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**THE INTERSECTION OF HOUSEHOLD FOOD SECURITY AND ECONOMIC  
DEVELOPMENT AMONG MISKITU INDIANS IN HONDURAS**

By

**Maríaelena del Socorro Jefferds**

**A DISSERTATION**

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## **ABSTRACT**

### **THE INTERSECTION OF HOUSEHOLD FOOD SECURITY AND ECONOMIC DEVELOPMENT AMONG MISKITU INDIANS IN HONDURAS**

**By**

**Maríaelena del Socorro Jefferds**

**This dissertation examines the everyday experiences of indigenous people in rural Honduras with household food security and community economic development programs. I investigated the role of non-governmental (NGO) and governmental (GO) organizations in Wawina, a Miskitu community on the Patuca River in the Mosquitia of Honduras. I specifically focused on the role of an indigenous NGO, Mosquitia Pawisa (MOPAWI) that was run by and employed people originally from the Mosquitia. Scholars have argued that economic development programs will benefit more people if they are run and controlled by the beneficiaries. In this study I examined the MOPAWI program in Wawina in order to explore this assumption in one community. One of the goals of the NGO and GO programs in Wawina was to improve food security.**

**I collected the data in this study through participant observation, interviews carried out with five samples of community members, and several key informant interviews. From January to November 1998, 330 community members participated in this study, including mothers and their children, local NGO and GO employees, and selected officials in Ahuas, the political center of the municipality that includes Wawina. I collected data on who benefited from the programs and how the programs affected**

household food security. MOPAWI had the only NGO program in Wawina during the data collection period although there was also a GO project with a similar program.

In Wawina, many women reported they experienced periodic and chronic food insecurity. The findings of this study show that the NGO and GO programs in Wawina did not improve the household food security of the majority of community members; in fact, few households actually reported ever participating in NGO or GO programs. In 1998, the major development programs in Wawina focused on the production of cacao to be sold for processing into chocolate and other products in the interior of Honduras. The NGO and GO staff stated they promoted participatory community development and that these projects were open to all community members. However, the orientation of NGO and GO programs, the limited types of projects available, and the labor and time frame involved for the projects did not appeal to many community members. Also, community members, local NGO and GO staff and local public officials readily recognized that the main projects promoted were aimed toward male participation and were not considered appropriate for women.

Ultimately, the projects did not improve the food security of the majority of community members or target those with the most risk of chronic or periodic food insecurity. Findings show that households that reported participating in development projects had higher socioeconomic status. They also reported significantly lower food insecurity on the Food Security Questionnaire, and children in these households had significantly higher mean Z scores for height and weight during the hungry season compared to other children.



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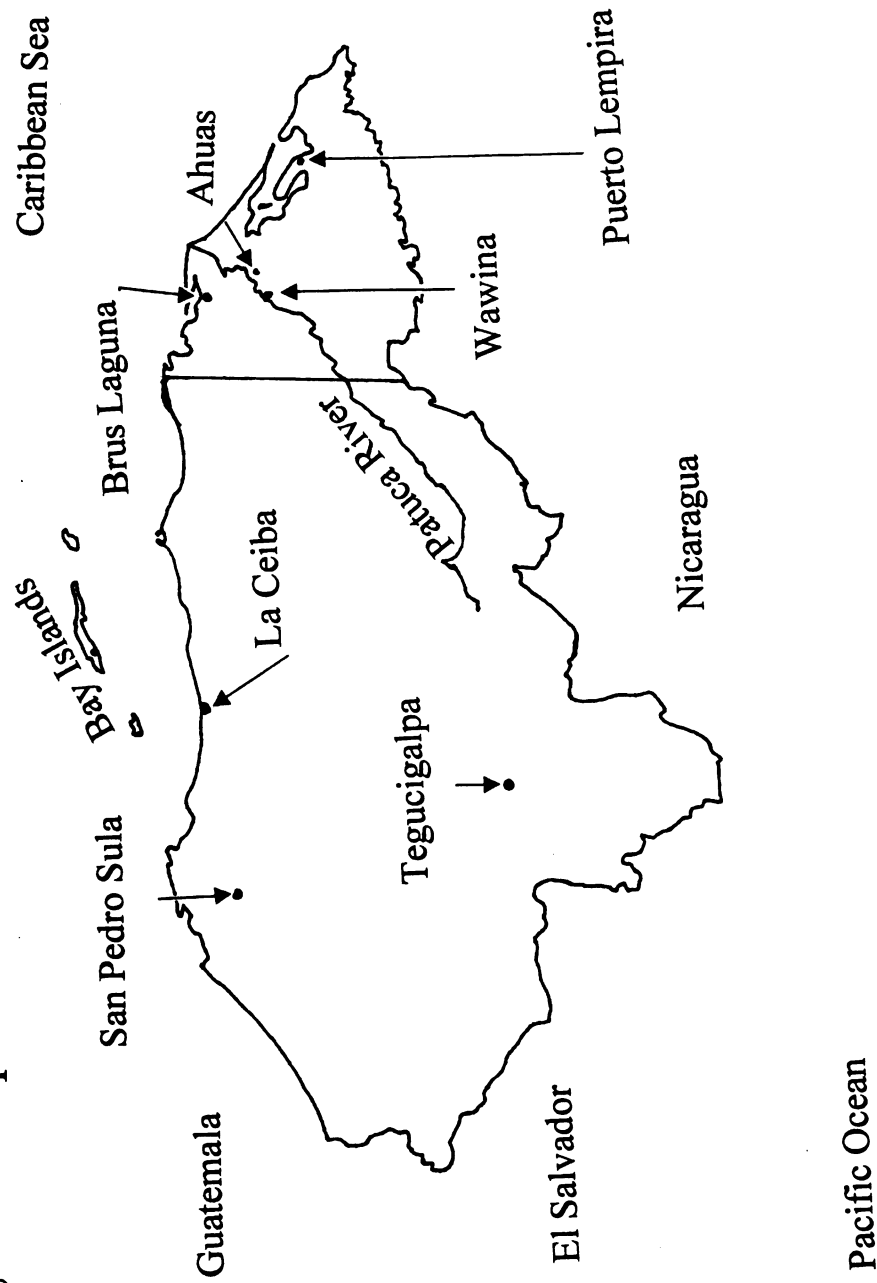


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Figure 1. Map of Honduras



# CHAPTER ONE: ECONOMIC DEVELOPMENT PROGRAMS AND HOUSEHOLD FOOD SECURITY: POWER, ACCESS AND ACCOUNTABILITY

## INTRODUCTION

“A woman without a man, sometimes she has to go with men. When there is no money or food I’ve gone with men for money and sometimes they only give you 5 Lempiras (\$.50 U.S., 1998) or a bar of soap. You can’t get anything with 5 Lempiras, they should give you more.” –Notes from a discussion with a poor single mother in Wawina.

“We always have something to eat, but not always meat...eating the same foods for so many meals....it’s disgusting...I’d rather go hungry. If we have it I’ll drink coffee or Kool-aid and not eat anything.” –Notes from a discussion with a woman from a relatively wealthy household in Wawina.

In Wawina, Honduras this study found high rates of food insecurity. Most people could not eat whatever they wanted year-round, and even the wealthiest households experienced occasional lack of variety of foods in the diet. The poorest households lacked enough food either periodically or chronically. In some cases, the poorest women, many times single mothers, had to engage in prostitution for lack of any other means of acquiring basic necessities, including sufficient food.

Hunger and food insecurity continue to be widespread global problems at the beginning of the 21<sup>st</sup> century. There are several aspects of the definition of food security as conceptualized in this study. Household food security is the ability to acquire enough food to eat throughout the year, in terms of quality and quantity, necessary for an active, healthy life (Haddad et al. 1994). Foods must be nutritionally adequate and safe, and people must be able to access sufficient foods in socially acceptable ways (Anderson 1990). Food insecurity exists when any of these requirements are not met.

Food security is a basic quality of life measure. Economic development policies promoted in developing countries carry the assumption that as national economic growth

increases, quality of life measures will improve, including food security. Unfortunately, many development policies have failed to meet this expectation (see for example, Stonich 1993).

In this dissertation I examine everyday experiences of community economic development programs and household food security in Wawina, a Miskitu community on the Patuca River in the Mosquitia of Honduras (see Figure 1). The Miskitu are an indigenous people in the Mosquitia of Honduras and Nicaragua. As discussed below, economic development organizations had established programs in Wawina promoting projects typical in the lower Patuca region. One goal of economic development projects in Wawina was to improve food security.

In this study I critically consider the interrelationships of power, access, and accountability in relation to economic development projects meant to improve food security among the Miskitu. I analyze household food security as an indicator of the effects of economic development policies and community development projects. I concentrate on understanding which households in Wawina were at risk for food insecurity, and specifically, how food security and insecurity were manifested in different ways. I relate these findings to information I collected on development projects run by non-governmental (NGO) and governmental organizations (GO) working in Wawina. My analysis examines community members' ideas about and participation in these community projects, as well as who benefited from the programs.

This study has a two-pronged approach (see Table 1). First, I employed anthropology and nutrition methods to examine food security and the factors that predicted it and influenced it. I collected this information through participant observation

and open- and closed-ended interviews. Dietary information and anthropometric measurements were also collected from mothers and young children four times during the year. I particularly focused on collecting information on seasonal influences. I was exploring the different ways food security and insecurity manifested in the community.

In the second prong of this approach, I carried out qualitative analysis of perceptions of development among community members, staff of economic development organizations working in Wawina, and local public officials. I was exploring how participation in NGO and GO economic development programs related to food security and whether there was a perceived difference in some community member's ability to participate in these programs. I wanted to understand the food security effect of economic development projects in Wawina. To understand the research questions posed, it was necessary to conduct both parts of the study.

In 1995 and 1996 I carried out predissertation research in the Mosquitia of Honduras and Nicaragua, which informed the direction of this dissertation. From January to November 1998 I collected information from approximately 330 community members, local GO and NGO employees, and selected officials in Ahuas.

### **Introduction to the Region and Community**

This study was carried out in Wawina, a Miskitu community located in the Mosquitia of Honduras. There are important ethnic, cultural, historical, political and economic differences among inhabitants of the Mosquitia compared to the rest of Honduras. The geography and ecology also vary significantly. The Mosquitia region is an important feature of the context of this study.

### *The Mosquitia of Honduras*

Miskitu populations live in the Mosquitia, which includes the Caribbean coast region in the eastern part of Honduras and adjoining region of Nicaragua. The majority of the Honduran Mosquitia is located in the Department of Gracias a Dios. Population counts are difficult and population estimates vary widely. Dodds cited estimates of the total Miskitu population between 95,500 to 150,000 people, approximately 38,000 of whom live in Honduras and the remainder in Nicaragua (1994b: 13). Other indigenous groups in the Mosquitia of Honduras include Sumu Tawahka, Pech, and Garifuna. Historically, the Miskitu and other indigenous groups in the Mosquitia have been relatively isolated and autonomous.

Miskitu populations engage in various ways to make a living. Some of the most important include subsistence farming, cash crop agriculture, diving for seafood to be sold to export markets, and panning for gold. Also, ecotourism has been increasing in certain parts of the Mosquitia. There are differences among regions of the Mosquitia, particularly between riverine and coastal communities. As discussed further in Chapter Five, coastal communities generally have more access to economic and material resources, infrastructure, and ways of making a living compared to riverine communities.

The inhabitants of the Mosquitia are marginalized from the dominant political, cultural and economic system in Honduras because of their distinct geographic location and distinct ethnicity and history. Despite this, they have continually interacted with wider national and international networks, whether through alliances or resistance. In the Mosquitia, many of the most wealthy and politically powerful leaders are Ladinos who either grew up in the Mosquitia or migrated there as young adults. Ladinos comprise the

national majority ethnic group, but they are a small minority in the Mosquitia. In Honduras, Ladinos control the central government, industry, finance and agricultural sectors.

Overall, there have been few large-scale development efforts in the Honduran Mosquitia and little state presence, but since colonial times there have been continual interactions with foreign peoples, including European buccaneers, English and U.S. colonizers, and multinational companies exploiting natural resources (Floyd 1967; Conzemius 1932). Miskitu Indians as a cultural group emerged after colonial contact and have a combination of Amerindian, African and European ancestry. Helms explained that before colonial contact, Miskitu did not exist as a society, culture and language (1971). The Mosquitia has a unique history and culture compared to the rest of the Central American region (Bourgois 1989; Williams 1994). As Miskitu populations emerged, they were able to exploit their relationships with European and U.S. foreigners, and since colonization, their population, territory and power in the area has increased (Floyd 1967; Hale 1994).

During the 1980s, many Miskitu in Nicaragua were involved in the Contra-Sandinista War. In Nicaragua, Miskitu men fought for both sides but the Contras were an indigenous uprising against the Ladino Sandinista Government. The United States supported the Contras economically, materially, and philosophically during this conflict. The Honduran Mosquitia was affected by the war as thousands of Nicaraguan Miskitu moved to refugee camps in Honduras (Dennis 1993). Since 1990, when the Chamorran government came into power in Nicaragua after the war ended, most of the refugees have returned. In the Honduran Mosquitia, resources that used to be available to communities

through Contra connections are gone, and the NGOs that catered to refugee populations have largely pulled out (Dodds 1994b).

