.

To reinforce integration at the field level among implementing and private sector partners, the FTF strategy will seek effective organizational integration through an inter-agency working group that will meet on a monthly basis and through a smaller USAID working that will meet bi-monthly. These groups will review programming, quarterly project and interim results reporting, and ensure dialogue on the best means to integrate agriculture and nutrition. Successful examples of agriculture/nutrition integration will be shared with partners and with municipal leadership to further support community-based advocacy for ensuring food security and rural development at the local level.

### **3.2 MONITORING AND EVALUATION**

USAID Guatemala is committed to the monitoring and evaluation (M&E) process to assess how the activities funded are achieving results and to what extent the FTF programs are reaching their objectives. Development hypotheses, intermediate results and indicators have been jointly developed with the offices within the USAID/Guatemala Mission, along with consultations with USDA and Peace Corps. Details of the Mission's M&E framework are included in Annex B.

**Gender:** The MYS recognizes the importance of gender and the challenges faced in creating equitable opportunities for women in the production and marketing activities planned and in effecting sustainable nutrition-related behavior change in the households. At the same time, there are numerous successful, if limited, models of appropriate integration of gender concerns and recognition of the differential roles and obstacles faced in rural communities. USG partners will be encouraged to conduct site-specific analysis of the communities in which they plan to work and to incorporate successful models to maximize the impact of program interventions. The USAID/Guatemala Mission carried out a Gender Assessment in April 2009. Relevant findings from that assessment are included as Annex D and USAID partners will be encouraged to include the findings in the design of their programs.

**Risks:** In addition to the challenges noted above, several identifiable risks will affect the overall success of FTF in the coming five years.

**Natural Disasters:** Given that Guatemala is one of the ten most at-risk countries for natural disaster, the FTF program must be flexible and resilient enough to overcome drought, hurricane winds, flooding and volcanic eruptions that could displace populations, affect infrastructure and destroy crops. A serious natural disaster might force the GOG to mount major relief/recovery efforts and result in a corresponding short-term shift in USG attention and resources to assist the GOG and the international community in such efforts. This shift in attention and resources, if significant, could affect achievement of FTF results.

**Political Transition:** Guatemala will elect a new government in September 2011 and campaigning has unofficially begun. While the SESAN has initiated discussions with political party leaders and local leaders, there is a risk that the incoming Guatemala administration might revisit the national food security strategy, replace some of the program leadership and thereby possibly slow the momentum gained and disrupt the consensus built to date.

**Budgetary Resources and Support:** Current GOG resources are insufficient to support the scope and scale of PESAN and PLAN OCC without donor and private sector support. The country investment plan and the USG diplomatic strategy should attempt to quantify specific resources from the GOG in support of the MYS.

**Phytosanitary Regulations:** Much of Guatemala's export agriculture relies upon compliance with strict sanitary and phytosanitary regulations. There is increasing concern among Guatemala's trading partners about Guatemala's ability to meet these international standards. A highly publicized recall of fresh or processed produce from Guatemala would lead to a debilitating and possibly devastating loss of market access, which would result in an economic, political, migratory, and humanitarian crisis.<sup>29 30</sup>

#### Agricultural Innovation and Research

Despite the importance of innovation, research and technology transfer to sustain competitive agricultural production, public investment in research and extension deteriorated significantly over the past decade in Guatemala. While the Ministry of Agriculture (MAGA) is undergoing reorganization with the stated aim of better providing assistance to the sector, it is unlikely that budgetary resources will increase sufficiently enough to promote the level of innovation and adoption required to maintain momentum. Pending the outcome of reform and improved budgetary resources, the FTF strategy will explore academic, research and technical assistance linkages with the Consultative Group for International Agricultural Research (CGIAR) research institutions, U.S. land grant universities via USDA's National Institute of Food and Agriculture (NIFA) as well as through potential partnerships with Guatemalan universities and technical institutes. The USDA Cochrane and Borlaug Fellowship programs targets Guatemalans involved in research in agricultural development and food security-related areas. Other avenues to pursue include:

- Public Affairs Office (PAO) academic exchanges of faculty of Guatemalan and U.S. agricultural schools

---

<sup>29</sup> "Achieving Food Security in Guatemala: Opportunities and Challenges", Wingert, Stephen, Abt Associates, Sept. 2010

<sup>30</sup> A Salmonella outbreak in the U.S. in 2008 was traced to Honduran cantaloupes with serious economic ramification for agricultural exports.

- Opening opportunities for local universities' agriculture graduates to do field work in project areas
- USDA basic research "dual use" programs which benefit both U.S. and Guatemalan agriculture systems. USDA is currently updating its comprehensive global research strategy and in alignment with the whole-of-government FTF research strategy will focus on advancing the productivity frontier, transforming production systems, and addressing food safety and nutrition issues

#### USDA Market Information/Statistics/Data and Economic Analysis

In support of Feed the Future activities the USDA will research trends and determinants of agricultural productivity in Guatemala, while also building a Global Agricultural Productivity Network to promote economic research and information sharing on agricultural productivity issues, and assessing and reporting on the progress of attaining food security.

### **3.3 CLIMATE CHANGE AND NATURAL RESOURCE MANAGEMENT**

The frequency of severe weather events in the Central America region has increased dramatically in recent decades as climate change continues to advance. The GOG Ministry of Environment's National Policy for Climate Change cites the negative impact of Hurricane Mitch (1998) and Tropical Storm Stan (2005), as well as negative impacts in the early months of 2008 on crop loss, domestic and rural infrastructure in Petén, Izabal, and Alta Verapaz. The impact of these climate changes has been aggravated by poor agricultural practices and land use, which further exacerbates the poor quality of life of the residents. Over the years climate change has impacted the quality and quantity of hydrological goods and services, loss of biological diversity, caused an increase in epidemiological illnesses, reduction in the production of basic grains, and has resulted in food insecurity. The USG FTF strategy provides a unique opportunity to design and implement best practices to help poor rural Guatemalans adapt to the changing conditions in their physical environment. The FTF strategy will utilize program resources to partner with academia, the private sector, the GOG and other donors to design interventions that best help Guatemala's rural poor. The strategy will also assist food insecure populations in mitigating the adverse impacts of climate change as they strive to increase the value of their food crops. National and international technicians working with SESAN have completed a Climate Change/Risk Management Plan that will be incorporated into the PLAN OCC. This Climate Change Management Plan and national surface/sub-surface water and watershed maps were developed with the help of the Ministry of Agriculture and in coordination with the Ministry of Natural Resources. The guidelines outlined in this plan will serve as a rich resource for short, medium and long-term investments in climate change management for USG partners, other donors and the GOG.

