

Baseline Study of Food and Nutrition Status of Families in the Growing Healthier Regional Food and Nutritional Security Program

Nicaragua, Honduras and Guatemala



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PREFACE

"I was with the mothers weighing their babies, saw their faces. I have a commitment to them now." "Before the study, we used to focus mainly on what the farms would look like. After the study, we will focus more on the families." "We have to do something for those kids. We know who they are, in which communities they live."

Such are the reflections I heard in July, 2010 when Church World Service and the four partner organizations involved in this report came together to analyze the results and define next steps in our work together on food and nutritional security. This report summarizes the principal findings of a joint study undertaken as the first step in creating a "community of learning" to promote regional food security in many of the poorest communities of Central America.

We call this regional program "Growing Healthier." Food security is not just an abstract concept, and it is not just about more food: it is about allowing children and families to have the sustenance, water and nutrition they need throughout the year—not just to eradicate hunger or malnutrition, but to thrive, in harmony with their ecosystem, with their traditions and with dignity.

That is what this study is about. It has succeeded in providing us detailed baseline information to guide our interventions and against which to measure our progress. It also deepened our commitment to supporting these families with a combination of elements. In addition to the training, inputs, farmer-to-farmer exchanges and other basic elements of our work that have allowed for greater production, diversification and storage of food, we will be putting greater emphasis on access to potable water and something new: nutrition education and monitoring. It is time for agronomists and nutritionists to join their efforts more closely. This study explains why.

CWS would like to thank Eliett Marín, who coordinated and supervised the study, conducted the trainings, and wrote the country reports and this summary. We also thank the four partner organizations for the opportunity to work together on food and nutritional security in Central America.

Martín Coria
REGIONAL COORDINATOR

CHURCH WORLD SERVICE OFFICE FOR
LATIN AMERICA AND THE CARIBBEAN

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Our gratitude goes out to the technical teams at the Interchurch Center of Theological and Social Studies (CIEETS) and Christian Medical Action (AMC) in Nicaragua, as well as to the Council of Evangelical Churches of Guatemala (CIEDEG) and the Mennonite Social Action Commission (CASM) in Honduras. Their hard work made possible the workshops, data collection and information synthesis that were integral to this study.

A special debt of gratitude is owed to the promoters and community leaders that participated in all stages of this study, the heads of families that generously provided information and the children under 5 years of age that were evaluated.

Finally, we would like to thank to all the people whose services in one way or another contributed to the timely completion of this study.

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INTRODUCTION

In 1996, the United Nations Food and Agriculture Organization (FAO) convened the World Food Summit. At the summit's conclusion, leaders from 185 countries and the European Community affirmed *"the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger"* in the Rome Declaration on World Food Security.

The Nutrition Institute for Central America and Panama (INCAP) promotes the broadening of the concept of food and nutritional security to *"a state in which all persons enjoy, in a timely and permanent manner, physical, economical and social access to the food they need, in quantity and quality, for the adequate consumption and biological utilization that guarantees a general state of well-being that contributes to the achievement of their development."*

Church World Service (CWS) and its partner institutions in Central America have joined forces to promote food and

nutritional security for families in the region's rural areas. These partners include the Interchurch Center of Theological and Social Studies (CIEETS) in Nicaragua and Christian Medical Action (AMC), also in Nicaragua; the Council of Evangelical Churches of Guatemala (CIEDEG); and the Mennonite Social Action Commission (CASM) in Honduras. Together, we launched a regional Food and Nutritional Security Program (PRESAN) to be implemented between 2009 and 2011 in areas where our partners have projects funded by CWS.

Implementing a regional program has increased coordination and project effectiveness. It has also aided in the enrichment of the participating families and local organization members through the exchange of experiences and lessons learned.

The general purpose of PRESAN is to increase food and nutritional security among impoverished populations of Guatemala, Honduras and Nicaragua in a way promotes sustainability and reduces vulnerability. This study, which aims to

provide detailed information on the food and nutritional security of the participating families, constitutes the first step in the regional program.

This study surveyed 1,245 families, including 925 children under 5.

COUNTRY	FAMILIES	CHILDREN UNDER 5
GUATEMALA	466	320
HONDURAS	275	170
NICARAGUA	504	435
Total	1,245	925

The study was conducted in the second half of 2009.¹ The participating families include all those involved in the regional program in Nicaragua and Guatemala, and 275 families from Honduras that will be joining the program. All data presented here, including graphs and tables, was taken from the three country studies.

The methodology used for both training and completion of the study was fully participatory. As such, the promoters, community leaders and partners' technical staff became involved in all stages of the study. In this way we were able to not only obtain information but also participate in a collective learning process that encouraged the sustainability and successful management of the overall program.

To collect data, the technical staff, promoters and/or community leaders interviewed the father or mother as head of household. Data was recorded in the same form in all three countries and the tabulation methods were pre-coded. As such, it was only necessary to change the food names where appropriate and add more space to evaluate the nutritional status of additional children as needed from study to study.