Christianity is a fundamental aspect of contemporary Miskitu culture and society. Spanish Catholic missionaries attempted to convert Miskitu populations during the 17<sup>th</sup> and 18<sup>th</sup> centuries with little success. It was the Moravian Church that eventually became the dominant religion in the Mosquitia (Floyd 1967). First established in the Nicaraguan Mosquitia in the mid- to late 1800s, Moravian missionaries came to the Honduran Mosquitia in 1930 (Dodds 1994a). The Moravian Church continues to be highly influential in the Mosquitia, including in Wawina, although other Christian religions have also been established. In Wawina, most community members attended the Moravian Church but a few families each belonged to the Catholic Church and the Church of God.

As discussed further in Chapter Three, midway through my stay, an evangelical movement spread throughout many Moravian congregations in the Mosquitia. The emergence of this movement led to a schism in these congregations. This division affected Wawina as well and upset traditional religious and political leadership roles in the community.

The unique history and culture of the Mosquitia as well as recent political and economic trends are important factors that influence food security levels and economic development programs in the region. Regional variation in the Mosquitia means that communities and households experience these factors differently. There are differing opportunities and constraints in meeting basic needs.



## *Wawina*

This study was carried out in Wawina. It is an agriculturally based community located on the Patuca River south of Ahuas (Figure 1). The Patuca River is 500 Km long (Modesto Canales 1994: 4) and runs from Olancho through Gracias a Dios and empties into the Caribbean in northern Honduras. Wawina is one of the larger communities on the Patuca River. The entire region around the community is flat pine plain with mountains further away. One family founded Wawina approximately 65 years ago. At the time of the study, there were 240 households with approximately 1,500 people in the community. It was about three miles long, and the town limits were expanding as young families continued to clear land for their houses. There was no electricity, refrigeration, or running potable water.

Compared to other communities and regions in the Mosquitia, Wawina's population is nearly all Miskitu with very limited presence of Ladinos or other ethnic groups. People from other local communities characterized it to me as highly religious, politically active, and conservative. Most adults and some children worked in agriculture as one of their primary means of livelihood. Due to the gendered division of labor and expectations about appropriate tasks for women in Miskitu society, Miskitu women lacked access to many economic strategies open to men, including high-risk, high-income work in the seafood diving industry on the coast. Because they lacked access to many economic strategies, women in Wawina did not benefit from income-generating activities to the same extent as men.

While the colonial legacy in the Mosquitia varies significantly from that in Hispanic Central America, there is a history of boom and bust cycles in the region. Since

colonization, Miskitu peoples have been involved with the economies and markets of developed countries in pursuit of raw materials and foods, such as lumber, rubber, and fruit. There were always different sources of employment for men, primarily, who migrated to work as laborers. In the last several decades, the boom of the seafood diving industry off the Caribbean coast allowed a large number of young men to earn dramatically higher cash incomes compared to local standards. Older community members described economic stratification as having appeared in their lifetimes. As the population increases and economic opportunities change, class differences are increasingly emerging in Wawina.

In recent years, the state presence in Wawina and surrounding communities has increased as an additional municipality was established in the Mosquitia with neighboring Ahuas as the political center. Despite this, the community continues to exist in an extremely limited state space. Current government development schemes discuss the need for environmentally sustainable development programs and the promotion of community participation; however, many government policies overtly and through practice do not support this rhetoric.

The increasing dependence on cash incomes, and the seafood diving industry in particular, has affected previous networks, traditions, and strategies of food distribution. Previously it was less common and more difficult to sell local crops. Now almost all crops may be sold locally or to people from outside the community. Elderly community members said that in the past, surplus food, such as from a slaughtered animal, was freely distributed among community members. This is no longer common practice and now free surplus food is only occasionally given to the most needy.

Traditionally, community members cooperated and exchanged agricultural labor to work everyone's fields. While this continues among some households, some community members now demand cash payment for their work as day laborers in an agricultural field. Wealthy households are in a much better position to pay day laborers to work in large plantations during peak agricultural times of the year.

While all families require some cash for basic necessities, many families have become highly cash dependent. For example, all households formerly engaged in farming to obtain the majority of their food for consumption. Now, a household with a member employed in the seafood diving industry may depend on his cash earnings for income and grow very little food. Some of the wealthier households explained that it was too much work to grow rice. They did not earn enough selling the surplus to cover the expense of paying labor and it was a hassle, so they decided to stop growing it. Wealthy households were economically secure and preferred to purchase rice from local stores when they wanted to consume it. Members of a household who no longer grow much food may be less likely to engage in agricultural labor exchanges or work in agriculture as day laborers for cash income.

Population expansion and shifting economic opportunities, primarily for men, have affected local agriculture in terms of distribution, the types of crops produced, the quantities, and local labor relations. There are important differences in access to resources and opportunities based on ethnicity, gender, and class. This has consequences for understanding the intersection of household food security and local economic development agendas.

## **Previous Research and Influential Works**

In this section I briefly introduce the research that has been most influential in developing my research questions and shaping this study. In Chapter Two, I further discuss other sources I drew upon in developing this study.

There is an expectation that economic development policies in third world countries will improve quality of life measures in the short and long term. I was drawn to national and international studies of nutritional status and household food security because they are significant indicators of quality of life and meeting basic needs. A powerful index of food security is the growth status of children, which is a primary variable in this study (Dewey 1985; Jelliffe 1966). Anthropometric measurements are also relatively easy to carry out and not very invasive for participants.

Examining household food security in Wawina was a way to evaluate whether development programs were improving quality of life at the local level in one community. Many studies in Honduras have concluded that economic development policies promoted for the last 50 years have contributed to the foreign debt, widespread ecological destruction, expanding inequality between the rich and the poor, and decreased food security for a large part of the population (e.g. Stonich 1993; Gacitua and Bello 1991; Arrivillaga, Robleda, and Salomon 1995; Matamoros and Hernandez Borjas 1995; Isaula 1996). The trend of making NGOs the major deliverers of community development assistance (Edwards and Hulme 1996; Uphoff 1996; Farrington and Bebbington 1993), led me to question whether NGOs would be more effective at implementing development policies and producing widespread positive results at the local level.

Initially I was drawn to Stonich's work in Honduras in defining my research model (1989, 1991, 1993). She employed a political ecology approach to examine factors influencing nutritional status and food security for populations in southern Honduras. In her work she linked policies promoting economic growth from export agriculture to changing employment, agricultural and other economic circumstances. Stonich argued that despite 30 years of economic growth from export agriculture, people were less able to meet their daily food requirements, and food security had declined as a result of decreases in domestic staple food production and off-farm employment.

Influenced by the integration of local and global processes in her research, I planned to analyze the effects of international and national development agendas carried out at the local level by NGOs and GOs in one community in the Mosquitia of Honduras. During 10 months of research in Wawina, I evaluated the effectiveness of economic development projects at improving food security, which was one of their stated goals.

Scholars have suggested that promoting the equitable participation and input of intended beneficiaries in economic development programs will result in increased acceptance of programs and more chance of success (e.g. Bebbington and Thiele 1993). I was particularly intrigued by the opportunity to examine the context of an indigenous NGO promoting economic development projects in an indigenous community. I wanted to test the hypothesis that an indigenous NGO would be a better deliverer of development assistance. Indigenous and Southern NGOs may have closer ties to local communities, more opportunities to carry out projects appropriate to local realities and impact the majority of beneficiaries in positive ways (e.g. Edwards and Hulme 1996; Uphoff 1996; Farrington and Bebbington 1993). However, indigenous NGOs dependent on national

and international funding sources face many of the same economic accountability issues as other development organizations and they must demonstrate progress and success of their programs to their funding agencies (Razari and Miller 1995). I tried to understand the obligations, accountability issues, and constraints development organizations faced working in Wawina in regard to local community members and to their funding agencies.

Similar to Stonich's political ecology approach, I also drew on critical medical anthropology (Singer 1990) to examine the context of household food security and economic development programs in Wawina. In my analyses, I attempted to understand larger political-economic and social structures and link them to local level realities. Ethnicity, gender, and class (significant means of social differentiation and inequality), cannot be understood independently from each other because they have been constructed and experienced in intersecting ways (Razari and Miller 1998). In my analyses, I considered how historically and socially constructed means of social differentiation were used to naturalize inequality. With this approach, I critically examined the social relations in which peoples' lives were embedded, including economic development staff and community member relationships, and situated them in relation to the larger political-economic and social context (c.f. Singer 1990: 182). I gave central consideration to gender and its role in the social production of health and illness in Wawina. Gender was important in all analyses (Whiteford 1996), especially when understanding access to employment opportunities, economic development programs and other resources. Critically examining the social construction of gender shed light on some of the limitations of economic development programs in Wawina.

For this study, I also drew on the work of women in development (WID) and gender and development (GAD) scholars and advocates (e.g. Goetz 1997, 1998; Razari and Miller 1995; Guijt and Shah 1998). For the last 30 years, development specialists have worked to make gender issues a central concern in development. In economic development agendas, there have been reevaluations and changes in the way women's issues and gender issues have been understood and incorporated into policy. Despite this, international and state-based institutions have often been key in reinforcing or worsening the unequal distribution of power and resources between men and women through their development policies and practices (Goetz 1998: 42).

Historically, women have had limited participation in economic development from the local to the institutional level (Razari and Miller 1995). Razari and Miller (1995) and Goetz (1998) identified a continuing lack of institutional support and mainstreaming of gender into development policies. In relation to planning and implementing development policies, there is a need for development staff to critically examine the social relationships that contribute to limiting resources and opportunities for different groups (Razari and Miller 1995). These works have helped me contextualize the lack of attention to gender in development programs promoted in Wawina and the Mosquitia in general.

Scholars critically examining the global development apparatus and "ideologies" of development promoted by development institutions have also influenced my research questions (e.g. Escobar 1995; Norgaard 1994; Sachs 1992). For example, Pigg analyzed how ideologies of modernization brought to Nepal in national development agendas became assimilated into local Nepalese cultures. Her work is part of a growing literature

examining how development ideologies become internalized, utilized, and transformed, and their effects on health (1992, 1995, 1996). Through analyses of discourse, political economy, and institutional ethnography, Escobar examined the institutional practices of development to illustrate how development has contributed to the regulation, production, and formalization of a certain way of daily life (1995).

Pigg, Escobar, and Sachs (1992) suggest that the production of knowledge and power associated with development discourse has repressed the acceptance of alternative theories concerning the future direction of developing countries. Influenced by these works, I realized that I had never really considered how people understood the concept and experience of “development.” This seemed fundamentally important to the success of the projects meant to improve food security. I decided to pursue this line of inquiry in Wawina.

In my research, I explored differing perceptions of and experiences with development, underdevelopment, and participation in projects by community members, local economic development staff and local public officials. I examined the ways economic development organizations were promoting their projects and “the idea of” development in Wawina. I tried to link these findings to participation in economic development programs and the more generalized promotion of development initiatives in Wawina. How people respond to development initiatives significantly influences the ability of organizations to carry out their projects and meet their objectives, including the goal to improve food security.

Drawing on the works mentioned above, in this study I grounded my analyses within a discussion of the local-global nexus of influences that affect health and access to



sufficient food and other resources at the individual and community level. I used measures of hunger and growth as indices of change and as ways to measure unequal access to resources. I critically analyzed who benefited from economic development projects in Wawina and the multiple factors influencing participation in these programs. I evaluated whether economic development programs in Wawina improved the food security of many people in the community, in view of the constraints on these organizations.

### **Economic Development Projects in Wawina**

A central focus of this dissertation is the effects of economic development projects in Wawina and their ability to improve food security of households in the community. In this section I describe economic development projects present during my stay in Wawina. I also provide background information about the organizations promoting the projects.

At the time of the study there were two active economic development projects in Wawina. Mosquitia Pawisa (MOPAWI), a Southern indigenous NGO working in the Mosquitia, promoted one major program. The Institución Nacional de Formación Profesionales (INFOP) promoted the other major program. INFOP was a national GO program that provided professional development and technical training. They had projects throughout Honduras, not only in the Mosquitia. In Wawina, both MOPAWI and INFOP emphasized agriculturally based economic development programs and primarily promoted cacao tree production as a cash crop. At the time of the study there was also one other NGO working in the Mosquitia, Comisión Cristiano de Desarrollo

(CCD). It was a Christian based organization from the interior of Honduras but was not working in the lower Patuca River region and will not be discussed further.

### *MOPAWI*

I learned about MOPAWI during a predissertation year I spent in Honduras and Nicaragua. During that year I visited many MOPAWI program sites throughout the Honduran Mosquitia. After visiting various NGO organizations and program sites in the Mosquitia of Honduras and Nicaragua, I was especially interested in returning to study the effects of MOPAWI programs as part of my dissertation research. MOPAWI was clearly the most organized, professional, wide-reaching and smoothly run organization I encountered during the predissertation year. Similarly to most organizations in the Mosquitia, they had to spread limited resources over a wide geographic area, and often had a difficult time finding qualified people to work for the organization. MOPAWI had established a good reputation and was considered one of the few organizations with little to no problems of corruption.