**Policy Agenda:** An initial policy reform agenda has been identified and will form part of the policy dialogue to be carried out with the GOG. It is included as an advocacy program under the diplomatic strategy. Policy dialogue will be conducted in collaboration with other donors and the private sector.

**Sanitary and Phytosanitary Management:** Creation of adequate institutional capacity to assure that SPS enforcement meets international standards should be a very high priority for GOG attention to ensure growth of agricultural exports.

**Strengthen Early Warning Systems:** To mitigate against acute hunger crises and support humanitarian response coordination, USAID has supported food security monitoring and early warning systems (EWS) in Guatemala primarily through the Meso-America Famine Early Warning System (MFEWS), and supported by other development partners in Guatemala – SESAN, MAGA, FAO, WFP, and various



NGOs. Ensuring a strong, reliable early warning system will make great strides to prevent and protect the poorest population from unexpected shocks.

***Leveraging Ministry of Agriculture Resources:*** Growth in the Guatemalan agricultural sector has been unstable and erratic, fluctuating between 1-4 percent per year over the past two decades, in part due to inefficient public policies and investments. Much work remains to be done within the GOG to make their public spending more effective in the agricultural sector. The USG will seek to raise the importance of reforms, budgetary alignment and augment transparency to increase resources for sustainable programs needed to increase income and reduce poverty in Guatemala.

***Closer collaboration between the Ministry of Health and the Ministry of Agriculture:*** Critical to the success of the Feed the Future program is strengthening the linkages and interactions between the Ministry of Health's services and the Ministry of Agriculture's programs, especially in the Western Highlands. Both Ministries need to align their individual programs within the overall GOG strategy as expressed in the PESAN and PLAN OCC. The Ministry of Health needs to acknowledge nutrition as more than a medical problem that can be addressed only through acute malnutrition interventions. The Ministry of Health needs to work with its staff and that of the Ministry of Agriculture on prevention and the importance of integrating behavior change approaches when addressing undernutrition.

## 4. ANNEXES

### ANNEX A: U.S. GOVERNMENT ORGANIZATION FRAMEWORK AND COORDINATION MECHANISMS

All USG agencies have agreed to the geographic focus of the five departments of the Western Highlands. A USG Food Security Task Force, chaired by the Deputy Chief of Mission under the direction and policy guidance of the U.S. Ambassador, ensures overall collaboration, coordination and effective use of Mission-wide resources including USAID, USDA, the Public Affairs Office, the Economic/Political Section of the Embassy, the Peace Corps, the Department of Defense's Military Affairs Office, the Department of Health and Human Service's Centers for Disease Control and Prevention, and the representative of the Treasury Department that can or might play supportive roles in achieving FTF objectives.

The Embassy is responsible for implementing a Mission-wide diplomatic strategy that includes a communications strategy and policy dialogue. Coordination mechanisms include the continuation of the FTF Task Force meetings on a quarterly basis, more frequent meetings among a smaller core group of agencies (USDA, USAID, Peace Corps for example), coordination meetings among implementing partners, joint field visits and sharing of reports and communications. USAID internal procurement documents (Economic Growth, PL 480 Title II Food Security, Democracy, and Global Health Initiative) will be shared as appropriate with relevant agencies, as agreed during a joint Food for Peace/USDA/USAID meeting, January 2011.

USAID will take the lead role in guiding the strategy such that design, procurement planning, implementation, reporting and monitoring and evaluation responsibilities integrate programs, resources and staff of other USG agencies.

**USAID:** Under the direction and guidance of the USAID Mission Director several offices and programs will combine resources, staff and reporting to implement the FTF strategy.

**Economic Growth Office:** The FTF MYS coordinator, responsible for orchestrating the inputs of other USAID programs, other agency programs, under the Direction of the USAID Mission Director works within the Economic Growth Office. The Economic Growth Program's goals are a more competitive Guatemala through inclusive growth, job creation and poverty reduction; full participation in the Central American-Dominican Republic free trade agreement (CAFTA-DR) zone; and significantly enhanced food security. USAID assists the process of formulating the laws, regulations and policies related to rural development, competitiveness and trade, as well as the strengthening of public institutions. Examples of specific work areas include support to establish and strengthen producer organizations; training in food safety standards, best agriculture and basic management practices; productivity and quality improvement; facilitation of credit and loans; development of long-term alliances with buyers such as Wal-Mart Central America and the small-scale horticulture producers cooperative, *Cuatro Pinos*, and others. USAID supports private-public alliances in a wide variety of products and services such as mini-vegetables, high-value agricultural products and gourmet coffee and strengthens small-scale producer cooperatives, trains producers in agricultural best practices and managerial and business skills. The Economic Growth Office is planning the procurement of several new projects which will implement portions of the MYS, identify policy constraints that limit pro-poor economic growth, as well as monitor and report upon impact through a bi-lateral contract mechanism.

**P.L. 480 Title II Food for Peace:** The USAID Guatemala Food Security Program is one of the largest PL-480 Title II food security programs in the Western Hemisphere. It coordinates with other USAID programs in health, local governance, enterprise and trade as well as with the GOG's SESAN, the

Ministry of Health, the United Nations Food and Agriculture Office and World Food Program, and NGOs to reduce food insecurity among at-risk Guatemalans. The USAID Program, which addresses food utilization, access and availability in vulnerable communities, is implemented by three partners - Catholic Relief Services, Save the Children, and SHARE/Guatemala. These partners currently work in four of the targeted departments: Chimaltenango, El Quiché, Huehuetenango, and San Marcos. USAID implementing partners use food aid rations for targeted supplementary feeding for 6-36 month-old children and pregnant/lactating women while working with families to improve and diversify agricultural production (i.e., soil management and conservation practices), micro-enterprise and marketing activities that augment on- and off-farm income sources. Using Food for Work and other resources, activities are underway to improve infrastructure in food insecure areas, to ease communities' access to markets and to lower business transaction costs. Title II resources will be re-programmed in FY 2012 to provide essential support through activities that integrate health and nutrition, agriculture and sustainable environmental practices, animal husbandry, micro enterprise and improved local governance in select municipalities of the five target departments. The new multi-year assistance programs will coordinate with other USG agencies and partners implementing the MYS.