Data collected measured the following:

- 1 Food availability, including food produced, growing and storage techniques, periods of food shortage, access to credit and financing, and agro-ecological conditions.
- 2 Physical access to food, looking at the places and persons that market food, and the economic access which is conditioned by the families' monetary income.
- 3 Food consumption, the families that benefited from food aid, the person that determines the type of food the family consumes the type of advice around food and nutrition they receive and its influence.
- 4 Utilization of food, which corresponds to the type of diseases suffered by the children and their care, the families' access to health care and medicines and the practices around food and personal hygiene.

¹ The study took place from mid-July to early September in Nicaragua; mid-September to mid-October in Guatemala; and early October to late November in Honduras.

- 5 Food consumption during the seven days prior to the survey, the frequency with which each type of food is eaten daily and the amount cooked daily to establish a feeding pattern and its suitability in accordance with general recommendations. This information was obtained from the person who purchases and cooks the food in the home.
- 6 Nutritional state of children under 5, according to the indicators of Weight per Height and Height per Age, in addition to the feeding practices for children under 5. The anthropometric measurements were taken directly of the children and the data on feeding practices was obtained from the person who is in charge of their care.

The study results constitute a baseline that allows for planning of the actions to be developed, monitored and evaluated as part of the regional program.

The purpose of this document is to present a summary of the most relevant study results, all of which have been presented in a comprehensive manner in country-specific documents. This summary also compares results across countries to assist in decision making on priorities and in the general planning of the regional program. This summary respects the order in which the country studies were completed: first Nicaragua, followed by Guatemala and then Honduras.



MAIN FINDINGS

IN NICARAGUA, GUATEMALA AND HONDURAS

2.1 DEMOGRAPHIC RESULTS

As shown in detail in Table 1, the food and nutrition study comprised a total of 55 communities in the three countries. Some 31 communities are located in Nicaragua (in four areas in two departments and one Autonomous Region). Two other countries have 12 communities each, in Guatemala in two departments and in Honduras, in one department.

Table 1 also shows a greater number of children under 5 in the municipalities of Waspam in Nicaragua, Nebaj in Guatemala and Nueva Frontera in Honduras.

As the study methodology was entirely participatory, a total of 88 people from the three countries were trained to carry out all the stages of the appraisal: data collection, tabulation and general analysis. Those trained include promoters or community leaders and technical staff from the local organizations, Since the study

was conducted in four different areas in Nicaragua, 45 people were trained. In Guatemala, 14 people were trained and in Honduras, 29 people (See Table 1).

TABLE 1
Distribution of Families by Country, Department and Municipality

COUNTRY	DEPARTMENT	MUNICIPALITY	NUMBER OF COMMUNITIES	TOTAL FAMILIES	TOTAL CHILDREN UNDER 5	TOTAL COMMUNITY LEADERS AND TECHNICIANS TRAINED
NICARAGUA	Matagalpa	La Dalia	6	117	83	13
	Autonomous Region of the North Atlantic	Waspam	13	120	178	8
		Tasba Pri	2	60	50	6
	Carazo	Santa Teresa and La Conquista	10	207	124	18
SUBTOTAL			31	504	435	45
GUATEMALA	Quiché	Nebaj	5	250	169	9
	Totonicapán	Santa María Chiquimula	4	101	88	5
		Totonicapán	1	37	22	
		San Francisco el Alto	1	62	39	
		Momostenango	1	16	2	
SUBTOTAL			12	466	320	14
HONDURAS	Santa Bárbara	Nueva Frontera	12	275	170	29
GRAND TOTAL			55	1,245	925	88

2.2 EVALUATION OF THE NUTRITIONAL STATE OF CHILDREN UNDER 5

The study results show children under 5 in all three countries have a high prevalence of acute malnutrition or current malnutrition. When compared to national level data on acute malnutrition in children under 5 provided by UNICEF (2% in Guatemala and Nicaragua and 1% in Honduras), the values encountered in the current study exceed these percentages by 1.6% en La Dalia, 5.2% en Waspam, 2% in Tasba Pri, 2.7% in Nebaj, 7.3% in Tonicapán and 2.6% in Nueva Frontera. Only the community of Santa Teresa and La Conquista did not exceed the national value.

Several communities studied show higher rates of malnutrition in children under 5 compared to national level data provided by UNICEF.

As can be observed in Table 2, even though the number of children with acute or current malnutrition was very high in all of the municipalities, the situation was most serious for the children of Tonicapán in Guatemala, and of Waspam in Nicaragua.

Table 2 also presents the prevalence of chronic malnutrition or height deficits in children under age 5 from the three countries. UNICEF data on the prevalence values for chronic malnutrition in

children under 5 at a national level is 49% in Guatemala, 29% in Honduras and 20% in Nicaragua. Among the communities studied, Guatemala has the highest prevalence of chronic malnutrition, with results in Nebaj 31.5 points higher than the national value and in Tonicapán 22.5 points higher than the national value.

In Nicaragua, the municipality of La Dalia presented the greatest prevalence of chronic malnutrition, exceeding the national value by 23.4 points, followed by Tasba Pri with a prevalence equal to the national value of 20%. Even though Waspam did not exceed the national value, 16.8% of children had moderate or severe height deficits. Santa Teresa and La Conquista is the one municipality where no children with chronic malnutrition were found.