I was also interested in MOPAWI because it was an indigenous organization. They made important contributions to indigenous and environmental issues on a national level. MOPAWI had a long-term environmentally sustainable development vision, applied to the projects they implemented and the political activities they engaged in at all levels. Last, they promoted community participation in the projects they promoted, similarly to most programs I visited, and this suggested they were attuned to the concerns of indigenous communities.

### *Background of MOPAWI*

MOPAWI was established in Honduras 15 years ago and was professionally based and organized. It was independent from grassroots control because of its international funding sources. At the time of the study, a major international funding source was Tearfund, a Christian-based aid organization from the United Kingdom. MOPAWI had received funding from various international NGO and GO organizations since it began in 1985, including the United States Agency for International Development, the European Community, the World Wildlife Fund, and Cultural Survival, Inc. (Dodds 1994a: 68).

MOPAWI had projects throughout the Honduran Mosquitia primarily focused on cacao cash crop production but also various other initiatives. It was a major provider of services to the population, and had taken on more importance as other NGOs had withdrawn from the region after the end of the war in Nicaragua in the early 1990s. The majority of the MOPAWI staff was from the Mosquitia. The executive director and other high officials were Ladinos from the Mosquitia but most employees were Miskitu. At the time of the study, there were two Miskitu MOPAWI staff assigned to seven communities in the lower Patuca Region.

Importantly, MOPAWI was politically active and had connections with international indigenous, environmental, and economic development organizations. MOPAWI engaged in networking and lobbying the Honduran government on behalf of indigenous communities. On a national and international level, MOPAWI has had an important role as an authoritative voice promoting indigenous issues that affected the inhabitants of the Mosquitia. They have been instrumental in bringing indigenous issues

into the public consciousness in Honduras and challenging the government and multinational companies on issues that negatively impact the Mosquitia.<sup>1</sup> They have worked on a national level to promote indigenous rights, title communal land, protect the way of life of indigenous people, and prevent individuals and multinationals from extracting resources in abusive and non-environmentally sustainable ways. Other GOs and NGOs have promoted economic development projects in the Mosquitia, but they generally did not challenge the status quo. Few organizations considered themselves to have a clear political agenda, whereas MOPAWI does. MOPAWI's work in all of these areas will have important long-term consequences and benefit indigenous peoples in the Mosquitia.

#### *INFOP*

At the time of the study, one governmental organization was working in Wawina promoting development projects, the Institución Nacional de Formación Profesionales (INFOP). Similar to MOPAWI, INFOP supported cash crop production of cacao. INFOP was based in the capital of Honduras and had assigned three technical assistants to work in the Mosquitia. The majority of people employed by INFOP on a national level were Ladino; however, the technical assistant I interviewed in the Mosquitia was Miskitu.

The role of technical assistants at INFOP was to develop human resources and capacities. In the Mosquitia, the emphasis was on agricultural production. They primarily educated farmers about growing cacao. This included everything that had to do with planting, maintenance, and commercializing the cash crop. They also introduced improved seed varieties of cacao developed by other institutions. Along with technical

training, technicians reported they also gave training focused on community organizing and orienting producers about the economic and political situation of the country, especially regarding local concerns. However, these roles were secondary to the promotion of cacao. INFOP promoted participation from communities in the planning and execution of their development projects.

INFOP programs in the Mosquitia suffered from lack of adequate personnel and resources. They did not have enough staff for such a large area as the Mosquitia, and technicians could only spend limited time in each area before moving on. For example, the technician in Wawina was concerned that it had been two years since he had worked in the Patuca River region with farmers. Importantly, INFOP technicians said there was little collaboration or coordination of projects among NGOs and GOs in the Mosquitia, despite the promotion of similar projects. It also appeared that community members that worked with one organization did not necessarily work with the other organization.

Economic development projects in Wawina primarily promoted the production of cacao as well as some hard wood. MOPAWI had a more consistent presence in the community as two technicians were assigned to work with only 7 communities, all located in the lower Patuca region. In contrast, INFOP staff had to cover much larger regions with fewer employees. There were other important differences among these organizations as well. MOPAWI had a political agenda and advocacy role. INFOP was a government organization and worked nationwide; thus this organization did not have a particular allegiance to the region. These differences would potentially have an influence on the success of their projects in different communities.

## **Politics and Power in Economic Development Projects in Wawina**

In this study, I examined economic development organizations working in Wawina. One focus of study included how they promoted participation in their projects. Participation rates may be influenced by many factors at the community level. In this section, I discuss conceptual issues regarding power and politics in development initiatives as relevant to Wawina during my stay.

Similar to most development organizations I visited during the predissertation year, MOPAWI and INFOP staff stated that they promoted the active participation of community members in their projects. Projects were open to all community members who wished to participate and presumably those who participated would benefit economically or materially from their involvement. In reality, not everyone participated in the various projects, which is not surprising. It is important to acknowledge that the types of projects promoted tended to be predetermined and limited in number.

The idea that development programs will work better if beneficiaries are involved in the planning, execution and control of projects is a significant innovation to development approaches worldwide. However, it often carries the assumption that beneficiaries will respond to local circumstances and inequalities. It often suggests that it is possible for beneficiaries and organizations to determine the needs, wants, and desires of most beneficiaries. This perspective is also problematic if it does not take into account power relationships among different beneficiaries, other community members, economic development staff and donor agencies. Also, economic development organizations might have specialized training in only certain areas, thus limiting their ability or willingness to carry out projects proposed by community members. Last, the agendas of donor agencies

may make them unwilling to fund certain projects that do not meet their criteria or priority.

### *Promoting Participation*

Important elements of this study included trying to understand what promoting community participation meant, and how it was carried out. This also helped contextualize the power relationships among different community members, staff, and donor agencies. How participation was promoted had important effects on participation rates and meeting the goal to improve food security in the community.

When I first discussed with staff the promotion of community member participation in development projects, I was struck by the differential use of the word “participation.” It became clear to me that the concept of participation was often multifaceted, had various meanings to different people and was carried out in different ways. Overall, staff discussions of “promoting participation” included two main components. One was associated with soliciting input from intended beneficiaries regarding potential and current projects. The other was tied to physical and material investment by beneficiaries in these projects.

In practice, those promoting participation in development projects did not use a community-based participatory framework mandating equitable participation and distribution of power among community members, development organizations and donor agencies. Power was not equitably distributed at all levels. In general, community members were consulted about potential projects, but the specialized skills of development organizations and expectations of aid organizations mostly predetermined

the types of potential projects available. Thus, community members often had limited input actually determining or suggesting the types of projects promoted. Some staff at development organizations discussed participation as if it meant soliciting the input of beneficiaries at the initiation of development projects and periodically thereafter.

Another important component of promoting participation was requiring beneficiaries to contribute their labor and cash or kind. Thus, community members invested themselves in the project and contributed to its sustainability. Importantly, beneficiaries would learn the skills needed to continue the projects once the development organizations were gone. This would establish ownership over the development projects and contribute to their long-term sustainability and success. In the Mosquitia, there was a continuing history of paternalism and aid by missionaries, and to a lesser extent by the state. As a result, many Miskitu people in Wawina wanted and expected free materials, development projects, and infrastructure projects for example. To organization staff, requiring a physical and material investment in the project was considered an important step away from paternalism and toward Miskitu self-sufficiency and independence.

Previous experiences of donor agencies and economic development organizations influenced the way participation was understood and promoted. As further discussed below, this affected who participated in these projects and who benefited at the community level.

### *Target Clients*

To whom development projects are targeted has significant consequences for participation, and thus, improving household food security in the community. Economic



development organizations working in Wawina said participation was open to all. It was clear through practice, however, that different projects were aimed at specific groups in the community, such as men or women. A limited number of economic development projects were promoted in Wawina. At the time of the study, projects only promoted the production of cash crops, primarily cacao, and to a lesser extent hard wood such as mahogany or cedar. At the end of the research period, MOPAWI was starting to promote orchard production in Wawina.

Cacao production was considered environmentally sustainable, and the product was sold to companies in the interior of Honduras to earn cash income. The production of cacao required considerable labor and a long-term outlook, as cacao trees did not produce fruit or earn any income for several years. Thus, only those with the ability and willingness to invest the time, pay labor for several years without a return, and take the risk that the crop would be successful were able to participate. This limited participation primarily to those community members with more economic resources.

The major programs focused on cash crop production were aimed toward male participation. Male and female community members, local NGO and GO employees, and local public officials regularly explained to me that being an independent cacao producer fell outside of expected gender roles for women. Because of “natural” differences between men and women, women could not be independent cacao producers. It required hard physical labor with a machete and cutting down trees, labor women did not traditionally perform. Women did not perceive these projects as appropriate for them or inviting their participation.

The explanation that most women did not participate in the major development project because of the hard physical labor ignores the fact that most women worked regularly in agriculture performing difficult tasks. It also sidestepped the fact that being an independent cacao producer required cash investment and paid labor, to which women had decreased access compared to men, as well as the ability to assume years of risk before any returns on the investment. Explanations that women were weaker and naturally could not be cacao producers ignored important gendered dimensions of socioeconomic status and access to resources. These other factors also greatly limited participation in economic development projects in Wawina.

*Closing Remarks Regarding Participation in Economic Development Projects in Wawina*

I presumed a key factor influencing success of projects was garnering participation. An important part of this study was examining the multiple factors influencing participation in projects. I paid attention to different people's explanations for participation and non-participation and linked these to economic, political, and social variables. I also tried to situate development organizations' obligations to both local community members and donor organizations within this discussion.

Many community members said they were potentially interested in working with economic development organizations promoting cash generating projects, and many others grew cacao. However, very few community members actually worked with current programs. This was partially a consequence of the types of projects promoted. Women and many of the most food insecure did not participate because of the labor and cash investment, time required to become established, and risk involved. These

community members did not perceive of themselves as targeted clients or were not interested due to the types of projects promoted.

My findings show that those households who participated in economic development programs in Wawina tended to have significantly more wealth and better food security than others. They were in a position to invest in the production of cash crops over a long time period. Economic development projects worked with few community members overall, and worked little with those at increased risk of food insecurity. Considering the types of long-term, environmentally sustainable projects promoted, it was not surprising they were aimed at wealthier men. Wealthier men were more likely to have the resources, ability and willingness to participate and be successful. This also allowed economic development organizations to demonstrate successful clients and projects to donor agencies.

### **Understanding Household Food Insecurity: Economic Development Organizations**

Improving food security was a stated goal of economic development programs carried out at the community level to the national level in Honduras. However, it took me a while to realize that these same organizations working to improve food security in the Mosquitia were not measuring it at any level. The staff at these organizations were familiar with the concept of food security, but they had a limited and superficial understanding of the many factors that influenced different households and individuals ability to have enough food year round. So although it was a program goal, these organizations did not seem to be evaluating the effectiveness of their programs in relation

to household food security. I suspect this limited their ability to conceptualize ways to really improve the household food security of a large number of community members in a significant way.

Based on my predissertation experiences in the region, I developed the instruments and interviews to collect data on the wide variety of factors that I thought would influence household food security and participation in economic development projects. Through participant observation, open-ended interviews, and survey interviews, I collected a complex data set that covered various domains. This included qualitative and quantitative data on economic, agricultural, and social food security strategies, environmental conditions and resources, political structure, diet, growth measurements, seasonality of all these factors, and development policies and programs. I would not expect an economic development program to collect such varied and in-depth data in each community where they worked; however, I would expect them to have some understanding of how their programs affected household food security on a wider scale since it was one of their program goals.

Despite claiming food security was an important goal of their programs, economic development staff did not spend time learning about it, trying to understand what food security meant at the local level, or examining how food security and food insecurity manifested in different ways. Their lack of attention to the factors that influence household food security limited their ability to promote programs that would significantly benefit more than a hand full of the wealthiest community members. It also limited their ability to understand the failure of projects targeted toward improving food security, such as promoting storage silos for grains.<sup>2</sup> Repeated program failures and problems in

different communities lead to frustration and misunderstandings among development staff and community members.

### **Layout of the Dissertation**

In this last section I describe the layout and content of the chapters of the dissertation. The chapters are organized to first provide background information regarding the region and my experiences carrying out the research. In this first chapter I provided a brief introduction to the Mosquitia region, Wawina and organizations that work there. I introduced the literature that has most influenced my research model and questions. I also gave an overview of methods and reviewed some issues regarding economic development policy and research. Last, I discussed economic development and participation issues in Wawina.

In the Second Chapter I discuss further the literature and theory that has shaped this study. I particularly examine the literature on household food security and economic development policy and research. This chapter helps contextualize the research model and my approach to fieldwork and data collection. In the Third Chapter I describe problems I encountered upon my entrance into Wawina at the beginning of the data collection period and how I overcame them. In the Fourth Chapter I present the methods followed in this study. This includes an explanation of the two-pronged approach to this study, the samples and instruments, and data analysis. Chapter Five provides information about Wawina from both a contemporary and historical perspective. I include information I collected through literature reviews, open-ended and survey interviews.