**Health and Education Office** Global Health Initiative (GHI) will increase the availability of health services, promote nutritional and hygiene practices, monitor weight gain and promote growth in children under two years of age, in direct support of the FTF MYS. These complementary activities include: case management of childhood illnesses and maternal care; reproductive health, maternal nutrition during pregnancy/lactation; exclusive breastfeeding; complementary feeding for infants 6 -24 months old; access to micro nutrient supplements (Vitamin A, iron, folic acid) and support for micronutrient fortification; improved hygiene habits especially around food preparation; and access to potable water.

**Democracy and Governance Office** will provide technical assistance to improve local governance and promote decentralization. The USAID DG office supports the GOG and civil society efforts to strengthen and expand democratic processes and to improve governance, decentralization and local government, and governance of the security sector. Of particular importance to the FTF strategy is the focus on helping municipal governments become more effective and responsive to citizens' needs, improve security, and increase and enhance citizen's civic participation. Strong, positive, transparent leadership at the municipal level is important to the success of the FTF program. A qualitative assessment of the strength, leadership and willingness to participate in the FTF program was one lens by which the USG developed its FTF target municipalities because of the fundamental and critical interplay of good governance, leveraging of all available resources and sustainable economic development.

**USDA:** The U.S. Department of Agriculture's has various programs including: the FY2010 Food for Progress program that is supporting research and capacity building at the Universidad Del Valle with a focus on benefitting small growers); and the FY2010 McGovern-Dole International Food for Education and Child Nutrition Program, carried out by Project Concern International, that targets school feeding programs; and the USDA's Animal and Plant Health Inspection Service (APHIS). USDA has also received funding from USAID from 2005 to 2011 to provide technical assistance to the public and private sector to increase the international competitiveness of CAFTA-DR partners. This funding has benefitted Guatemala through the upgrading of laboratory infrastructure, the strengthening of WTO/SPS inquiry points, the integration of SPS regulatory information systems, etc.

The USDA's Foreign Agricultural Service (FAS) and APHIS offices have in-house expertise and extensive networks with key Guatemalan public, private, and academia partners. This network, and USDA's extensive "reach back" capability in the department, encompasses expertise in science-based improvements in agricultural productivity, post-harvest handling, and marketing, in a manner that

supports Guatemala's market-based economy and mitigates agro-environmental damage, and a wide range of other capabilities (e.g., food bank operations, agricultural statistics, irrigation systems, etc.). The USDA's Foreign Agricultural Service has various programs whose resources are aligned with the objectives of the program. These programs include: the Food for Progress, the McGovern-Dole International Food for Education and Child Nutrition Program, the Cochran and Borlaug Fellowship Programs, Sanitary and Phytosanitary Trade Capacity Building Programs, and others. FAS Guatemala is also researching a Basic Grains (corn and beans) Situation and Outlook Report which when completed will serve as a critically important document in assessing production, supply, and demand trends for corn and beans. The USDA's Animal and Plant Health Inspection Service (APHIS) plays a critical role in the certification of export crops destined for the United States and works closely with PIPAA, a private-public sector partnership which carries out inspections on selected export crops, to strengthen its capacity to carry out its oversight of the sanitary and phytosanitary responsibilities for Guatemala exports. USDA/APHIS has two primary missions in Guatemala: SPS management and Fruit Fly eradication and suppression. The Mediterranean Fruit Fly (MOSCAMED) program works to reduce the risk of Medfly outbreaks and to increase exports from newly eradicated areas. APHIS proposes to continue to work on improving SPS and inspection systems. USAID and USDA's FAS and APHIS coordinate closely on shared objectives for SPS management, particularly for the establishment of a self-sustaining public-private system for SPS services in order to ensure the safety and continuity of Guatemala's exports. USDA also carries out the Borlaug and Cochran Fellowship Programs, which can support research on food security, SPS trade capacity building, as well as many other agriculture and food safety related objectives.

FAS is transitioning toward a concentration of resources in the Western Highlands under its McGovern–Dole Food for Education and Child Nutrition programs. The FAS Food for Progress program also has targeted projects in the Western Highlands. In FY 2010, the McGovern-Dole Food for Education and Child Nutrition and Food for Progress programs, are funded at the levels of US\$3 million and US\$5 million, respectively. The McGovern-Dole Food for Education Program provides complementary direct feeding to promote improved school attendance and nutrition, especially of girls. The Food for Progress program lends itself to support agricultural research and training activities but can also be used for other ends (e.g. a credit guarantee fund) which support agricultural development. USAID is finalizing negotiations with USDA in the elaboration of a Participating Agency Program Agreement (PAPA), so that USDA can continue to execute its SPS trade capacity building activities in Guatemala and potentially tap into other core capabilities from USDA agencies. Future USDA Food for Progress programs may support activities, such as value chains, policy frameworks, or research. The potential synergies among these various activities illustrate the importance of considering work locations of all projects simultaneously.<sup>31</sup> The GOG does not have a robust market information system to support private sector decision-making and public policy development. Ideally as part of the MYS goal to expand markets and trade, the USG would support capacity building for a national system to collect, analyze and distribute agricultural data. USDA has considerable experience working in the region to develop public sector capacity to provide market information.