In the municipality of Nueva Frontera in Honduras, 30% of the children under 5 presented chronic malnutrition, exceeding the national value by 1%.

The acute and chronic malnutrition suffered by these children under 5 reflects the conditions of poverty of the families and communities, and highlights the situation of chronic food and nutritional insecurity they experience. This situation is worse for the children of Guatemala where 8 of 10 children in Nebaj showed moderate or severe retardation in their growth and development, and 7 of 10 children in Tonicapán showed moderate or severe retardations of their growth and development.

TABLE 2
Prevalence of Acute and Chronic Malnutrition in Children Under 5

COUNTRY	DEPARTMENT	MUNICIPALITY	TOTAL CHILDREN UNDER 5	PREVALENCE OF ACUTE MALNUTRITION (Moderate + Severe)		PREVALENCE OF CHRONIC MALNUTRITION (Moderate + Severe)	
				No.	%	No.	%
NICARAGUA	Matagalpa	La Dalia	83	3	3.6	36	43.4
	Autonomous Region of the North Atlantic	Waspam	178	13	7.2	30	16.8
		Tasba Pri	50	2	4.0	10	20.0
	Carazo	Santa Teresa and La Conquista	124	2	1.6	0	0
GUATEMALA	Quiché	Nebaj	169	8	4.7	136	80.5
	Totonicapán	Totonicapán	151	14	9.3	108	71.5
HONDURAS	Santa Bárbara	Nueva Frontera	170	6	3.6	51	30

2.3 CAUSES OF MALNUTRITION IN CHILDREN UNDER 5

The study results identified direct causes of the high levels of acute and chronic malnutrition common to the three countries:

- 2.3.1 Inadequate feeding practices and knowledge.
- 2.3.2 Deficient biological utilization of food.
- 2.3.3 Insufficient availability of food.
- 2.3.4 Poor economic access to food.
- 2.3.5 Inadequate feeding patterns in quantity and quality.

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- Deficient biological utilization of food.
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- Inadequate feeding patterns in quantity and quality.

2.3.1 INADEQUATE FEEDING PRACTICES AND KNOWLEDGE

Inadequate Feeding Practices

The amount of food consumed by 95% to 100% of the children under age 5 in the three countries is inadequate: they are given smaller quantities than required to satisfy their nutritional needs and achieve adequate growth and development. In addition to the insufficient amount of food served, many children do not consume all the food served unless fed by an adult (Graph 1).

Graph 1 also shows that more than 90% of the children under 5 in Guatemala and Honduras receive their food fewer times during the day than required to fulfill their energy needs. In Nicaragua, 825 of the children in Tasba Pri receive fewer meals per day than required for their age. In the municipalities of La Dalia, Waspam and Santa Teresa and La Conquista, more than half the children receive food less frequently than is recommended.

Observation of caregivers of infants who are teething indicated meals were prepared with an appropriate, individualized consistency so that feeding was effective. The municipalities where the greatest proportion of children with inadequate food consistency were obtained were La Dalia with 42.1%, Nebaj with 33.7% and Nueva Frontera with 32.4%.

In all three countries, the data show repeatedly that the most serious problems with feeding practices occur for children age 6 to 8 months when solids are first introduced to complement breastfeeding, and age 9 to 11 months when the amount and variety of food increases. Nebaj was the only place where children between 6 to 11 months receive no solid foods and were fed only milk and *atol* (corn pudding).

Other inadequate practices in the three countries affecting children 12 months and older include ending breastfeeding when children reach age 1 and frequently giving them coffee.

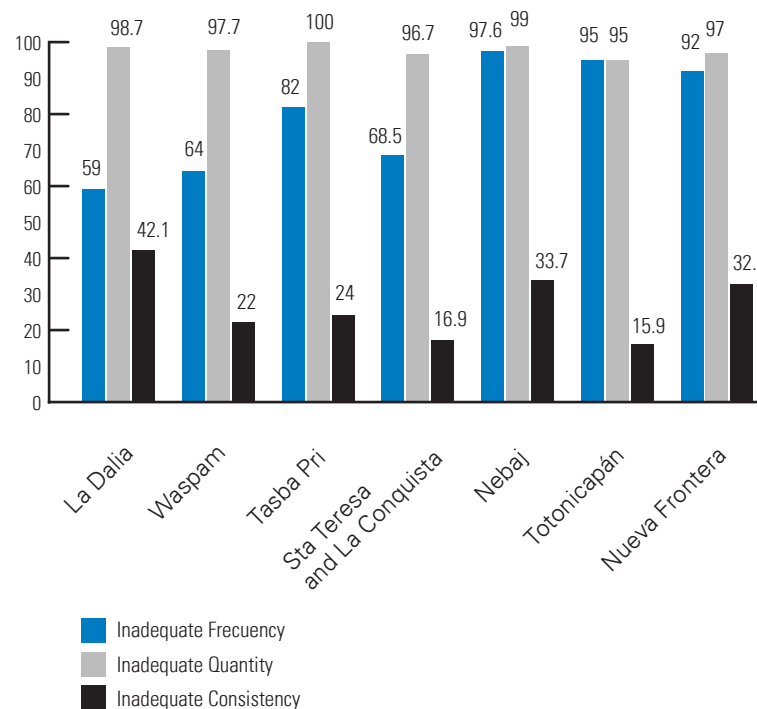
Inadequate Feeding Knowledge

Good feeding practices require basic knowledge on adequate feeding and nutrition. The study indicates that in all three countries, a high percentage of families receive no guidance on how to better feed their families with the foods that are available.