The last three chapters focus on the findings, discussion and conclusions of this study. In Chapter Six I present quantitative findings regarding food security and insecurity in Wawina. I present findings explaining what groups in the community are at higher risk for food insecurity, as well as local indicators. In Chapter Seven I present qualitative findings about ideas and experiences related to development and underdevelopment in Wawina. I include information collected from economic development staff, local public officials and community members. In Chapter Eight, I bring together the findings from Chapters Six and Seven and critically consider the intersection of household food security and economic development in Wawina. I specifically discuss who benefits from economic development projects promoted in Wawina and how this relates to risk of food insecurity. I end with suggestions of how to decrease the risk of food insecurity in Wawina.

## CHAPTER TWO: INTERNATIONAL DEVELOPMENT POLICIES, FOOD SECURITY, AND THE ROLE OF NON-GOVERNMENTAL AND GOVERNMENTAL ORGANIZATIONS

Hunger is experienced at the individual level but food security is experienced by and may characterize nations, communities, households, and individuals (Campbell 1991: 409). Improving household food security is of crucial importance to the future of Central American countries because nutritional well-being is an essential component of the human capital necessary for short- and long-term economic development (Martorell 1996; Pollitt 1994; Scrimshaw 1994). Food security is an important indicator of community development because it measures whether people are meeting their basic needs; thus, it is a major dimension of the standard of living, health, nutritional status, and quality of life. A powerful index of food security is the growth status of children, which is a primary variable in this study (Dewey 1985; Jelliffe 1966).

It is impossible to understand food security at the household level without incorporating analyses of the broader economic and cultural contexts that affect power, access to resources, and accountability at local levels. The last 20 years have seen significant shifts in development paradigms, partially as a result of structural adjustments designed by the World Bank and the International Monetary Fund, including the removal of state subsidies and the withdrawal of the state from the social sector. These shifts were meant to promote economic growth, which would then improve the state of the economy in developing countries and increase access to resources and improve food security for people in those countries.

The locus of my study, Wawina in the Mosquitia region of Honduras, is an example of a Latin American indigenous community faced with a delicate ecological

situation, changing economic demands, and transformations in local economic opportunities. Economic development projects have a significant and increasing presence in the Mosquitia, and improving food security is a stated goal of projects. Understanding community members' everyday experiences with economic development projects and how projects did or did not influence household food security was a goal of this study. Conducting research in Wawina allowed me to examine and further theorize the effects of indigenously managed NGOs in indigenous communities and the operation, utilization, and transformation of international and national development discourse at the local level.

Programs entailing development assistance are increasingly channeled through and taken over by non-governmental organizations (NGOs). Reflecting this movement, top-down development strategies have been replaced by participatory ideologies emphasizing grassroots and bottom-up approaches. In the Honduran Mosquitia, many services were delivered through NGOs, particularly through an indigenous organization, Mosquitia Pawisa (MOPAWI), funded by international donors. One of the goals of economic development projects in the Mosquitia was to improve household food security, the issue that is the focus of this study.

Escobar calls for institutional ethnographies that examine institutional development apparatus and textual and work practices and how these practices affect and intersect with people's worldview, the way they think and live (1995). Influenced by the work of Escobar (1991, 1995), Pigg (1992, 1995, 1996), Norgaard (1994) and Sachs (1992) criticizing the global development apparatus, I developed specific questions about people's experiences and understandings of economic development programs. MOPAWI



is an indigenous organization adept at using the language and models of development promoted by international donors. I examined how this NGO transformed the language and concepts of development to suit the historical and cultural context of the Mosquitia. A governmental organization (GO), Institución Nacional de Formación Profesionales (INFOP), was active in Wawina at the time of the study. I analyzed the participatory discourse and practice of development projects sponsored by both MOPAWI and INFOP in Wawina and concentrated on the various factors that influenced different people's ability and willingness to participate in development projects.

### **Studies and Definitions of Household Food Security**

During the last 20 years, food security has been variously defined by scholars, NGOs, and international agencies, depending on agendas related to policy-making, famine relief and prevention, development planning, and research orientation (see Maxwell and Smith 1993 appendix for a historically comprehensive list of definitions of food security). Food security has been examined at many levels, including the national, regional, community, household, and individual. In this study I concentrate on the level of household food security.

As stated in Chapter One, household food security is defined as the ability of people to consume sufficient food throughout the year, in terms of quality and quantity, necessary for an active, healthy life (Haddad et al. 1994). Foods must be nutritionally adequate and safe, and people must have the ability to access sufficient foods in socially acceptable ways (Anderson 1990: 1560). Food insecurity exists when any of these requirements are not met.

Radimer et al. discusses broad and narrow definitions of food insecurity and hunger at the household and individual levels (1992). The narrow definition focuses on an extreme lack of food whereby individuals do not have enough to eat and may actually feel hunger pains. Broader definitions include a focus on individual and household access to food and the food supply, quality and quantity of the diet, and types of foods available. This also includes an emphasis on how people manage the processes of obtaining food (1992: 37S).

Household food security depends on many factors, including development policies and programs, environmental conditions and resources, and household food security strategies. It is difficult to establish key proximate indicators to measure food security because each situation is unique (Haddad et al. 1994; Khan and Riely 1995; Kendall et al. 1995; Frankenberger 1993; Radimer et al. 1992). Despite these difficulties, in his review of food security studies, Campbell discusses categories of food security strategies consistently identified in the literature, including economically, environmentally, and socially based food security strategies, as well as the impact of the political structure on food security (1990). Scholars discuss the subtle nuances of household food security that need to be taken into consideration in research. These include differentiating between chronic and transitory food insecurity and considering the intensity of food insecurity as central foci of analysis (Maxwell and Smith 1993; Maxwell 1990).

Scholars have debated whether the phenomenon of hunger can be measured. Using qualitative and quantitative methods, Radimer et al. studied hunger and its nuances and established criteria to measure it (1992). Their research was carried out in the United

States. Based on this research, Radimer et al. identified four components and two levels of the experience of hunger. The levels are the individual and household. The four components focus on the quantitative, qualitative, psychological, and social aspects of the diet (1992: 38S). The authors conclude that hunger and food insecurity are processes that women manage and control, thus influencing who experienced which components of hunger and their timing. Radimer et al. argue that the potential universe of coping and food security strategies may be so large that it would be impossible to document all of them, especially in a survey (1992: 40S).

#### *Diet Quality and Studies of the Nutritional Status of Miskitu Children*

Nutritional status and caloric intake are significant indicators of food security studies, but many studies give too little attention to the quality of the diet. Researchers may focus only on calories consumed per person, or per household, implying that if sufficient calories are consumed, nutritional requirements are met (Maxwell and Smith 1993). In a study of vitamin A, iron, and iodine adequacy in Mexico, Egypt, and Kenya, Calloway et al. (1993) discuss how the majority of children living in poverty experience mild to moderate nutritional deficiencies, which are reflected in stunting. UNICEF country statistics report that 40% of young children in Honduras are moderately or severely stunted, 18% moderately or severely underweight, and 2% wasted (UNICEF 1999). In his research on the north coast of Honduras, Dodds discusses widespread stunting among Miskitu children despite a diet that is probably adequate in calories (1994a and 1994b). These recent studies in international nutrition and among Miskitu populations in Honduras, as well as my previous experience in the area, led me to collect

data on quality and quantity of the diet throughout the study period. I gave particular attention to seasonal changes in food availability, and I expected that most malnourished children would be growth stunted rather than wasted.

In a 1975 study of nutritional status of 304 infants and young children in three Miskitu communities in northeast Nicaragua, Horner et al. found that the children showed signs of past chronic undernutrition that was reflected in widespread growth retardation (e.g., 92% of the children reached 90% of the standard weight for height). Only 40% of the children in the sample met or exceeded the 3<sup>rd</sup> percentile of the Boston growth standard and, based on Gomez weight- for- age, 39% showed first or second-degree malnutrition. Analysis of the dietary intake data showed deficits of energy, vitamin A, calcium, and iron intake. The authors suggest the growth retardation was associated with periodic malnutrition and infectious diseases intermixed with periods of good health and seasonal influences on weights. The current focus on micronutrient deficiencies in international health and the findings of Horner et al. led me to collect information on the diet year round. Future analysis will examine the extent of seasonal micronutrient deficiencies.

Cattle (1976, 1977) investigated the annual dietary diversity in a Miskitu community in northeastern Nicaragua and assessed the dietary impact of the economic strategy of selling green sea turtles to export companies. For the people in Cattle's study, green sea turtles were an important part of the local diet and, with the income earned from selling them to foreign export companies, villagers could also purchase store-bought foods. Cattle concludes that villagers' diets varied year round and were particularly sensitive to the amount of cash available to purchase store-bought foods. She also found

that although store-bought foods allowed for increased diversity in the diet, periods of greater dietary diversity actually corresponded with periods of inadequate nutrient intake. She suggests the high diversity may represent “food scrounging” and crisis in the food-getting system. Cattle concludes that by selling a basic subsistence resource to an export market, Miskitu villagers were disrupting their traditional subsistence and dietary equilibrium. With these considerations about high dietary diversity in mind, I collected information on the diets of children and their mothers throughout the year; future analysis will examine Cattle’s conclusion about the relationship between high dietary diversity and nutritional inadequacy in the context of Wawina.

#### *Issues in the Use of Nutrition Reference Standards*

The height and weight of children and their mothers and the body mass indices of mothers are used in analyzing nutritional status and household food security. Height and weight for age measures by themselves only measure growth failure consequent to environmental constraints (Beaton 1989). There is a problem with using reference data collected in one population to measure growth failure in another population. Most of the internationally available reference data for height, weight, arm circumference, and skinfold thickness are based on samples with high degrees of European ancestry, include obese children and adults, and may not be genetically appropriate for use among other populations, including Miskitu peoples (Eveleth and Tanner 1990).

The current reference data for children 0-5 years of age endorsed by the World Health Organization (WHO) is drawn from U.S. populations but is used worldwide. The data to develop these references were gathered during two investigations in different

decades. One sample, from the Fels study, included only white, middle-class children from a town in Ohio. Measurements were made approximately every three months until the children were three years old. The majority of these children were bottle-fed. As a result, the weight- for-height measures are artificially high and may make children who are breastfed appear low in weight. The other study was part of the National Health Examination Survey (NHES) conducted by the National Center for Health Statistics (NCHS). The NHES measured 38,000 people from all ethnic and socioeconomic groups in the U.S. with special weighting of vulnerable groups, such as children six months to six years, the poor, and the elderly. The measurements from different ethnic groups were combined, and the charts later produced include measures of weight, height, arm circumference, and skinfold thickness all from the same combined sample (Lee and Nieman 1992). Any growth pattern differences based on ethnic-genetic factors are probably not represented in these charts. The Fels study and NHES were combined to make the WHO charts.

When using the reference standards developed in the U.S., measures below 5-10% or above 85-95% are possible cause for intervention in the U.S. When used internationally, the measures are more extreme; below 3% and above 97% indicate a need for intervention although the channels remain the same. The different intervention standards were developed because of criticisms that these reference data are genetically inappropriate and that the samples from which these reference data were developed were possibly overnourished and do not necessarily reflect health (Lee and Nieman 1992; Eveleth and Tanner 1990). In addition, confounding factors, such as smoking, were hard to control for during data collection.

Ideally, children would be selected for nutritional intervention with consideration of longitudinal data on their growth patterns. This is not always possible, however, and in such situations the international reference data are frequently used. Some authors (e.g., Eveleth and Tanner 1990; Jelliffe and Jelliffe 1989) recommend using locally developed indicators when selecting for intervention or diagnosing malnutrition because the sample will be genetically appropriate.

There have been interesting findings regarding the ethnicity of sample populations and the use of reference standards with adults. Stern et al. concludes that reference standards based on samples of Anglo populations are inappropriate to use with Mexican Americans and are likely to underestimate their ideal weight ranges. These findings are based on studies of heights and weights from 25 insurance companies in the U.S. and the health experiences of 4.2 million policy holders who were mostly Anglo, as well as 3,176 Mexican American and 1,841 non-Hispanic subjects from the San Antonio Heart Study (1990: 623). They found that Mexican Americans are more likely than non-Hispanic Anglos to be categorized as overweight and less likely to be categorized as underweight based on reference standards. Also, fewer Mexican Americans fell into the category of “just right.”

The classification of large percentages of Mexican-Americans as “overweight” based on reference standards suggests that Mexican Americans, especially those over the age of 45, should have higher mortality rates than non-Hispanic Anglos, but vital statistics data from Texas for 1979-1981 failed to support this prediction (1990: 623). The authors suggest a possible explanation of the lower than expected mortality rate among Hispanics is because they smoke less than Anglos, although they suffer

disproportionately from other diseases such as Type II diabetes (1990: 627). Stern et al. conclude that while body mass index (BMI) is a useful proxy of overall health status of a population, the reference standards are inappropriate for Mexican Americans (1990: 628). Their findings are relevant to all non-Anglo populations, especially Hispanic populations with considerable indigenous ancestry.

Further related to the analysis of reference standards, Garn et al. argue that BMI is not independent of stature for some adults and not at all for children (1986: 996). Weight values measure both lean tissue and body fat; and as a result, for some subjects BMI may be a better measure of lean body mass than fatness or obesity. Also, body proportions influence BMI values, and adults with short legs for height, adolescents, and children may have higher BMI values without being overweight.