**U.S. Peace Corps Structure, Resources and Responsibilities:** The Peace Corps has approximately 225 volunteers in the Guatemalan countryside as of January 2010, with significant projected growth over the coming years. Approximately 30 percent of the Volunteers work in agriculture or environmental programs, 43 percent in health, and the balance in youth and municipal development. Where host country and Peace Corps priorities coincide geographically, there exists

---

<sup>31</sup> "Roadmap to align USAID and USDA food assistance programs in Guatemala", Prepared by the joint USAID/USDA delegation, January 2011

excellent potential for linkages and synergies with the FTF program. The Sustainable Agriculture project in particular includes work in both Food Security and Agricultural Marketing. Creative community-level use of volunteers are being explored to link volunteers programmatically with USAID value chain and nutrition projects in order to provide support to the follow up and lend practical expertise on agricultural practices and behavior change to program recipients. USAID contributed FY 2010 FTF funds to support small grants to volunteers under the interagency PAPA with the Peace Corps. Conversations with the Director of the Peace Corps program confirm their openness to align more directly with the FTF strategy. The presence of PCVs in the target areas provides a set of valuable, knowledgeable field staff that will complement the learning, monitoring and evaluation process.

## **U.S. Embassy:**

**Public Affairs Office (PAO)** made food security a priority theme in its FY 2010 and continues its support of the Feed the Future Initiative, particularly in direct support of the diplomatic strategy. USAID and PAO have jointly collaborated on hosting a food security speaker under the Strategic Speaker Initiative. The Public Affairs Office also suggests organizing visits and academic exchange programs involving agriculture schools of Guatemala universities, such as through the Fulbright Program and short-term FAS Fellowships. PAO also has identified a group of Fulbright agriculture alumni in Guatemala which could be interested in working with the Embassy on food security issues.

The PAO and the USAID Development Outreach Coordinator will continue to collaborate on coverage and messaging of the FTF program. In addition to communicating the success and impacts of the FTF program to a U.S. audience it is equally if not more important that the Guatemala people understand the program, the justification for the program, its alignment with priority needs established by the government and the participation of the public and private sector in its implementation.

**The Political and Economic Unit (POL/ECON)** established a sub-group of the relevant agencies (including U.S. Treasury on the budget side) to consolidate the policy agenda for the diplomatic strategy. The Ambassador is a key interlocutor for engaging the President and advocating for key policy reforms. The Diplomatic Strategy gains greater importance as Guatemala enters into an election cycle and a new administration takes power in early 2012. Political support for the momentum created to date for the FTF strategy, as well as policy reforms required to effect broad-based pro-poor economic growth will form an essential part of the strategy, especially in the initial 100 days of the new administration. The MYS establishes a number of potential reform measures that might be raised as part of the overall diplomatic strategy.

**Department of Defense: MILGROUP** -The collaboration between the USG Feed the Future funds and MILGROUP used in the “Dry Corridor” in 2010 will be the basis for possible expanded support in the Western Highlands. Under that model, MILGROUP provided infrastructure (e.g., greenhouses) in response to prioritized requests under the local economic development plans supported by the USAID local governance project. In another example, MILGROUP resources were approved for a water cistern to increase availability of water to a school receiving USDA Food for Education resources. While MILGROUP resources may vary from one year to another, there is agreement to discuss joint programming of these resources in support of the FTF program.

**Department of Health and Human Services:** CDC is the planning lead for GHI. CDC provides technical assistance for monitoring and evaluation and surveillance programs for nutrition, working with GOG’s SESAN and the National Center for Epidemiology (CNE). CDC will support the GOG in their capacity as the principal source of technical/strategic information and surveillance for GHI and FTF nutrition M&E.

**U.S. Treasury:** U.S. Treasury provides technical assistance to improve the fiscal management of the GOG budget and management of the overall macro economy. As such, U.S. Treasury's technical assistance helps the GOG cultivate stable market conditions that are supportive of economic growth and attractive to international investors.



## **ANNEX B. MONITORING AND EVALUATION**

USAID/Guatemala is committed to the full learning cycle of performance management – from monitoring performance through indicators, to analyzing planned versus actual trends in budget and results, to conducting impact evaluations to determine causal linkages, and finally, to applying lessons learned into improved program design and more effective interventions.

### Performance Monitoring

USAID/Guatemala will monitor performance indicators at four levels. Achievement of results at the national and regional levels will reflect resource contributions by the USG, in collaboration with other donors, GOG and private sector resources.

1. National level indicators to measure country context - USG contribution to results to be collected by existing surveys such as the ENSMI (similar to a DHS), the ENCOVI (living standards survey) and surveys by INE, the national census bureau;
2. Regional level indicators to measure results achieved throughout the Western Highlands area, a specially targeted area by the GOG for food security and nutrition - USG contribution to results to be collected by existing surveys such as the ENSMI, the ENCOVI and INE surveys
3. Targeted community level indicators to measure outcome and impact within the targeted community – Results attributed to USG to be collected and reported by a centrally or Mission-funded M&E contractor;
4. Project level results to measure project output primarily- Results attributed to USG to be collected and reported by Implementing Partners.

### Methods & Baselines

To collect data for national-level and regional-level outcome and impact indicators, USAID/Guatemala will build off existing data collection tools, such as the GOG's survey on living standards (ENCOVI) coming up in Spring 2011, as well as the employment and income survey (Empleo y Ingresos) conducted in 2010, the Household Expenditures Survey conducted several times per year, and the Agricultural Survey, conducted yearly. In addition, nutrition indicators are collected by the National Survey on Maternal and Child Health – ENSMI (similar to a Demographic and Health Survey DHS), and as part of the First Lady's Mi Familia Progresá program. These national surveys also provide data at the regional level and some at the departmental level, so that baseline data are available for the Western Highland Region. Although new FTF baselines for indicators at the national and regional levels cannot be collected with current financial constraints and timing, many of the surveys are recent enough to provide up-to-date information that can be used as the baseline until new sources are available. For example, the ENSMI was conducted last year, providing a multitude of data on national and regional trends in nutrition indicators.

Knowing the outcome and impact of project activities within the communities targeted by FTF provides is useful for contrasting the situation of benefiting communities against the national and regional contexts. Outcome and impact measurement at this level, which has to be representative of the entire community, is more difficult than collecting project outputs and is beyond the scope of any one Implementing Partner.

Therefore, additional resources will be tapped for collecting these community-level results, and USAID/Guatemala plans to use a mix of Mission-funded and centrally-funded M&E contractors to carry

out the task. As the centrally-funded M&E contractor will not be available until late in 2011, the Mission also plans to buy in to an IQC from the USAID/W PPL Bureau, and utilize the services of an existing centrally-funded contract with Abt Associates for M&E, with potential Mission-buy in. These more timely mechanisms will be useful in collecting baselines for these outcome and impact indicators at the community level, particularly because many of the national-level surveys mentioned above do not disaggregate to the municipality and community levels. Lastly, USAID/Guatemala intends to contract its own M&E partner, which will be available late in FY 2011.