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The percentages of families with no such guidance in Nicaragua are 69.2% in La Dalia, 93.3% in Waspam, 78.3% in Tasba Pri, and 82.1% in Santa Teresa and La Conquista. In Guatemala the percentage was 88% of the families in Nebaj and 90.7% in Totonicapán. In Honduras the percentage decreases to 69.5 along with La Dalia in Nicaragua, the two municipalities where more education on feeding and nutrition is provided to the community.

GRAPH 1
Inadequate Feeding Practices in Children Under 5



2.3.2 DEFICIENT BIOLOGICAL UTILIZATION OF FOODS

Another cause of the high prevalence of malnutrition, mostly acute, is interference with the absorption and utilization of the nutrients ingested by children due to the prevalence of infectious diseases. In Graph 2, Waspam stands out with 78% of the children having suffered diarrhea, as it is the only municipality where 100% of the families do not have access to potable water. The water they consume and use for cooking is mainly collected rain water or river water. The children of Waspam also have the highest percentages of coughs, colds or pneumonia, and fever and infections.

Another cause for the high prevalence of malnutrition, mostly acute, is interference with the absorption and utilization of nutrients the children ingest due to the prevalence of infectious diseases.

The other municipality with a high number of children that have suffered diarrhea is Nebaj (42%), in spite of the fact that 88.8% of the families do have access to potable water.

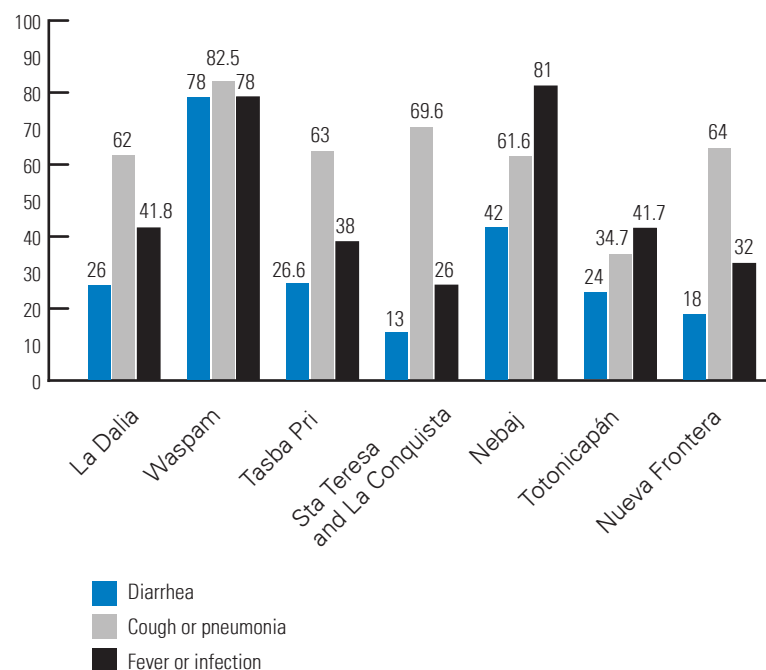
Although acute respiratory diseases (coughs, colds, pneumonia) are mostly associated with climate changes, children with weak immune systems or suffering from malnutrition are more likely to be affected. Due to the infectious process of these diseases, they also interfere with the absorption and utilization of the nutrients the children ingest. Therefore, they are among the causes of the high prevalence of acute and chronic malnutrition encountered, as more than 60% of the children in six of the seven municipalities included in the study had suffered coughs, colds or pneumonia previous to this study (Graph 2).

Graph 2 also shows that the other most common diseases were fevers and infections, mainly in 81% of the children in Nebaj, 78% in Waspam, 41.8% in La Dalia and 41.7% in Totonicapán. This represents another cause of the high prevalence of acute and chronic malnutrition presented by the children.

The consumption of non-potable water also interferes with the utilization of foods by the human body because instead of serving as a vehicle for nutrition, water carries dangerous microbes and toxic substances. In Nicaragua, 71% of the families in La Dalia, 100% in Waspam, 70% in Tasba Pri and 93.3 in Santa Teresa and La Conquista do not have access to potable water for consumption and food preparation. Likewise, in Honduras, 92.4% of the families receive water in their houses through a pipe system with no guarantee that it has received any sort of treatment.

In Guatemala, the lack of potable water affects only a minimum of the families, 11.2% in Nebaj and 16.25% in Totonicapán.

GRAPH 2
Prevalence of Infectious Diseases in Children Under 5



2.3.3 INSUFFICIENT FOOD AVAILABILITY

Another cause of malnutrition in children under 5 identified in the three countries is the inability to produce sufficient crops to ensure food throughout the entire year.