In this study, I collected height and weight measurements for women and children four times throughout the year. The criticisms and questions raised in the research cited above has influenced my approach and analysis. While height and weight measures are important data in my study, I decided not to diagnose malnutrition. Instead, I compared mean Z scores for height and weight of children and mean BMI values for mothers within the community. I was testing differences among specific groups in Wawina. As a result, it was unnecessary to use WHO reference data or develop local reference data, which would have been too costly and time consuming. Also, BMI values for women in Wawina indicated high levels of obesity, but the points made by Garn et al. and Stern et al. should be taken into account when considering the significance of these findings.



## **Development Theories with Reference to Honduras**

Development policies are often designed to improve the economy with the assumption that this will raise the general standard of living of the population. Most Central American economic development policies discourage primary attention to the issues of local-level hunger and household food security that affect the nutrition and health of the majority of the population (Corbett 1991). The literature on development shows that many planned development projects did not have the desired impact, and the reasons for this are complex. A key analysis of their failure points to top-down planning and the execution of projects that did not include the participation of or input from the intended beneficiaries (Bebbington and Thiele 1993).

Structural adjustment policies designed by the World Bank and the International Monetary Fund decreased government redistribution policies of subsidizing basic food staples, education, health care, and other factors contributing to the cost of living, and placed the responsibility for meeting basic needs on the individual and the family (Safa 1995). Studies have shown that women's unpaid labor has compensated for the reduced spending of the state, and women and households have been forced to absorb this increased expense (Razari and Miller 1995: 18). Structural adjustment policies emphasize privatization, liberalization of trade, the easy movement of capital between countries, market deregulation, and fiscal austerity (Weeks 1995). These policies frequently have a greater negative impact on women, especially women with children, than on men because of women's limited "occupational distribution" and access to resources (Browner and Leslie 1996; Safa 1995; Marchand and Parpart 1995; Dewalt 1993; Gladwin 1991).

One way the Honduran government tried to diminish the negative effects of structural adjustment policies was the establishment of the Fondo Hondureño de Inversión Social (FHIS) (Honduran Fund for Social Investment). Their mandate was to diminish poverty through improvements in basic services and the promotion of economic activities to increase jobs and income. In the Mosquitia, many projects focused on building infrastructure, such as schools and health centers.

### *Economic Development Policies and Health Indicators*

In Honduras and Central America, economic development policies have contributed to foreign debt, widespread ecological destruction, expanding inequality between the rich and the poor, and decreased food security for a large part of the population (Stonich 1989, 1991, 1993; Gacitua and Bello 1991; Arrivillaga, Robleda, and Salomon 1995; Matamoros and Hernandez Borjas 1995; Isaula 1996). Employing a political ecology approach, Stonich examined factors influencing nutritional status and food security for populations in southern Honduras. She reports that in Honduras, despite 30 years of economic growth from export agriculture, people now are less able to meet their daily food requirements, and food security has declined as a result of a decrease in domestic staple food production and off-farm employment (1991, 1993).

From 1990-1993, the poverty rate in Honduras rose from 68% to 78% and in Central America in general, 80% of the population lives below the poverty line (Nef 1995). UNICEF and the Honduran governmental office La Secretaría de Coordinación, Planificación, y Presupuesto (SECPLAN) jointly published a document, Análisis de la situación de la infancia, mujer, y juventud, Honduras 1995. For 1994, they report that

38% of children six to nine years of age were chronically undernourished. This was an increase from 35% in 1986. They suggest the increase is a consequence of the declining socioeconomic conditions in the country. The percentage of chronically malnourished children was higher in rural areas (41%) than in urban areas (26%). The authors suggest the higher incidence of chronic malnutrition in rural areas was due to higher levels of poverty and reduced access to health services, education, potable water and disposal of waste (1995: 53).

The Nursing Department at the Universidad Nacional de Honduras, Ministerio de Salud de Honduras, and UNICEF conducted a study in 1997 of the nutritional status of children less than five years of age throughout the country. They found that an average of 26.4 % of children were malnourished. The highest prevalence occurred among children one to two years old (Departamento de Educación de Enfermería et al. 1997: 5-6). They found an association between the material conditions of the house and access to basic sanitation and the incidence of child malnutrition. The relative risk of malnutrition increased four times when three or four of six basic necessities were not met (1997: 8). The children at highest risk lived in situations lacking basic sanitation and waste disposal facilities. They also lived in houses made of disposable materials with three or more people per room of the house, and their households had high economic dependency ratios.

These risk factors characterized many of the households in Wawina and suggest that children in Wawina would generally have a higher risk of malnutrition than would children in other parts of the country. It is important to keep in mind, however, that the low population density of the Mosquitia and access to abundant fertile land are two of

several important ecological distinctions between the Mosquitia and the interior of Honduras. In this study, I consider whether these differences might partially mitigate reduced access to other basic necessities or in other ways influence the incidence of malnutrition.

### *Non-Governmental Organizations*

In Central America, the movements toward democratization, decentralization, and structural adjustment have led donor organizations and governments to reconsider the structure of social service and development project delivery. NGOs have reassessed their roles and mission statements in Central America now that years of civil war have ended and there is movement toward democracy (Biekart 1996). The state has never had much presence in providing social services in the Honduran Mosquitia, and since the Contra-Sandinista War ended, many NGOs have withdrawn. Those remaining have undergone significant reorganization. The changing relationships among the state, donor organizations, and NGOs frequently put NGOs into the forefront of community development (Edwards and Hulme 1996; Uphoff 1996; Farrington and Bebbington 1993).

NGOs are increasingly favored by donor agencies and governments because of their assumed close ties to local communities, abilities to react quickly to changing circumstances, participatory orientation, and bottom-up approaches. Importantly, NGOs are not an additional economic burden to the state. Indigenous and southern NGOs may have closer ties to local communities, more opportunities to carry out projects appropriate to local realities, and impact the majority of beneficiaries in positive ways.

NGOs represent an alternative development approach to traditional state-run development practice. Although many scholars are optimistic about the ability of NGOs to carry out development assistance, their new role also raises new questions and tensions. Razari and Miller discuss some of the issues facing NGOs as they are called upon to carry out local level development assistance where the state and other institutions have previously underperformed or failed (1995: 7). They call for a critical analysis of the strengths and weaknesses of NGOs, particularly in regard to the realistic ability of NGOs to promote participatory planning and bottom-up strategies (1995: 40).

Indigenous and southern NGOs are increasingly linked to international development organizations, receiving funding from international donors that significantly influences the way program policies are determined and carried out (Razari and Miller 1995). Thus, in actuality, local control of programs, local planning, and local participation may be significantly limited or not carried out in practice. Although donor agencies shape development programs through their funding policies, NGOs are not necessarily passive in implementing donor-designed projects (Reilly 1995).

As increasing amounts of international aid are channeled through NGOs, they are likely to be under more pressure from donors and less likely to retain the (sometimes-idealized) qualities that made them attractive initially. As NGOs continue to take over responsibilities previously carried out by the state, they could become less efficient, lose their ties to local communities and their abilities to react quickly to changing circumstances, and become less able to carry out participatory orientation and bottom-up approaches (Razari and Miller 1995: 36).

While the approaches and content of development projects have come under criticism and changed through time, many development projects continue to fail to make widespread impact. Razari and Miller argue that the project approach employed by NGOs has many weaknesses and should be critiqued as a factor limiting their success.

Localized impact (even where successful) rather than broad coverage, efficiency losses due to the tendency for duplication and lack of co-ordination, difficulty in reaching certain groups of people (very often the more disadvantaged), and inability to control the negative fall-outs of other general policies—these are some of the main limitations of the project approach that the development literature has been highlighting (Razari and Miller 1995: 33).

NGO projects and development agendas must promote changes focused not only at the local level but also at the macro-level for sustained, long-term, widespread effect.

NGOs have an important role carrying out social service and development project delivery in Wawina and the Mosquitia. These studies have helped me look critically at the factors influencing development projects, their delivery, and their success. In this study, I have attempted to identify both the strengths and weaknesses of development programs in Wawina.

### **Development Agendas: Gender, Power, and Change**

Through development policies and practices, international and state-based institutions have often been key figures in reinforcing or worsening the unequal distribution of power and resources between men and women (Goetz 1998: 42). For the last 30 years, development specialists concerned with the effects of global and local development policies on women have worked to make gender issues a central concern in development. In the attempt to address these inequalities, there have been reevaluations

and changes in the way women's issues have been conceptualized and addressed in economic development agendas.

Razari and Miller (1995) provide an overview of the treatment of women and gender in development from the early 1970s to 1995. They describe women's historically limited access to, role in the shaping of, and participation in economic development from the local to the institutional level. Despite changing conceptualizations of women's issues in development, there remains a continuing lack of institutional support and inadequate mainstreaming of gender into development policies (Razari and Miller 1995; Goetz 1998).

Analyses of gender and development are important aspects of this dissertation. The following discussion highlights conceptual concerns in analysis of economic development programs. In the following section, I give a brief historical review of the beginning of the women in development (WID) movement in development planning and policies. Then I describe the transition from a WID approach to a gender and development (GAD) approach, as well as some continuing conceptual concerns in the analysis of gender in development. I conclude by briefly discussing current issues in the institutionalization of gender into development policies and institutions.

### *Review of WID and GAD Initiatives and Issues*

Historically, development policies have been based in theories about economic growth. Development planners identified women predominantly as mothers and wives and did not target development policies to women's productive activities or possibilities. Policies for women were focused on nutrition education and home-based projects, labeled

“welfare approaches,” and did not focus on increasing women’s capacity to generate income or on improving women’s rights and status (Razari and Miller 1995: 3).

In the early 1970s, efforts to make women’s issues relevant to development planners and policy makers focused on efficiency-based arguments. These linked women’s production with economic growth (Razari and Miller 1995: 1). Demands for women’s inclusion in development agendas were more easily accepted when associated with mainstream development goals, such as economic growth. By promoting efficiency-based arguments, women in development (WID) advocates were trying to change the perspective that identified women primarily with reproductive activities. These approaches argued that women could contribute in positive and important ways to development through their work outside the home (Razari and Miller 1995: 6).

Efficiency-based approaches have been criticized because they do not give sufficient attention to other important features of everyday life. For example, projects that only promoted women’s productive activities did not take into account the various social relations, especially the husband-wife relationship, in women’s lives. In addition, they ignored other means of social differentiation (e.g., class, ethnicity-race, age, and caste) that structured women’s lives. By not taking these issues into consideration, projects founded in efficiency-based principles faced obstacles and did not produce the expected benefits. Despite criticism of the efficiency-based approach, it continues to influence economic development policy and practice (Razari and Miller 1995: 6).

The WID agenda prompted research and evaluation of economic development projects worldwide. Many of these reports highlighted discrimination against women in mainstream projects promoted by international economic development agencies, some of



which specifically excluded women or were aimed only at men (Razari and Miller 1995: 9). There was a growing recognition that regarding women as a separate category with their own development projects worked to exclude them as clients from the majority of development projects funded. WID advocates began to argue that women needed to benefit from all development agendas, not just those directed at women.

It also became obvious to some advocates that it was inappropriate for development policies to conceptualize women's productive and reproductive roles as separate. It was also problematic to ignore the fact that women's lives (as well as men's) revolve around social relationships with spouses, family, and friends. These social relationships influence women's and men's access to resources, opportunities, social status, and independence (Razari and Miller 1995: 12).

The GAD initiative emerged in the realizations that: 1) it is necessary to examine how development affects both men and women; and 2) reproductive and productive activities are interdependent and should not be examined separately. Analyses of how proposed policies will affect these two issues must be taken into account before implementation (1995: 12).

Economists and development planners did not automatically embrace GAD approaches. Because of policy-makers resistance, some advocates attempted to approach GAD issues narrowly and minimize what were perceived as politicized issues. One way this was done was through the gender roles framework, which allowed for a discussion of gender roles without directly engaging the conflictual nature of social change and social relationships, particularly between husbands and wives (Razari and Miller 1995: 15). This approach is problematic because it ignores the fact that social relationships

constitute a fluid and living system that depends on hierarchical relations of cooperation and exchange. By downplaying the political nature of relationships, this framework did not acknowledge that social relations involve conflict and unequal power relationships (1995: 16).

WID and GAD advocates also supported another approach, social relations analysis. Razari and Miller describe social relations analysis as an approach that directly engages the power issues sidestepped in the gender roles framework.

Gender relations refer specifically to those dimensions of social relations that create differences in the positioning of men and women in social processes. It is through gender relations that men are given a greater capacity than women to mobilize a variety of cultural roles and material resources in pursuit of their own interests. The central problematic within this approach is not women's integration into development *per se* but the social structures, processes, and relations that give rise to women's disadvantaged position in a given society. As such, ending women's subordination is viewed as more than a matter of reallocating economic resources. It involves a redistribution of power. ...it may be difficult to reallocate economic resources equitably without changes in social relations. Rather than downplaying the "political" dimension of gender, social relations analysis brings it to the core of its analysis (Razari and Miller 1995: 27-28, italics in original).