For monitoring project-level performance, the sector teams within USAID/Guatemala have worked together to select FTF standard indicators that will best represent performance in their programs, as well as custom indicators to capture tailored performance not available in the standard list. In several cases, multiple teams' programs contribute to performance captured under the same indicator, in which case the Mission has laid out a plan for how each team will contribute to the total. Of course, baselines for project-level output indicators are always "zero" before implementation begins. Although the Mission has been careful to choose the required indicators under each applicable Intermediate Result (IR) of the FTF Results Framework (RF), additional indicators were selected with discretion, in an effort to balance an accurate measure of performance with an appropriate level of data collection effort. In this process, USAID/Guatemala reviewed indicators historically collected in their Performance Management Plan (PMP) and submitted to F through the Performance Plan and Report (PPR). Please see a list of the FTF standard and custom indicators selected in Annex C. This list also clearly lays out who is responsible for collecting each indicator and lists existing data collection tools, and opportunities for collaboration.

#### Links to Host Government & Local Capacity Building

As mentioned above, Guatemala already conducts a number of national surveys, often with funding from the IDB and other donors. Collaboration with Guatemalan partners on data collection provides a wealth of potential and, although much of this collaboration will be through financial support, data sharing, and survey design, this partnership will also include local capacity building as a key feature. As such, the Mission is interested in working through the M&E contractors in partnership with SESAN to build the capacity of INE, the national statistics office, and the National Epidemiological Center - CNE. Ideas for capacity building include hosting trainings on sampling techniques and data analysis, supporting management through a sharing of data collection and analysis best practices, and financial or human resource support for improved software tools. Details for appropriate capacity building efforts will be fleshed out with the forthcoming M&E contractor, but USAID/Guatemala has already begun meeting with Guatemala's Food Security Secretariat (SESAN) and the National Statistics Office (INE) to begin coordination; CDC/Guatemala has established a working relationship with CNE to strengthen the national nutrition surveillance system.

#### Impact Evaluation

USAID/Guatemala is committed to executing the FTF program in accordance with USAID's new evaluation policy which stresses the importance of designing projects from the outset with clear development hypotheses, realistic expectations of the value and scale of results and a clear understanding of implementation risks. Identifying key evaluation questions at the outset will both improve the quality of project design and will guide data collection during implementation. Specifically, USAID/Guatemala plans to conduct impact evaluations in three areas: 1) to assess program efficiency, 2) to validate its development hypotheses, and 3) to understand FTF program impacts. An initial set of development hypotheses for the Guatemala program are:

Nutritional education, in concert with increased income from improved horticulture value chains addressed by the FTF program, will improve household nutrition.

Addressing the agriculture sector as the motor of development in rural Guatemalan communities, especially concentration upon horticulture/coffee value chains has a multiplier effect in the community beyond the value chain and leads to increased income and employment in the community more effectively than focusing on a different sector as the development motor.

Non-traditional exports such as horticulture and specialty coffee will increase income and generate greater employment opportunities than focusing on staple crops and traditional exports.

Linking households ready to “graduate” from the P.L. 480 programs in Guatemala to the value chain project activities of the FTF program is an effective approach to lift households from extreme poverty.

Nutritional education interventions in indigenous Guatemalan communities will be less effective if based solely on standard nutrition teachings without directly addressing cultural nutrition, child rearing and food norms; and, therefore, understanding current indigenous feeding practices, such as cultural understanding of what types of food should enter a child’s stomach, is crucial to creating appropriate nutritional education materials.

Including men in nutritional education programs as direct participants will lead to improved behavior changes, food allocation, and income allocation more effectively than targeting women of the household alone.

Although the Mission will utilize both the centrally-funded M&E contractor and one procured by the Mission to help design and later carry out the impact evaluations, these mechanisms will not be available until late 2011. Therefore, USAID/Guatemala plans to buy into the USAID/W PPL Bureau’s evaluation IQC and a USAID/W BFS Bureau’s contract to help design the research methodology and set up the impact evaluation structures, including collecting baselines, in the second and third quarters of 2011. The specific methodologies will be fleshed out with the contracted evaluation partners; however, the Mission advocates for a randomized or quasi-experimental design for measuring impact where possible, understanding that other methodologies such as case studies and targeted longitudinal studies will be employed where a control group cannot be obtained. The impact evaluation process will include participatory methods to engage beneficiaries in identifying the changes resulting from the program, project strengths and weaknesses and answers to such questions as who has benefited and who has not and why. USAID/Guatemala is interested in working with the contractors to determine whether a census, traditional sampling, or alternative sampling methods, such as Lot Quality Assurance Sampling (LQAS), are best employed given the context of the targeted region size, the type of intervention used, and the available financial resources. As project monitoring and evaluation processes are carried out, information will be brought back and shared with communities so they can understand their progress over time and respond by improving practices and behaviors. Access to comparative information from other communities will also be shared for learning purposes.

## ANNEX C. INTERMEDIATE RESULTS INDICATORS, TARGETS AND SOURCES

USAID GUATEMALA: FTF HIGH LEVEL INDICATORS					
TITLE in FTF Results Framework (RF)	Indicator Title	Level of collection *national level is for contextual monitoring *targeted sub-national region is for monitoring USG-attributable results	Frequency of collection?	Indicator Type	Data Source
Goal Level Statement					
Sustainably Reduce Global Poverty and Hunger	Prevalence of Poverty: Percent of people living on less than \$1.25/day*	_National _Targeted sub-national region	_ENCOVI every 5 _bi-annually	impact	National level: _baseline: ENCOVI 2011 (INE) _subsequent collections: Household Expenditures Survey or Employment & Income Survey that could happen before next ENCOVI/INE Targeted community level: _baseline: ENCOVI 2011 (INE) _subsequent collections: USAID-GUA M&E contractor partnering with INE
	Prevalence of underweight children under 5	_National _Targeted sub-national region	_DHS every 5 _bi-annually	impact	National level: _baseline: DHS, collected 2008/09 _subsequent collections: ENSMI or Mi Familia Progres Targeted community level: _baseline: DHS does not go down to municipality level, so will need to partner with ENSMI or Mi Familia Progres to get this info, or have M&E contractor collect baseline _subsequent collections: ENSMI or Mi Familia Progres, in partnership with M&E contractor
First Level Objectives (National)					
Inclusive Agricultural Sector Growth	Per Capita expenditures of rural households (proxy for income) of USG targeted beneficiaries.	_Targeted sub-national region	annually	outcome	USAID-GUA M&E working with INE (National Institute of Statistics) build on national households surveys