As observed in Graph 3, the municipality with the greatest problems is Nebaj in Guatemala where 94% of the families suffer food shortages five to six months per year. These families can only harvest once a year because the zone’s cold and rainy climate increases the length of time crops need to grow. The chronic food insecurity situation experienced by these families explains why Nebaj has the highest percentage of children with chronic malnutrition (80.5%).

The situation is different for families in Totonicapán, also in Guatemala. Some 38.9% of the families experience food shortages of five to six months per year while 17.1% have shortages three to four months per year. Although due to the climate these families also have only one harvest per year, they obtain greater production volumes.

Graph 3 also shows that in Nueva Frontera in Honduras, insufficient production causes food shortages between three to four months a year for 81.8% of the families. Of those families, the majority (84.7%) cultivate once a year, and only 31% harvest twice a year. In Nicaragua, food shortages last three to four months a year for 67.5% of the families in Waspam, 57.3% in La Dalia and 56.6% in Tasba Pri, even though these families plant and harvest their crops twice a year. In Santa Teresa and La Conquista, where food is also produced twice a year, most families (67.6%) have reduced food quantities only one to two months a year. This likely explains why none of the children studied presented chronic malnutrition.

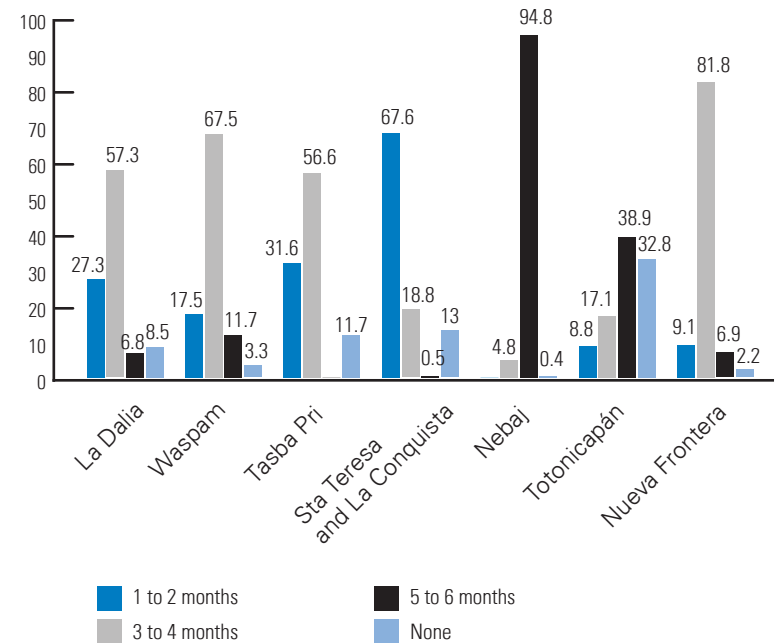
In addition to an insufficient volume of food harvested, the families in this study set aside part of the food they produce for

seeds to be used in the next planting.² All the families in the three countries must save their seeds because there are no seed banks from which to purchase. Nor do they receive financial or in-kind aid for their agricultural work, as expressed by 76.9% of the families in La Dalia, 98.3% in Waspam, 98.3 in Tasba Pri, and 85.9% in Santa Teresa and La Conquista in Nicaragua. In Guatemala, the figures were 65.6% for Nebaj and 97.2% for Totonicapán, while the proportion in Honduras was 91.6% in Nueva Frontera.

Technical assistance to improve food production, which includes conservation of the ecosystem, is offered in Nicaragua to 36.8% of the families in La Dalia, 57.5% in Waspam, 53.4% in Tasba Pri and 13.1% in Santa Teresa and La Conquista. In Guatemala it is offered to 36% of the families in Nebaj and 66.2% in Totonicapán and in Honduras to 43.7% of the families in Nueva Frontera.

The use of firewood for cooking is an alarming finding as it reflects a generalized practice in some communities and is a threat to the forests. This is practiced in Nicaragua by 97.4% of the families in La Dalia, 100% in Waspam, 96.6 in Tasba Pri and 100% in Santa Teresa and La Conquista. In Guatemala such assistance is practiced by 100% of the families in Nebaj and 92.6% in Totonicapán, and in Honduras, 99.3% of the families in Nueva Frontera.

GRAPH 3
Months of the Year with Greatest Food Shortages



² In Guatemala, 67.6% of the families in Nebaj and 96.7% in Totonicapán use seeds saved from the harvest for planting. In Honduras, 78.2% of the families in Nueva Frontera do the same. In Nicaragua, 53.8% of the families in La Dalia, 60.8% in Waspam, 41.6% in Tasba Pri and 89.8% in Santa Teresa and La Conquista also leave part of their harvest for seed.

2.3.4 POOR ECONOMIC ACCESS TO FOOD

Certain foods are not produced by all families and must be purchased: oil, sugar, rice, coffee, milk and cheese, or fruits and vegetables. They are needed to complement the main crops harvested by the families, such as corn and beans, but levels of access to them depend on the family income.

As shown in Table 3, the families with the most limited access to other foods are in Nebaj, Guatemala where in 93.1% of families, all family members are unemployed. The principal occupation in 94.4% of the surveyed families is that of a day laborer.