Some advocates of social relations analysis argue for an emphasis to be placed on women's empowerment. Critically examining and working to improve women's status and empowerment as a goal of development is a radically different approach from pursuing women and development policies in a purely economic paradigm (Razari and Miller 1995: 31).

The differences in these approaches are also illustrated in debates about how GAD policy should be implemented. Those promoting empowerment agendas lean toward grassroots, bottom-up development schemes. Those who support a gender efficiency approach argue for the need to promote macro-level changes at the institution

and policy-maker level, especially changing conceptual frameworks about gender. There are tensions and difficulties with both policy approaches, and neither is easy to implement because of the competitive nature of power and social relations at the local and macro levels (Razari and Miller 1995: 35).

### *Conceptual Concerns*

Razari and Miller highlight continuing conceptual concerns in development policy and suggest that social relations analysis is a useful framework in which to examine these issues. For example, development planners have often viewed women, the household, and the husband and wife relationship as homogenous, reified categories. They have presumed to understand the motivations of individuals in relation to these categories (for example, through neo-classical decision-making frameworks) and founded their policies on these assumptions. In contrast, social relations analysis specifically focuses on power relations and power-sharing negotiations (1995: 31). It proposes an examination of the various social divisions and relationships that influence men's and women's opportunities, choices, and lives (1995: 6).

In contrast to development planners, GAD advocates explain that the category of "women" must not be considered homogenous. Important elements of social differentiation, such as class, ethnicity-race, and caste, must be taken into account as inseparable and interdependent in the analysis of women in development (1995: 36). It is extremely difficult to determine the "interests" of women or any other group. It is impossible to accurately determine the interests of any group in advance. Not only is it important to recognize the heterogeneity of the "women" category, it is important to

realize that working with groups of women raises as many problems and issues as working with groups of men and women or with groups of men (1995: 35). Last, working with beneficiaries on remedies and ideas to support women and men is not as straightforward as asking women what they need and want. It is important to note that individuals may not have complete understanding of the various economic, political, social, legal, and environmental factors that influence their lives or know how to change them (Young 1993: 142 cited in Razari and Miller 1995: 38).

Razari and Miller emphasize the need to understand the fluid, social, and historically constructed nature of gender interests (1995: 35). GAD advocates are also concerned about generalizations that household interests are assumed to be totally separate or totally equal. They argue that the household and the husband and wife relationship must be problematized to reflect the complexity of real life, including dynamic power relationships and interests. These relationships are conflictual, cooperative, and changing. Without taking these issues into account, development agendas will continue to marginalize and neglect important dimensions of social differentiation and the varying influences of development on women and men.

Despite WID and GAD efforts to promote critical appraisals of social relations analyses in development policies and projects, there continue to be setbacks. Goetz (1998) discusses continual misunderstandings in the shift from a focus on “women” in development to “gender.” She points out that many policy makers and bureaucrats still understand gender policy to mean “women-only” policies. This leads to the continued and common problem of only focusing on gender in programs that are considered

“women’s projects.” A GAD approach requires analyses of how all development policies will affect both men and women (1998: 82).

Goetz draws attention to recent trends in development policy that continually neglect to evaluate how development policies will affect both men and women. Frequently this happens with “. . . new policy agendas-such as poverty reduction initiatives or the introduction of environmental sustainability concerns- [that] may not be ‘tracked’ through to their implications for women and men in all sectors (1998: 82).” The overarching need for poverty reduction or environmentally sustainable initiatives may be viewed as so important that evaluation of the differential effects on gender are perceived as secondary concerns or are too complicated to investigate at the outset.

This research is especially useful for analyzing the context of economic development in the Mosquitia. The primary projects promoted in the lower Patuca region emphasize environmentally sustainable cash crop production of cacao and hardwood trees. While these projects are said to be open to all community members who want to participate, they are aimed toward male participation. Projects aimed at women are founded in paternalistic expectations that women’s work is primarily domestic. Economic development projects promoted in the lower Patuca region do not critically consider the conflictual and cooperative nature of social relationships inside and outside the household or the unequal distribution of power between men and women in the household and the community. In particular, it appears the importance of promoting environmentally sustainable initiatives has overshadowed the need for careful analysis of the differential effects of these projects for men and women.

### *Institutionalizing Gender and Development*

Worldwide, there have been efforts to institutionalize GAD issues at the state level. Goetz (1998) discusses some of the barriers limiting the successful institutionalization of GAD policies. I conclude this section by discussing obstacles to institutionalizing gender in economic development organizations working in the lower Patuca region of the Mosquitia.

In her analysis of different countries' efforts to institutionalize GAD issues at the state level, Goetz cited lack of adequate funding and training for staff as a significant obstacle to the promotion of GAD-influenced policy change (1998: 42). In many administrative agencies, there are no WID or GAD staff, and women are not perceived as clients in all development agendas (1998: 64). Lack of GAD staff has limited the ability to highlight gender inequities and "has postponed a more transformative project of challenging the basic operating assumptions of each sector and their underlying disciplinary biases (Goetz: 1998:64)."

Other barriers to institutionalizing GAD agendas include bureaucratic resistance manifested in marginal physical locations for GAD offices and assignments. There is also inadequate attention to gender policies when implementing budgets so that policies that do not meet gender-sensitive requirements are still funded (Goetz 1998: 42). Bureaucratic resistance to GAD philosophy and paternalistic expectations about the role of women in society limits the ability to pursue GAD agendas (Goetz 1998: 54). The degree of effective democracy in a country and whether the country is in economic crisis also has important influences on the institutionalization of gender (Goetz 1998: 84).

Another concern cited by Goetz is the lack of ownership and sustainability of gender-policy issues at the institutional and national levels. Goetz discusses various examples that suggest the insecure nature of the institutionalization of gender policy. For example, GAD policies are often mandated by international funding agencies, dependent on international funding, and lack adequate funding. This results in limited national investment in GAD agendas. Goetz' concern is that if international funding and pressure are removed, then support for GAD agendas might evaporate. She points out that in some cases, GAD policies are used as a political tool to garner support from constituents or from international donors, with no long-term attention or economic support to institutionalize GAD agendas. Policy-makers and bureaucrats often view theoretical and practical concerns regarding gender as marginal to the main economic concerns of economic growth, and this contributes to the continuing lack of ownership of gender issues at the institutional level. In some examples, the success of GAD policy is the result of the work of one interested, powerful individual. If that individual leaves the position of power, then the GAD support evaporates (Goetz 1998: 55-62). The lack of ownership and sustainability of GAD agendas at the state level will have long-term consequences. Overall, there has been little accountability at the state level for implementing and carrying through on WID/GAD policies (1998: 84).

NGOs dedicated to GAD issues may have more success implementing GAD approaches than state institutions, but it is important to realize the necessity of institutionalizing GAD agendas at the state level. The state's power and influence over everyday lives are far greater than those of an NGO. NGOs cannot implement policies affecting the national economy or regulating markets. Macro-level forces influence

women's and men's lives in important ways, and state policies aimed at producing a "more gender-egalitarian order" have the potential of creating systemic changes that are out of reach for most NGO projects (Razari and Miller 1995: 40). Consequently, despite the difficulties, efforts to institutionalize gender at the state level must continue (Goetz 1998).

Findings from WID and GAD studies led me to shape my methods and analyze my findings in certain ways. I was led to collect information on the issues discussed above, including staff training and analysis of how projects influenced local social relations. I examined the institutional apparatus and the place of gender in development projects promoted in the region. The WID and GAD literature has helped me contextualize the lack of attention to gender in development programs promoted in Wawina and the Mosquitia in general.



### CHAPTER THREE: FIELDWORK CHALLENGES

Upon arriving in Wawina in January 1998, I encountered unexpected challenges to starting fieldwork. This chapter deals with these experiences, and specifically, how I managed to work through these problems with the guidance and support from community members and economic development staff. As will be further explained below, outsiders in general did not receive acceptance by some people of Wawina. Initially, a small group of community members drew on religious arguments and accused me of working with Satan. I spoke with many people about this protest and I tried to understand the objections. Most people I spoke with encouraged me to pursue my research and I found support for this study from most community members throughout the research period. By the end of my stay, more than half of all households in Wawina had actively participated in my study. It was difficult to overcome these initial obstacles, but in the end I was able to collect a large amount of good quality data from community member who were interested in participating in the study.

I have divided this chapter into two sections. In the first part, I describe my entrance into Wawina and the problems I encountered. I explain how I worked to overcome people's reservations and was able to collect data. I also contextualize my experiences with a discussion of other local experiences with foreigners and researchers. In the last part of this section, I discuss a major division in the Moravian Church throughout the Mosquitia that took place midway through my stay, and some of the effects in Wawina. In the second section of this chapter, I describe my participation in community activities and how I garnered continuing participation in the study.

I had previously visited NGO programs throughout the Mosquitia in Honduras and Nicaragua while on a predissertation training fellowship program in 1996. At that time I spent two days in Wawina. I met people and discussed my research ideas with local leaders who supported my study. Although I was aware that religion played a large part of daily life in the Mosquitia, I was not prepared for its impact on or implications to my study. Thus, I was surprised by some community members' reactions to my presence when I arrived in 1998. Below I describe these experiences.

### **ENTRANCE INTO DAILY LIFE IN WAWINA**

The day I left Tegucigalpa to begin dissertation research I traveled to La Ceiba and the next day took the morning flight to Ahuas, a political center in the Mosquitia (see Figure 1). Once in Ahuas I knew I would have to find a motor boat traveling up river to Wawina. Fortunately, I knew missionaries and MOPAWI staff based in Ahuas and expected they would help me.

On the day I arrived in Ahuas, a MOPAWI employee introduced me to Juliana<sup>3</sup> who was in Ahuas buying provisions for her family store located in Wawina. Juliana had lived in Tegucigalpa for several years and spoke Spanish fluently. She was 25 years old and widowed with three children. Her father was supporting her and her children economically as he sent her to La Paz, a city in the interior of Honduras, to finish high school and thus be able to work as a primary school teacher.

Juliana and I spoke for several hours that day about my research plans and I accompanied her on the boat going up river to Wawina. Although I anticipated living with the same family I had stayed with on my previous trip to Wawina, Juliana suggested

I rent a room from her Aunt Rosa, a woman with several grown children and who had three children also studying in La Paz. She explained that her aunt had a nice house compared to community standards and a spare private room, unusual in Wawina. We arrived after dusk to the northern dock at Wawina and walked with flashlights for a mile to Rosa's house. I came to an agreement with Rosa and moved into her house that night.

During my first days and weeks, Juliana and other teachers in Wawina introduced me to community members. They helped me explain the purpose of my presence and study, organize informational meetings and introduced me and the study to the Moravian Church congregation on several Sundays. During this time I mentioned that I was affiliated with and my research was endorsed by MOPAWI, a major indigenous NGO in the region with a program in Wawina. During the first few days and weeks of my stay, I personally spoke with and communicated my plans to church and local leaders. All of the leaders I spoke with welcomed and encouraged me. Some were the same people I had spoken with during my previous trip to Wawina two years before.

The teachers described to community members that my dissertation research was a hands-on training period, "practica," similar to what primary school teachers go through before they graduate from high school. Community members were familiar with this concept and most understand it to be a critically important and ultimate step in students' education before they graduate and can begin working.

It was common in the Mosquitia to call someone by his or her impending title or degree, even when the person was still a student. When I was introduced for the first time at the Moravian Church, the Pastor presented me respectfully as Doctora Mariaelena. However, most people in Wawina had only ever heard of a medical doctor

so many people assumed that was what I studied. Rosa explained to me that that was a good misconception because most people like and respected medical doctors. I did not support this construction and at every occasion I explained that I was not a medical doctor. Instead, I described myself as a doctor who studied people and the diet, since that was a point of the study and the most easily understood by community members. Despite the fact that Rosa and others tried to explain that I was not a medical doctor, people continued to come to the house or stopped me in the street during the first few months asking me to treat their sick children, infections and other illnesses. Unfortunately there was little I could do.

During the initial introductions and before I hired an assistant, the teachers translated for me from Spanish to Miskitu for the community members who did not speak Spanish. Although I anticipated coming to Wawina for several months before the start of data collection to improve my Miskitu speaking skills, I had not been able to do this so during the first few months in Wawina I studied Miskitu in the mornings. Although my Miskitu language skills improved considerably during the year, I decided to hire an assistant/ translator for all interviews conducted in Miskitu to ensure accurate communication. This also gave me access to considerably more information about the community.

### *Realizing there was a Problem*

During my first few days in Wawina, Juliana explained to me that I must be very clear and explain repeatedly what I proposed to do during my “practica” to community members because people might not understand, and “some old ladies” might think I had come for “bad reasons.” She also suggested that I not mention that I had visited the

community two years before. The family I lived with gave me the same warning. Rosa explained that people kept talking and making up stories about my presence.