	Percent growth in agricultural GDP	_National	Annually, with 9-12 months delay	impact	BANGUAT (Central Bank of Guatemala): National Accounts.
Improved Nutritional Status Especially of Women and Children	Prevalence of stunted children under five years of age	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	impact	See note in Goal Indicator "Prevalence of underweight children under 5
	Prevalence of underweight women	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	impact	
	Prevalence of wasted children under five years of age	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	impact	
<b>Second Level Objectives (Program)</b>					
<b>IR 1: Improved Agricultural Productivity</b>	Gross margin per unit of land (hectares) of selected product: horticulture and coffee	Targeted commodities with USG assistance	annually	outcome	Implementing Partners
	Number of individuals who have received USG supported short-term agricultural sector productivity training, disaggregated by gender. (*)	Targeted beneficiaries with USG assistance	annually	output	Implementing Partners (EG + DG)
	Number of additional hectares under improved technologies or management practices as a result of USG assistance (*)	Targeted hectares under USG assistance	annually	outcome	Implementing Partners
	Number of new technologies or management practices made available for transfer as a result of USG assistance (*)	Targeted technologies/practices under USG assistance	annually	output	Implementing Partners

	Number of rural households benefiting directly from USG interventions, disaggregated by gender of household head. (*)	Targeted beneficiaries with USG assistance	annually	output	Implementing Partners
	Number of policies / regulations / administrative procedures analyzed (Stage I of 5), each measuring a successive stage in the progression from analysis to implementation (*)	Targeted policies under USG assistance	annually	output	Implementing Partners (EG + DG)
	Number of private enterprises, producers organizations, water users associations, trade and business associations, and community-based organizations (CBOs) receiving USG assistance (*)	Targeted beneficiaries with USG assistance	annually	output	Implementing Partners (EG + DG)
	Number of institutions/organizations, undertaking capacity/competency strengthening as a result of USG assistance	Targeted beneficiaries with USG assistance	annually	output	Implementing Partners (EG + DG)
	Number of Women's Organizations /Associations assisted as a result of USG supported interventions.	Targeted beneficiaries with USG assistance	annually	output	Implementing Partners
<b>IR 2:</b> Expanding Markets and Trade	Value of incremental sales (collected at farm- level) attributed to FTF implementation (*)	Targeted commodities with USG assistance	annually	outcome	Implementing Partners

	Value of exports of targeted agricultural commodities as a result of USG assistance (for bilateral missions)	Targeted commodities with USG assistance	annually	outcome	Implementing Partners
<b>IR 3:</b> Increased private sector investment in agriculture and nutrition related activities	Number of public-private partnerships formed as a result of FTF assistance	Partnerships formed with USG assistance	annually	output	Implementing Partners
	Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation	Targeted sub-national region	annually	outcome	Implementing Partners
<b>IR 4:</b> Increased agriculture value-chain productivity leading to greater on- and off-farm jobs	Number of jobs attributed to FTF implementation, disaggregated by gender (*)	Targeted sub-national region	annually	outcome	Implementing Partners
<b>IR 5:</b> Increased resilience of vulnerable communities and households	Prevalence of households with (moderate or severe) hunger.	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	impact	see note in Goal Indicator "Prevalence of underweight children under 5). In the case of Guatemala, please NOTE THAT data is available <b>for hunger in general</b> (no distinction between moderate or severe)
	Number of vulnerable households benefiting directly from USG interventions, disaggregated by gender of household head.	Targeted beneficiaries with USG assistance	annually	output	Implementing Partners (EG + DG)
<b>IR 6:</b> Improved Access to Diverse and Quality Foods	Prevalence of children 6-23 months receiving a minimum acceptable diet	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	outcome	see note in Goal Indicator "Prevalence of underweight children under 5)

<b>IR 7:</b> Improved nutrition-related behaviors	Prevalence of exclusive breastfeeding of children under 6 months	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	outcome	
<b>IR 8:</b> Improved utilization of maternal and child health and nutrition services	Number of people trained in child health and nutrition through USG-supported health area programs, disaggregated by gender. (*)	Targeted sub-national region	annually	output	Implementing Partners
	Prevalence of anemia among women of reproductive age	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	outcome	see note in Goal Indicator "Prevalence of underweight children under 5
	Prevalence of anemia among children 6-59 months	_National _Targeted sub-national region	_DHS every 5; rolling average annually _bi-annually	outcome	
	Number of health facilities with established capacity to manage acute undernutrition	Targeted sub-national region	annually	outcome	Implementing Partners
	Number of children under 5 years of age who received vitamin A from USG-supported programs	Targeted sub-national region	annually	output	Implementing Partners
	Number of children reached by USG-supported nutrition programs (*)	Targeted sub-national region	annually	output	Implementing Partners

(\*) OP indicator already being collected and reported



## **ANNEX D. BACKGROUND ON GENDER AND THE RELATIVE STATUS OF WOMEN IN GUATEMALA**

Guatemala is characterized as a male-dominated or “machista” society, in both the ladino and indigenous populations. Decision-making, and political, social, and economic resources historically have been controlled by men. This control is reflected in lower levels of educational achievement and literacy for women, fewer women holding political offices, lower earnings for women in formal sector employment and less property ownership, and high levels of gender-based violence and maternal mortality.

Dependency results in low levels of self-esteem, lack of understanding of rights and resources, and reluctance or inability to act independently. The dependence is reinforced by high levels and general acceptance of violence against women. To break this cycle so that women as well as men benefit from economic growth and development programs, gender must be assessed as a cross-cutting factor in all programs and integrated into activities in all sectors.