Although in Tonicapán, also in Guatemala, the situation is not as serious because only 2.8% of families are unemployed, the access to the food they must buy is limited because in 75% of the families only one person works. The main occupations are day laborer (in 75% of the families), merchant (15.3%) and farmer (6.9%). In 2.3% of families there are day laborers or farmers as well as merchants.

In 57.1% of the families in Nueva Frontera, Honduras only one family member works, making their access to these other foods limited, as well. In the rest of the families the situation is better because two to three of their members work, with the exception of 3% of the families in which all of their members are unemployed. Their main occupations are farmer in 80.4% and day laborer in 16.6%. Some 11% of the families have farmers and day laborers.

Table 3 also shows that in more than 60% of the families in La Dalia, Waspam, Tasba Pri, Santa Teresa and La Conquista, Nicaragua, two, three or more members work. In more than 87% of the families in these four areas, the main occupation is agriculture. This likely explains why several members of the family work in planting, caring and harvesting the food they grow, because they cannot hire manual labor.

Growing family patio gardens is another way to access foods such as fruits and vegetables, rich in vitamins and minerals, which complement the main crops (generally basic grains) grown by families in the three countries. However, as seen in Graph 4, at the time the study was conducted, 84.2% of the families in Waspam, 81.6% in Tasba Pri, 74.8% in Santa Teresa and La Conquista, 90.8% in Nebaj and 55.6% in Nueva Frontera did not have a family garden—unlike in La Dalia and Tonicapán, where 66% of the surveyed families do have family gardens.

GRAPH 4
Families that Have or Do Not Have Family Gardens

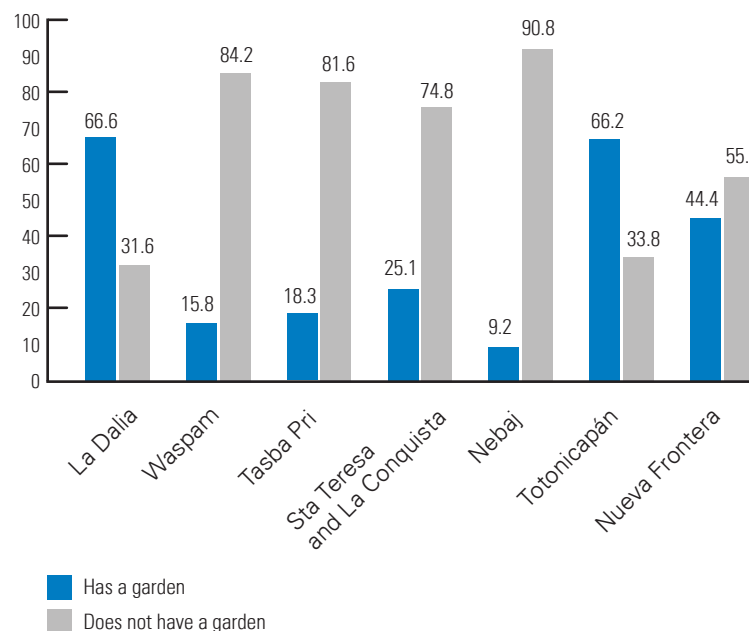


TABLE 3
Number of Family Members That Work

COUNTRY	DEPARTMENT	MUNICIPALITY	PERSONS THAT WORK IN THE FAMILY				ALL UNEMPLOYED
			ONE	TWO	THREE OR MORE	ALL	
			%	%	%	%	
NICARAGUA	Matagalpa	La Dalia	27.3	29.0	32.4	8.5	0.8
	North Atlantic Autonomous Region	Waspam	16.7	40.8	35.8	6.7	0
		Tasba Pri	31.6	48.3	18.3	3.3	0
	Carazo	Santa Teresa and La Conquista	4.8	34.7	39.6	19.3	0
GUATEMALA	Quiché	Nebaj	4.8	0.4	1.6	0	93.1
	Totonicapán	Totonicapán	75.0	19.0	0.6	2.6	2.8
HONDURAS	Santa Bárbara	Nueva Frontera	57.1	24.0	15.9	0	3.0

2.3.5 INADEQUATE FEEDING PATTERNS IN QUANTITY AND QUALITY

Feeding patterns were determined by evaluating each family's food consumption over the seven days prior to the survey, and consist of those foods most frequently consumed (between three to seven times per week by 30% or more of the homes). The foods most frequently consumed are those that are more available and accessible either because families grow or buy them, or because they are a part of feeding customs, habits and beliefs.

Table 4 shows that in the three countries, feeding patterns are based primarily on corn and beans, which are the basic grains they all grow. However, at the time the data was being collected, some communities in Guatemala were not consuming beans. In Nicaragua and Honduras, rice is also frequently consumed, and is either grown or bought.

Other foods that are part of the patterns but have to be purchased are sugar, oil or shortening in Honduras and coffee, which is grown by some communities and bought by others.

The only vegetables included in the feeding patterns are onions (which are used as a condiment, therefore very small quantities are used per day) and tomatoes, used in Nicaragua (in Santa Teresa and La Conquista) and in all of the communities in Guatemala. In most cases, the families buy both foods.