The day after my evening arrival in Wawina, Juliana helped me organize the first town meeting to present my research and introduce myself to community members. After the meeting, I was walking back to the house with Rosa's oldest son, Andres. He was also studying to be a teacher in La Paz. Andres told me that the rumor around Wawina that morning was that lots of "foreigner gringos" were staying in the health center and they were promoting the antichrist and 666. This was so unexpected that at first I did not understand what he meant. I thought he was trying to tell me something about the "time before Christ," in Spanish "antes de Cristo." Rosa's house was located close to the health center. Andres explained that only a few people said these things and that most did not believe them. He thought that the information sessions and presentations in church would help dispel these rumors.

After the first few days of my stay, in order to combat the perception that I had come with bad intentions, I wrote a two-paragraph introduction of the study, and myself. I emphasized that participation was voluntary. Rosa helped me translate it into Miskitu and I spent the next ten days going from house to house throughout Wawina knocking on people's doors and reading the statement. I also spent time chatting with people when the opportunity arose, especially if they were fluent in Spanish. Because it was bean-planting season, many adults were at their agricultural fields so they did not hear my statement. Because it was a small community, everyone knew about this activity even if they did not speak with me directly.

While going house to house, I tried to write down people's names and whether they spoke Spanish so that I could remember who they were and conduct follow up visits with those people first. After the first few days it became apparent that some people were not comfortable with this procedure. Some refused to talk to or acknowledge me so I stopped collecting names. I learned that some people were suspicious about why I wanted their names. Some suggested I was going to sell their personal information in order to make money while others were concerned I would take the names and give them to Satan. During this time, and throughout the study period, I talked to individual community members about these concerns. Many told me that if some people did not want to talk to me or tell me their names it was because they were "ignorant." I should simply not include them in the study or worry about them. After a while as people became accustomed to seeing me around, they would stop this talk.

### *Expectations*

I knew before arriving for my dissertation year that religion played an important part in community life in Wawina. However, based on my previous experiences in the community and throughout the Mosquitia, I was not prepared to have some people call me an antichrist or an agent of Satan-a belief that ultimately affected the study process.

When I told MOPAWI representatives and people from other Miskitu communities about this, they were surprised and often laughed. Higher level MOPAWI representatives did not expect community members to respond to me in this way.<sup>4</sup> However, upon my arrival in Ahuas in January 1998, a local MOPAWI representative explained that they had had trouble working in Wawina. He indicated that I might run

into some difficulties but he never suggested that some people would call me antichrist or use religious discourse to attack my presence.

During my previous experience in the Mosquitia of Honduras and Nicaragua, preliminary data collection involved participation observation, discussions primarily with Spanish-speaking Miskitu peoples and several group interviews with women's groups set up and translated by NGO employees. This data collection involved a small number of people from different communities, distributed throughout the area. That procedure was fundamentally different from the long-term presence and more repetitive, intense data collection I was attempting in Wawina. However, as previously stated, rumors and suspicions about me arose even before community members knew the purpose of my presence.

### *Help From Community Members*

During my first days measuring height and weight of children, my initial assistant Marjory, a schoolteacher and Rosa's daughter, accompanied me to only a few houses, many of which were close neighbors. Two or three neighbors refused to open the door and did not want to participate in the study. The manner in which we were refused bothered Marjory and myself.

The following Sunday, Marjory's husband, Memo, also a teacher, stood up in the Moravian Church to re-announce my presence and his concern about the un-Christian manner in which I had been received to date by some community members. He explained my study and emphasized that it was a "practica" similar to what he did before becoming a teacher. He argued that if the Ladinos in the interior of Honduras had treated him as some Miskitu people were treating me, then he never would have been able to

finish his degree and become a teacher, one of the most respected positions in the community. He admonished the congregation saying that they should welcome me into their homes and offer me food and not close the door in my face because it was un-Christian. Memo reminded them that Christians should always help others and that God was always watching. At that point, the lady sitting next to me in the pew gave me a piece of candy.

Another factor that helped justify my study and ease potential subjects' worries about participating was when my second assistant, Socorro, explained her own initial hesitations about my project. She described to participants that when I first approached her about being my assistant, she went to Ahuas and discussed it with her sister, a nurse in the Moravian Hospital. Socorro explained that she did not simply accept my word. Instead, she discussed the proposed activities with her sister who supported the purpose and usefulness of measuring children. Socorro told participants that only after she checked out my activities with her sister did she agree to be my assistant. This proved the study activities were normal in biomedicine, a respected institution brought to the region by Anglo Missionaries and later by the Ladino government. This undoubtedly helped encourage some individuals to participate in the study.

### *Effects of Rumors on the Research Process*

Although many people participated in the study and publicly supported my presence, throughout the year there continued to be some suspicions. While a certain number of participants will drop out of any large, yearlong study, my attrition rate was



reasonable. Only 18 of 120 women dropped out of the study while continuing to live in the community during the year.

Men in general were more mobile compared to women in Wawina, they traveled more often to other communities and migrated for work in the seafood diving industry. Many men who worked as seafood divers had traveled to other countries including, Jamaica, Nicaragua, Grand Cayman, Columbia and Belize. After I completed the first round of collecting height and weight of children and 24 hour food recalls, one man, and later his family, spread rumors that he saw me in Nicaragua measuring children. He implied that I was lying and that this was not my training period or “practica.” I acknowledged that I had been in Nicaragua before but I explained that I never measured children there. Despite this, his two sisters dropped out of the study and within a few months other women who lived near them also declined to participate further. There was no way for me to prove that I did not measure children in Nicaragua other than to deny it.

I asked people why it would matter if I had been in Nicaragua and measured children. I never received a direct answer, although somehow it made me suspicious. I repeatedly explained what would happen with the information I was collecting and how it would be used. Most locals were not familiar with the research process or purpose and were understandably hesitant. Furthermore, those that had participated in other research projects or data collection in the past had never seen the effects or results of the research.

One man accusingly explained to me that “gringos and indios<sup>5</sup> always come through with paper and pens and questions and then they leave and the people who were spoken to and gave answers never benefit or receive anything.” He accused those who come through requesting the information as being liars and potentially dangerous because

community members never knew what happened to the information collected. For these reasons, this man did not want anything to do with my study and he discouraged his female relatives from participating in my study, and they never did.

Considering many people were illiterate or marginally literate monolingual Miskitu speakers, the power of writing personal information (usually not in Miskitu) and taking away this information was threatening and suspicious. Already in an unequal power position with most who came to Wawina collecting information, many community members had a hard time understanding why the information “gringos and indios ... with papers and pens” took away could be useful.<sup>6</sup> Because they could not associate it with benefits to individuals or communities it was potentially dangerous.

Furthermore, several times during the year I heard cassette tapes of sermons in Spanish that described how the antichrist would come from the United States. Sermons preached that foreigners would bring dangerous products such as illegal drugs, a growing problem throughout the region including Wawina. I also heard that other preachers from the United States came to the region and gave sermons about markings of the beast, referring to readings from the Bible. Locals explained to me that without the person’s knowledge or consent, a person would be marked by interacting with or touching an object. This would allow Satan to identify and eventually take the individual to Hell. Rosa explained that she was told these markings could come from bar codes found on packaged foods or government identity cards. Rosa told me she “mostly did not believe” that bar codes were dangerous but she was not completely sure. More importantly, she did not want to give up buying packaged cooking fat and other processed foods. These types of stories traveled between towns and were widespread, although many did not

believe them. These stories, convictions, and experiences show the many global-regional-local influences that affected community member's perceptions of foreigners, change, and development, and help explain the context in which I found myself being called an agent of Satan.

I want to emphasize that as many times as I felt frustrated and had people decline to talk to me, many more people did talk to me and encourage me. I was surprised, and, to be honest, felt better, to learn that almost any time a person not from Wawina came there, this type of rumor and speculation occurred. I witnessed it first hand with different groups that came through during the research year. Not surprisingly, most of these individuals and groups who visited Wawina for various reasons did not know that some community members were calling them antichrists or other names. From the point of view of community members who interacted with the visitors, there was no reason to tell them that a few locals were labeling them disparaging names. Thus, I learned it was not surprising that I was unaware of this during my visit to the community in 1996. I suspect it happened in many communities I visited.

When the hurricane hit and data collection came to an abrupt end, almost half of all households in Wawina had participated in some aspect of the study. At that time I felt that working with my assistant, we had successfully overcome many of the obstacles we faced at the beginning of the study and throughout the year and collected valid and reliable data. Below I discuss ways I garnered continued participation in my study.

### *Religious Schism in Wawina*

In Wawina, religion, specifically the Moravian Church, fundamentally and overtly permeated daily life (see Chapters One and Four for more information about the Moravian Church and religion in Wawina). It was present in daily conversations and action, and was a motivating factor that drove decision-making. Even those community members who said they were not Christian were shaped by it since they lived in a community where the Moravian Church was a powerful institution.

Midway through my stay, the community was divided by a regional schism in the Moravian Church. A charismatic fundamentalist movement spread throughout the Mosquitia. By June it had begun to divide Wawina and upset the traditional political and religious structure in the community. This movement provoked anger, sadness, and divisions among community members who had been friends and relatives but began referring to each other as antichrists. In general, in Wawina the elder members of the community and church leadership tended to reject the movement while younger members were more likely to embrace it.

Those who followed the charismatic movement met almost every night of the week for religious service. They explained that during these ceremonies the Holy Spirit would enter the bodies of individuals and they would speak in tongues. Members of this movement frequently fasted during the day as part of their worship.

The people who objected to the charismatic movement argued that the Holy Spirit could not enter directly into the bodies of individuals. They also said that those who thrashed on the ground or spoke in tongues looked like wild animals and were being deceived by Satan's helpers. They criticized the group for meeting too often for prayer,

sometimes five or six nights a week, and fasting too much. They asserted that God wanted activities in life to be balanced, but the behaviors of those following this new movement were not. Opponents openly criticized the movement in the regular church services on Sundays. They also started padlocking the door to the Moravian Church building so that the group could not meet outside of regularly scheduled services.

Those who embraced this new worship were upset by these actions and stopped attending the services. They met in people's houses or in open areas to have church service and quickly made plans to build a new church building. They said they were drawn to the idea that God entered their bodies and they felt closer to Him. They also felt the teachings that emphatically denounced stealing, gossip, lying and other "un-Christian" ways were especially needed in the community. They explained that the religious leadership in Wawina, and in many other towns, were too corrupt and did not provide a good example for the community.

Sadly, this division created a lot of anger dividing families and friends. In some parts of the Mosquitia violence broke out and leaders of the movement were threatened. Short-term effects showed disruptions to traditional political and religious structures in the community. I was surprised to see that other networks and activities remained relatively intact. For example, some exchanges of agricultural labor and patron-client relationships continued despite the schism, harsh words and actions.

I purposefully tried not to express any opinion on the schism and continued to attend the regular church service. For better or worse, Rosa and her children were part of the new leadership embracing this charismatic movement, while my assistant was a staunch leader and supporter of the traditional Moravian Church. Although this division

probably affected my research in more ways than I recognized, the fact that I was a foreigner and associated with leaders from both groups helped neutralize my position on the matter. Rosa and her family pointed out the irony that by September, very few people called me an antichrist but she and her family were being called antichrists on a regular basis.

### **PARTICIPANT OBSERVATION IN WAWINA**

I did various activities to enhance my status in the community, encourage participation, and establish trust. I visited mothers and their children in several rounds and the study required ongoing involvement with people in the study throughout the year. This was more demanding on women and children than a typical anthropological study and I wanted people to continue to participate throughout the year. Some of the activities I participated in were religious ceremonies and support of religious institutions, bringing hard-to-get or expensive products from Tegucigalpa to Wawina, help in writing grant applications for community members, and occasionally distributing appreciation gifts or taking photos of people who participated in interviews. Last, I tried to be visible every day in the mornings when I was not collecting data. This included volunteering to help plant or harvest crops, as well as walking through the community and taking the time to talk with community members.

In Wawina, it was common for daily speech to be riddled with religious phrases. People often judged and justified actions based on whether the action and person was perceived as Christian. I was not accustomed to this and did not normally act or speak this way. As a result, even though I told people I was Christian, it was not obvious by my speech. Due to concerns about my possible relationship with the devil and rumors about

my “bad” intentions with the data that I was collecting, I went to one church service every Sunday-either at the Moravian Church, Catholic Church or the Church of God. I most often went to the Moravian Church service because the majority of people in the community were Moravian and attended this church. The services usually lasted between one to three hours depending on the activities and speakers scheduled for that day. On several occasions during the services I went up to the front of the church with other church members and sang hymns. I always contributed money to the collection plates. I regularly informed people that I grew up attending the Presbyterian and Quaker churches.

I also participated throughout the year in various church related activities. The Moravian congregation was in the process of building a new cement church. There were no cars in Wawina and in order to mix the cement, once a month several hundred community members would spend the morning and afternoon hauling sand in sacks from the river to the new church location, approximately one-mile walking each direction. We would carry them on our shoulders or with straps across the forehead. I found this work exhausting. For the new Moravian church construction I also carried wood planks at various times, and stupidly, one time I carried a 100-pound bag of cement. During the spring, two members of Moravian Church in the United States came for a week and volunteered their services to help construct the roof of the new building. They did not speak Spanish or Miskitu and I translated for everyone.