As a result of the years of civil conflict and the patterns of out-migration, women make up 51 percent of the population of Guatemala, and 52 percent of the rural population. Indigenous Mayan, Xinka, and Garifuna groups account for approximately 43 percent of the population. Guatemala is a country of contradictions, with the largest economy and city in Central America but also among the lowest indices of human development and one of the highest measures of inequality in Latin America. Fifty-one percent of the population lives in poverty, with a much higher proportion (71 percent) in rural areas. Sixty-eight percent (68 percent) of those who live in extreme poverty are ethnic minorities. It is interesting to note that the familiar pattern of higher levels of poverty among households headed by women compared to households headed by men does not hold in Guatemala, at least in part because of remittances. Women are the principal recipients of remittances. The flows of migrants and of remittances are focused more on rural than on urban areas.

While most attention in health programs in Guatemala has been focused on maternal and child health, it is worth noting that the health system is intended to serve the needs of men as well as women, a subject sometimes neglected by international and government programs. Life expectancy at birth for men is lower; men have higher levels of risk for cardiovascular disease and cancer, and are more likely to be affected by violence and accidents. Anecdotal evidence also suggests that adolescent and adult men are less likely than women to seek medical services for themselves including preventative as well as treatment.

Agriculture continues to be the major source of employment in the country. Women work in agriculture as unpaid family workers and as day laborers, and agricultural processing is almost entirely women’s domain. Women are also farmers, increasingly as heads of households due to the migration of men. As farmers, they face a number of gender-based barriers that restrict income potential including limited access to property ownership. This limitation in turn makes it more difficult to acquire credit. Biases against women’s participation as members in farmer’s groups or cooperatives, and particularly against their presence in decision-making positions within the organization, also restrict access to inputs, information, and markets. Most extension agents, government and private sector are men, and are likely to give more attention to men farmers. Women have formed women-only farmer groups for commercial agriculture, but with less experience and fewer resources they have found it difficult to achieve the same benefits as men’s groups. The Red Nacional de Mujeres Agricultoras (National Network of Women Farmers) is an advocacy and service organization for women’s farmer associations and a potentially important source for additional information and contacts for increasing women’s involvement in agricultural programming. USAID implementing partners will be requested to consult with the RNMA prior to implementing activities designed to increase substantive participation of women in the agricultural production-related aspects of value-chain programs and in identifying and training of

women to assume visible leadership positions within farmer associations. An indicator has been added to track program assistance to women's organizations and associations (see Annex C). All relevant indicators will be disaggregated by gender to monitor success in increasing participation of women in marketing associations and producer associations as well as tracking training programs for women.

The earnings of employed women in Guatemala are only 58 percent of the earnings of employed men. (In the United States, women's earnings are about 76 percent of men's earnings. These figures are based on full-time year round employment.) The gap exists across diverse types of economic activity, in urban as well as rural areas. For agricultural workers, the payment for a day of labor for women is 25 to 30 percent less than for men.

The barriers to participation for rural women, both politically and economically, cannot be countered merely through equalizing opportunities. The history of exclusion and isolation, and lack of experience in dealing with national institutions and markets mean that particular measures must be taken to provide women with the tools to take advantage of these opportunities.

Both horticulture and coffee production are labor intensive activities. As production increases the requirements for unpaid family labor of women and children also grow. The expanded workload places an additional burden on women's time, as they add farm labor to household maintenance tasks and child care, and also tends to override any personal income-generating activities like sewing or baking. Although total household income may increase, the control of income will shift if the husband controls agricultural income. This has implications for food and non-food expenditures. Implementing partners will be requested to monitor the impact of paid and unpaid labor on individual households.

Segregation in the rural labor market means that agricultural processing jobs - cleaning, packing, packaging, and drying - are done by women. The initial impact of increased agriculture production on rural non-farms jobs is an increased demand for women workers, usually young and often unmarried. This result raises three points to consider. First, a key factor in the extended impact of growth in agriculture in terms of job and income creation is the availability and skills of these young women as workers in the local market. Second, the destination of the income received by these young women also is important to investigate. If they are living in their parents' households, they may turn their earnings back to their parents. The control over the way this income is used, for spending on household needs, investment, or saving, also will affect the spread effects of growth in agriculture. Finally, at the same time, it is essential to recognize the potential benefits of increased access to non-farm employment for women in rural communities in terms of income and empowerment, especially if the positions are in the formal sector. In the long term, these employment opportunities may have a major positive impact on gender relations. At the same time, there is evidence to indicate that wage-earning women might utilize this additional income to substitute purchased, non-nutritive snack foods for their children for more nutritive meals that require time to prepare, especially if the jobs are far away and/or require them to be away from home for long periods of the day. Jobs that require women to be away from home also have potentially negative impacts upon ability to breastfeed or care for sick children that project designers and implementing partners need to consider during project execution. USAID's Gender Assessment, April 2009 identified four underlying and cross-cutting themes, of which two are particularly relevant to the MYS. Additionally, USAID/Washington has offered TDY support to assist the Mission to refine this analysis and align it with the MYS, as requested.

Barriers to participation in decision-making in the household and in the community are a fundamental aspect of gender inequality for women. Political and economic empowerment through new opportunities to take part in the community and in economic production, and access to tools for effective participation are important paths to more equitable gender relationships.

In Guatemala, the gender analysis and activities that emanate from it must necessarily deal with the intersection between gender and ethno-cultural identity, and the commonality and differences among women and their relationships with men in a multi-cultural society.

The recommendations of the Gender Assessment were successfully included into all ongoing grants and contracts in FY 2010 and will be inserted into procurement documents under the MYS. Under the MYS, USAID will work on an integrated approach in which beneficiaries under the access to income generation activities will also be the target population for nutrition interventions. The USAID Mission's local governance/decentralization activities will promote economic opportunities within the target municipalities.

**Economic Growth:** USAID partners in implementing horticulture and coffee value chain activities will be instructed to consider and employ the following approaches:

Incorporate objectives for women's membership and participation in decision-making as part of the organizational strengthening activities with producer groups. Develop training programs to increase the number and responsibility levels of women in producer and marketing groups. Identify viable women's producer groups for inclusion in the project and assist them to be competitive in mainstream project activities.