Fruits are absent in the feeding patterns of all three countries, except for mangoes in La Dalia, though consumption is only during the harvest months. The green banana is included in the pattern of the families in Waspam, but as a side dish and is boiled for consumption.

This lack of fruits and vegetables in the feeding patterns in all three countries indicates that they are deficient in vitamins and minerals for children and adults.

The lack of fruits and vegetables in the feeding patterns in all three countries indicates that they are deficient in vitamins and minerals for children and adults. In some communities, families were not consuming any protein sources. The shortage of fats in the diet of most surveyed families means a deficit in essential fatty acids and vitamins A, D, E and K.

Proteins from animal origin, which are the best quality, only appear as cheese and eggs in the families in Trascerreros, Ermitaño, Cedral and Piedras Negras in Honduras. They are also included in Honduras, in Terreritos, Buenos Aires, La Coroza, La Fortuna and 15 de Septiembre, but only in eggs. In the four zones of Nicaragua and in Visajcup in Nebaj and Casa Blanca, Pacholip, Tzununá and Tzansimiché in Totonicapán, Guatemala, the feeding patterns include a protein source of plant origin, through beans. At the time of this study, the other four communities of Nebaj and three communities in Totonicapán were not consuming any foods that provide protein.

TABLE 4
Foods that Make Up the Feeding Patterns

COUNTRY	PLACE	FOODS IN FEEDING PATTERNS										
NICARAGUA	La Dalia	rice	beans	corn tortillas	sugar	oil	coffee	onion	mango			
	Waspam	rice	beans		sugar	oil	coffee		green bananas			
	Tasba Pri	rice	beans		sugar	oil	coffee	onion				
	Santa Teresa and La Conquista	rice	beans	corn tortillas	sugar	oil	coffee	onion	green peppers	tomato		
HONDURAS Nueva Frontera	Trasceros, Ermitaño, Cedral and Piedras Negras	rice	beans	corn tortillas	sugar	shortening	coffee	onion	eggs and cheese		sweet bread	
	Terreritos, Buenos Aires, La Coroza and La Fortuna and 15 de Septiembre	rice	beans	corn tortillas	sugar	shortening	coffee		eggs			
	Buen Samaritano, Pueblo Nuevo and Planes de Zapotal	rice	beans	corn tortillas	sugar	shortening	coffee	onion				
GUATEMALA Nebaj	Tzununá, Xemamatzé and Río Azul			corn tortillas	sugar		coffee	onion		tomato		corn pudding
	Violeta			corn tortillas	sugar			onion		tomato		corn pudding
	Visajcup		beans	corn tortillas	sugar		coffee	onion		tomato		corn pudding
GUATEMALA Totonicapán	Casa Blanca, Pacholip, Tzununá		beans	corn tortillas	sugar	oil	coffee	onion		tomato	sweet bread	corn pudding
	Tzansimiché		beans	corn tortillas	sugar	oil		onion		tomato	sweet bread	
	Vásquez			corn tortillas	sugar	oil		onion		tomato		
	Cuesta del Aire and Chicorral			corn tortillas	sugar	oil	coffee	onion		tomato		corn pudding

■ Are not part of the feeding patterns

TABLE 5
Evaluation According to Recommended Feeding Patterns

COUNTRY	PLACE	AVERAGE NUMBER OF FAMILY MEMBERS	Energy Requirement Coverage per Person per Day			Macro-nutrients that Should be Included in the Total Energy Available		
			CRITICAL Less Than 70%	DEFICIENT 70% to 89%	ACCEPTABLE 90% to 109%	PROTEINS 10-15%	FAT 20-25%	CARBOHYDRATES 40-60%
			No.	%	%	%	%	%
NICARAGUA	La Dalia	5	-	-	95.5	11.2	15.8	76.9
	Waspam	6	-	-	99.5	10.9	19.6	72.4
	Tasba Pri	5	-	-	101.5	10.5	31.0	61.7
	Santa Teresa and La Conquista	5	-	86.8	-	11.0	7.4	83.9
GUATEMALA Nebaj	Tzununá, Xemamatzé and Río Azul	5	-	76.2	-	9.6	4.8	88.5
	Violeta	5	-	75.7	-	9.5	4.5	88.4
	Visajcup	5	-	-	90.0	12.1	4.8	86.0
GUATEMALA Totonicapán	Casa Blanca, Pacholip, Tzununá	6	-	-	90.8	11.8	8.3	82.6
	Tzansimiché	6	-	86.5	-	11.8	7.8	82.4
	Vásquez	6	67.8	-	-	10.1	5.4	86.6
	Cuesta del Aire and Chicorral	6	-	72.1	-	10.1	6.2	98.4
HONDURAS Nueva Frontera	Trasceros, Ermitaño, Cedral and Piedras Negras	5	-	-	109.8	11.3	20.4	70.2
	Terreritos, Buenos Aires, La Coroza and La Fortuna and 15 de Septiembre	5	-	-	93.7	11.2	14.4	76.6
	Buen Samaritano, Pueblo Nuevo and Planes de Zapotal	5	-	-	91.5	10.7	13.2	78.4

Table 5 presents a comparison of the nutritional contributions of the feeding patterns in each country to the recommended contributions per person per day to ensure adequate nutrition. The number of members that eat in a family (generally between five and six) and the quantity and number of foods available demonstrates that the families in Guatemala face the worst situation: four of the five communities in Nebaj present a deficient percentage of energy requirement coverage per person per day while only Visajcup's is acceptable. A similar situation is found in Totonicapán, in which three of the seven communities have deficient energy requirement coverage, three others are acceptable and one community (Vasquez) is in a critical situation.