Promote to the extent possible the diversification of membership (i.e., both men and women) and of leadership of cooperatives and producer groups as part of the organizational strengthening and technical assistance provided to these groups, and to consider including diversity as a criteria for group selection. Provide required leadership and/or other skill training to help meet established objectives by carrying out the following:

- Include sex-disaggregated targets into their Performance Management Plans to be able to measure the progress of women's achievements relative to men's. Where practicable, household-level data will be collected which allows for analysis of levels and changes in levels for both men and women in households.
- Make sure that baseline data incorporates gendered approaches.

**Investing in People:** Under the MYS, USAID will work with mothers that occupy a leadership position within their communities to serve as nutrition counselors at the community level (in promoting home gardening and the use of produce from these gardens for diversity of diets).

USAID implementing partners will also be instructed to consider and employ the following:

- Targeting both men and women in the delivery of services and messages so that men can support their wives and children in decision-making on nutrition and family health, especially health emergencies. Including special consideration of the fact that older siblings may be relegated care-giving responsibilities for younger family members and must be instructed about the feeding frequency and nutritional requirements of the children in their care. (This might especially be true in the case of women accepting wage-labor jobs that take them away from the household for much of the day.)

- Increasing attention to adolescents and youth, both men and women (particularly in rural areas), in the delivery of education and health services, through both traditional and non-traditional channels.
- Training for local NGOs and field workers to sensitize them to the negative manifestations of male dominance and female dependence that they will encounter in their work and to provide them with techniques to counter these negative factors; Including messages about women's rights, where to turn for assistance, and self-esteem in the interactions with women in rural communities;
- Assisting field workers in identifying appropriate points and techniques for involving men in improving maternal and child health;
- Providing field workers with guidelines and information for involving men, especially adolescents, in discussions about reproductive health; and,
- Establishing situations in which women only gather to freely discuss health issues among themselves and with a health professional.
- Reviewing all health-related communication materials (pamphlets, posters, radio messages) in terms of the message they convey about gender relations.

Local Governance/Decentralization: Implementing partners will be instructed to consider and employ:

- Supporting the involvement of women's associations from the Association of Women Mayors through indigenous women's groups and women-led municipal-level working groups
- Recognizing the multiple barriers facing rural women in political (and economic) participation provide support to NGOs and programs with a commitment to building capacity and access to enable them to take advantage of emerging opportunities.

Gender is a cross-cutting variable and issues of power and political participation cannot be separated from economic empowerment and access to resources or from access to quality education and health services. Our Monitoring and Evaluation indicators for the MYS will be disaggregated by gender. Baseline data will help establish the current income and nutritional status of women in the groups and that of their children.

## ANNEX E. HARNESSING INNOVATION

The USG FTF strategy supports the introduction of innovation. Globally, important areas for agricultural innovation include: crop improvement, especially of staple crops; smarter use of water and fertilizers; new pesticides and their effective management to avoid pest resistance problems; introduction of novel non-chemical approaches to crop protection; and reduction of post-harvest losses.

<sup>32</sup> For Guatemala, the FTF program will seek to introduce the following:

- Improved drip irrigation systems: Water for household use is a limiting factor during the dry season in the highlands. Getting rural households to adopt home gardens to increase diversity and nutritional value of diets is constrained by their difficulty in securing sufficient water for these gardens, use of water that competes with household and livestock needs. Small scale drip irrigation systems are used in production of high value horticulture crops. Smaller and less costly drip irrigation models exist, have been shown to improve production from small plots and will be introduced where feasible.
- Cellular technology, markets and nutrition: Cellphones are ubiquitous in the Guatemala highlands. There exists considerable potential to utilize texting for market price information and nutrition and health tips with the sponsorship of the private sector. This approach will be explored during the MYS.
- Banking and Credit Card Transactions: Citibank expressed interest in offering customers the opportunity to “round up” their purchases and use the rounded up sum to support nutrition efforts.
- Geographic Information System (GIS)-referenced fertilizer recommendations: Coffee plantations in Guatemala are well geo-referenced and indexed with information on altitude, type and special characteristics. Expanding the use of geographic information system technology for mapping of available resources (clinics, schools, water sources, markets) and current or planned USG interventions at the municipal and community levels will facilitate monitoring and evaluation of FTF program activities. Additionally, soil sampling, crop estimates and even specific fertilization recommendation programs exist that can be used to increase the effectiveness of technology transfer.
- Staple Crop bio-fortification: Deficiencies of vitamin A, iron, and zinc affect over one-half of the world's population. Progress has been made to control micronutrient deficiencies through supplementation and food fortification, but new approaches are needed, especially to reach the rural poor. Biofortification (enriching the nutrition contribution of staple crops through plant breeding) is one option. Scientific evidence shows this is technically feasible without compromising agronomic productivity.<sup>33</sup> Guatemalan highland farmers will continue to allocate a portion of their land to staple crops, corn and beans. There are conventionally bred varieties that exhibit improved drought, disease and pest resistance. Guatemalan policy currently prohibits the introduction of genetically modified organisms, but should this policy be modified, it is possible to introduce bean varieties with increased zinc and iron, sweet potatoes with

---

<sup>32</sup> “Food security: contributions from science to a new and greener revolution”, Beddington, John, “The Royal Society: Biological Sciences”

<sup>33</sup> “M. Bio fortification of Staple Food Crops,” Penelope Nestel, Howarth E. Bouis, J. V. Meenakshi; and Wolfgang Pfeiffer\* The HarvestPlus program is funded by the Bill and Melinda Gates Foundation, the World Bank, US Agency for International Development, UK Department for International Development, and the Danish International Development Agency.

higher levels of beta-carotene, and tomatoes with increased folates. This could have important contributions for nutrition as tomatoes and tomato products are consumed in large quantities in Guatemala.<sup>34</sup>

---

<sup>34</sup> Folate biofortification of tomato fruit, Rocío I. Díaz de la Garza, Jesse F. Gregory III, and Andrew D. Hanson , Departments of \*Horticultural Sciences and †Food Science and Human Nutrition, University of Florida, Gainesville, FL 32611