In the four zones of Nicaragua where the study was carried out, three communities have acceptable energy requirement coverage, while only Santa Teresa and La Conquista is deficient. The families in Honduras present the best situation, because in all 12 communities studied, the energy requirement covered per person per day was acceptable. However, the challenge for all three countries is to reach a sufficient energy requirement coverage. A greater quantity of energy, proteins, vitamins and minerals available per person per day can be achieved in so far as there is an increase in the amount of food that is grown, such as basic grains, fruits and vegetables in gardens, and meat and eggs through small animal husbandry.

Table 5 shows the percentages in which macro nutrients should be found within the total of the available energy to ensure a balanced meal. In all of the communities in Nicaragua and Honduras, the percentage of proteins was within recommended levels and in Guatemala only in the communities of Tzununá, Xemamatzé, Rio Azul and Violeta were levels lower than recommended.

Families must buy the fats they consume, such as oil or shortening, which is why fat is the macro nutrient most lacking

except in Tasba Pri in Nicaragua and Trasceros, Ermitaño, Cedral and Piedras Negras in Honduras, where consumption is within the recommended range. This shortage of fats in the diet of most surveyed families means a deficit in essential fatty acids and vitamins A, D, E and K.

Carbohydrates are the macro nutrient found in the feeding patterns in a much greater percentage than recommended in all communities in all three countries. The greatest percentage of carbohydrates in the foods comes from corn, consumed mainly as tortillas or *atol* (corn pudding). Corn is grown by all surveyed families. In Honduras and Nicaragua, carbohydrates also come from rice.

In the families of the three countries the lack of fats is made up for through excess carbohydrates.





RECOMMENDATIONS FOR THE REGIONAL PROGRAM


According to the results obtained on the food and nutritional insecurity situation faced by families in all three countries, it is recommended that the program's efforts focus on:

- 1 Ensuring the production of enough food to allow families to have stability in the quantity of foods they consume during the entire year, save seeds for the next crop and have surplus grains for extra income and to buy the products they do not grow.
 - 2 Providing training and technical assistance for the families so they may develop better farming techniques along with water and forest conservation practices.
 - 3 Promoting seed banks and silos for storage so in addition to saving native seed varieties they may also have a communal reserve of grains that ensures access to food during emergency situations.
 - 4 Encouraging family gardens with vegetables and bright yellow or orange fruits which are sources of vitamin A, and greens, which are sources of vitamin C.
 - 5 Associating family gardens and small animal husbandry to increase the availability of proteins with high biological value, and hard-to-obtain minerals such as iron and zinc.
 - 6 Supporting families to develop other activities that generate extra income, according to the available resources in each country.
 - 7 Developing educational activities that achieve short term benefits in children's health and nutrition. Education around basic themes such as: the nutritional value of foods and a balanced diet; nutritional needs and adequate feeding practices, especially during pregnancy and breastfeeding and during the first five years of a child's life; feeding a sick child; food handling and hygiene and means of conservation.
 - 8 Since each country has the records of the children that were malnourished, prioritizing these families in the productive, small animal husbandry and educational activities in order to follow up on these children's recovery.
 - 9 Implementing alternatives that allow the families to have quality water for consumption and food preparation.
 - 10 Strengthening the local organizations' (CIEETS, AMC, CIEDEG and CASM) technical team skills through exchanges of knowledge and experiences gained in the three countries.
 - 11 Promoting field trips that bring families from the three countries together to exchange experiences and achievements, in order to make the most of the results obtained in each community.
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PROPOSED INDICATORS



Indicators are objective measurements of change or of results obtained through activities that are carried out. The following indicators are proposed for monitoring and evaluating the activities carried out by PRESAN (Food and Nutritional Security Regional Program):

- Total number of families that are producing more food than the traditional amount.
 - Total number of families associated with a seed bank.
 - Total number of families that have reduced their months of food shortage.
 - Percentage of families that are growing vegetables and fruits and are consuming them.
 - Percentage of families that are participating in small animal husbandry in their patios and are consuming the products.
 - Percentage of families that have adaptations for energy, protein, fats and carbohydrate needs in their feeding patterns.
 - Percentage of children that are receiving adequate feeding in regards to frequency, quantity and age appropriate consistency.
 - Percentage of sick children that are receiving adequate feeding during their illness and recovery period.
 - Percentage of women that are receiving adequate feeding during pregnancy and the breastfeeding period.
 - Percentage of children under 6 months of age that are breastfeeding exclusively.
- Percentage of children under 5 years of age with acute malnutrition.
 - Percentage of children under 5 years of age with chronic malnutrition.
 - Percentage of families that have quality water for consumption and food preparation.
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