The Catholic Church congregation was also trying to construct a new cement church building, but they had not been as successful as the Moravian church due to their small congregation. The building had sat partially completed for several years. A ship owner from the coast donated one hundred cement blocks toward the construction. On

the day of their arrival I carried a cement block to the new building location. The Pastor of the Catholic Church was surprised and delighted that I carried one of the blocks. People simply did not expect me to help with these community activities. I think this was in part because many religious, education, and political leaders in the community did not actually participate in hauling materials. Some stayed home because they were not physically capable of carrying the items such a long distance and others simply stood around discussing the progress.

Because I went to church services, helped carry building materials and gave time to the various churches, people noticed and commented to each other. Throughout the year, these types of continued activities helped many people realize that I was a regular person.

I also did other activities to enhance my status in the community, encourage participation and trust. I helped a group of men and a group of women from the community write grant applications for economic development opportunities through the Platano River Biosphere Project. Money was available from international donors to help support economic development activities that would be ecologically sound and protect the environment. The groups met on several occasions to discuss the ideas and elements of the application. They supplied the details and I wrote the grant for them in Spanish. These two groups were very appreciative of my help because most of them had minimal schooling, were illiterate, and were not comfortable speaking or writing extensively in Spanish or Miskitu. The grants were conditionally accepted, but due to Hurricane Mitch, I do not know if the activities ever took place.



One way of garnering continued participation in the study throughout the year was by occasionally distributing appreciation gifts to those who participated in interviews. I never promised participants that they would receive anything for participating in the interviews but I only gave appreciation gifts to those who conducted interviews. I explained that it was my small way of saying thank you for helping me with the project. People prized the gifts, primarily packets of Kool-Aid and small plastic colorful beads later made into necklaces. These gifts were not large or expensive enough to persuade people with reservations to participate. In fact, every round of interviews some participants withdrew from the study for various reasons. I also took photos of subjects who participated in the study and gave them to the participants.

Another way I participated and helped community activities was to accompany work groups who were planting or harvesting crops. I planted or helped harvest beans, rice and maize on various occasions. In the beginning I asked to accompany groups so that I could learn about the activities. However, as time went on people invited me on their own. The owners of the agricultural fields appreciated my effort because I donated my time and labor.

I not only garnered participation and support from community members for my study; they also motivated me during the year. From my first days in Wawina, when I would leave the house to walk around the community or collect data, many people talked to me, and at the least greeted me even if we had difficulty communicating. It was not unusual for people to give me chicken eggs, sugar cane, oranges, grapefruits, slices of pineapple or other fruits when they were in season, coffee, and water (which had to be carried from distant wells). These gifts made me feel good and helped eliminate some of

the anxiety I felt when people dropped out of the study or I heard suspicions about my presence in the community.

I engaged in various activities throughout the year to help community members, enhance my status in the community, and garner trust and participation in the study. Because many of the actions were viewed as self less by community members, such as volunteering my time and effort to religious, agricultural or economic activities, my behavior helped prove wrong the rumors and suspicions in an effective way that my verbal denials never could. As a result, after several months many people saw me as a good person, even if I was foreigner. As the year continued and community members became more accustomed and comfortable with my presence, women asked to be part of the study.

## **CHAPTER FOUR: METHODS OF DATA COLLECTION FROM COMMUNITY MEMBERS AND ECONOMIC DEVELOPMENT STAFF**

For this study, I collected ethnographic, anthropometric, and survey data for 10 months in one community with development projects typical of the region. I took a two-pronged approach to this study (see Table 1). First, I examined food security and the factors that predict and influence it. Second, I investigated concepts of development among community members, staff of economic development organizations, and local public officials. I explored the relationship between participation in economic development projects and food security.

Data were collected at the community and development project levels. At the community level, I collected data on food security, the first prong of the two-pronged approach. I collected data on measures of household food security as a means to determine the differing levels of food insecurity and hunger in the community. This included anthropometric measurements of women and children four times during the year. At the development project level, I carried out the second prong of this study. I collected data from community members and local NGO and GO staff regarding the place of economic development programs in the community and local perceptions of and experiences with these programs.

Analyses focused on qualitative and quantitative data showing what groups in the community were the most food insecure, issues associated with household food security, and who participated in and benefited from economic development projects in the community. Critical analyses examined the rationales for participating in economic development programs and whether those who participated were less likely to experience

food insecurity. One goal was to examine whether economic development projects appeared to increase food security at the household and community levels, a stated goal of programs in the region.

I conducted predissertation research in the Mosquitia of Honduras and Nicaragua in 1996, visiting economic development projects throughout the region. I had previously carried out interviews with project staff and members of women's groups in the Patuca River region (see Figure 1). At that time I visited the site of this study and talked with local leaders for two days about my dissertation ideas and goals of the study; they were supportive of my plans.

One focus of this dissertation is the food security effect of participating in economic development programs. Initially, I had planned to conduct this study by comparing the food security status of participants in MOPAWI (NGO) projects with non-NGO participants, but I became concerned that too few households were actively working with the MOPAWI project in the community. Also, of the few actively participating in MOPAWI programs, not all had children less than five years of age in their households, and young children were an important sample in my study. It became clear to me that working with economic development programs was a fluid activity. Although many households had participated at some point in the past, few were actively engaged with MOPAWI staff at the time of this study. During the 10 months of data collection, MOPAWI representatives visited the town infrequently and generally only for short visits. During the beginning of my data collection period, a governmental organization (GO) technical assistant was in Wawina for several weeks working with local farmers promoting cacao production (see Chapters 1 and 5 for details regarding

NGO and GO programs in Wawina). As a result of these circumstances, and realizing that economic development projects were surprisingly similar in the community and that many of the same community members participated in both NGO and GO projects, I collected data on all economic development organizations promoting economic development activities in the community. In summary, based on my experiences in the region during the predissertation and dissertation year, I collected data on factors that I thought would most influence household food security and participation in economic development projects.

Data analysis focused on comparing levels of household food security among different groups in the community as measured through height and weight of children and their mothers, dietary information, responses to the food security survey, and open-ended interviews and participant observation. I also examined relationships among indicators of household food security, wealth status, and involvement in economic development projects in the community. Important topics were different concepts of the place of economic development programs in the community, who could participate, and the gendered nature of programs. I also explored what community members, in contrast to outsiders, wanted and expected from development programs in Wawina.

This chapter is divided into four parts. In the first part, I provide information about field assistants and data collection schedules. I review conceptual concerns regarding household food security and economic development projects and explain the aim of the sampling for the first and second prongs of this study. In the second part of the chapter, I describe the five main samples and key informant interviews. The third part of the chapter reviews anthropometry, survey instruments, and procedures in

surveys. The instruments used in this study are in Appendix B. The fourth part of the chapter describes the data analysis and the limitations of the study.

## **Part One**

### *Field Assistants*

I anticipated arriving in Wawina several months early to become accustomed to the community and focus on Miskitu language training. Unfortunately, this was not possible, and I hired field assistants to translate from Miskitu to Spanish to ensure accurate communication during interviews. My first assistant lasted one week. Marjory was a teacher and the married daughter of Rosa. Because the school day did not end until 3:30 p.m., we were unable to start data collection before 4 p.m. In February, the sun set around 6 p.m., and because of the walking distance between houses, we were not able to measure many children. Rosa's family explained that it was difficult to find an assistant because most people who would like to work are young women, but they are not fluent enough in Spanish. Furthermore, it was unlikely a married woman could be my assistant because her husband would not allow her to accompany me all over town every day. Such activity was considered inappropriate. I was told husbands could be very jealous. Fortunately, I did find an assistant who could work with me throughout the remainder of the data collection.

Socorro was a single mother in her early 30s with two children. She and her children lived in her mother's house. She had completed the 9<sup>th</sup> grade, was bilingual in Miskitu and Spanish, had an outgoing personality, and knew everyone in the town. As a single mother, she needed the income and had the freedom to travel as she pleased.

We collected data during the afternoons because most households were too busy in the mornings and people were unlikely to be available. In addition, Socorro worked at home or in agricultural fields during the mornings. We usually collected data four hours a day five days a week, starting around 2 p.m. and ending around 6 p.m. Socorro usually did not work Thursdays or Sundays because of choir practice and religious services. This schedule worked well. The breaks on Thursdays and Sundays allowed us to stay fresh and motivated.

### *Year-round Household Food Security*

In this section I describe issues regarding household food security that were important to my research design. I also discuss the aim of the sampling for measuring household food security.

As stated in an earlier chapter, household food security is defined as the ability of people to consume throughout the year sufficient food, in terms of both quality and quantity, for an active, healthy life (Haddad et al. 1994). Foods must be nutritionally adequate and safe, and people must have the ability to access sufficient foods in socially acceptable ways (Anderson 1990). Food insecurity exists when any of these requirements are not met.

Year round household food security is an important indicator of community development and quality of life because it measures whether people are meeting their basic needs; thus it is a major dimension of the standard of living. In the Mosquitia, development policies and programs, environmental conditions and resources, economic, agricultural, and social food security strategies, and the political structure affected

household food security. Thus, it was necessary to collect data on this wide range of factors through participant observation, open-ended discussions, and survey interviews.

When collecting data, I also tried to take into consideration subtle nuances of household food security. This included collecting data on chronic and transitory food insecurity among different households and considering the intensity of food insecurity, which was usually seasonally influenced. Also, I collected data on both the quantity and quality of the diet for children and women. Because of the limited variety of foods in many people's diets and the seasonal availability of certain foods, I collected data on dietary intake throughout the year for children and women. Last, people cope with hunger and food deficits differently and may conceptualize food security in very different ways. I tried to take this into account during data collection.

### *Aim of Sampling for Measuring Household Food Security*

In this section I describe the aim of the sampling in regard to measuring and analyzing household food security. The first section is divided into two parts, dealing with the survey interviews and then the qualitative interviews.

### *Sampling for Survey Interviews: Household Food Security*

To carry out this part of the research, I selected a sample of women and their children two to five years of age to participate in a series of surveys, height and weight measurements, and dietary food recalls carried out four times during the year. (The instruments used are in Appendixes B1, B2, and B3.) This sample of women and their children constituted the first sample (details regarding the samples are discussed further



below). Anthropometric analyses of height and weight data are sensitive to both short- and long-term ecological processes that affect growth and health status. Thus, changes in height and weight values were related to changes in dietary intake, environmental processes, illness, seasonal employment, and other stresses. Analyses of the dietary data provided information regarding the quality and quantity of the diet, particularly in relation to seasonal influences on food intake.

For the survey only, I included a second sample of women without children two to five years of age. I thought the fact that they did not have children between two to five years of age might indicate an important difference in their risk for food insecurity. Perhaps they were controlling their fertility or were past reproductive age. Generational effects and women's purposefully controlling their fertility might significantly influence an individual's or household's food security. The second sample of women participated in the same survey interviews as the women in the first sample; they did not however, participate in the height and weight measurements.

The goal of the surveys administered to the first and second samples was to collect household information regarding measures and indicators of food security. I collected survey information through a food security questionnaire, reproductive history survey, and basic household services survey (see Appendixes B4, B5, & B7). The food security questionnaire was meant to elicit the mothers' opinions about their food security and that of all their children. The reproductive histories and basic household services surveys provided health and demographic information, which would help contextualize risks for food security among households.

I also carried out a household census with the women in the first and second samples (see Appendix B.10). Through the census, I collected information regarding household composition, past employment, current participation in economic development projects, education and knowledge of Spanish, and literacy for each household member. I used these variables to describe demographic characteristics of the households and to measure their socioeconomic status, access to food, and income resources. The survey information and the anthropometric data constitute the primary variables used in statistical analyses for this dissertation.

Information on agricultural and livestock holdings was sensitive, and many community members were uncomfortable divulging this information in surveys. As a result, I selected a subset of the first and second samples to participate in interviews related to agricultural and livestock holdings. This subset of the first and second sample constituted the third sample in this study. From these participants, I collected information on quantities of livestock and agricultural holdings owned by the household of each participant. I further probed to understand the rationales for selling a live animal and for slaughtering and selling or consuming an animal. Although not used in statistical analyses, this information was important to understanding the distribution of wealth in the community and rationales behind decision-making regarding crops and livestock.

#### *Sampling for Qualitative Interviews: Household Food Security*

I selected two samples (the fourth and fifth samples) to carry out qualitative interviews related to household food security. The fourth sample included seven elderly community members. With them I conducted food-focused life histories. I wanted to

elicit historical information on changes in the diet, specifically, available foods, access to food sources, meal planning and preparation, and food security. I conducted these interviews with two men and five women from both poorer and wealthier households. I also learned about household food security and hunger through participant observation with many community members, especially my assistant and members of the household in which I lived.

With the fifth sample, I carried out open-ended, qualitative interviews with a variety of community members, especially men, of a variety of ages. The interviews included questions related to hunger, food security, household decision-making, and seasonality of the food supply (see Appendix B11). I selected these community members because I felt they might have different perspectives than the reproductive-age women who were the primary participants in the first, second, and third samples.

### *Economic Development Projects*

In development projects, assumptions that participation is open to all and is voluntary do not recognize power relations within the communities. Rarely are power relations among community members, economic development staff, and donor agencies equal. When analyzing experiences with development projects, I paid attention to the development strategies being promoted and people's concepts of development and participation. I specifically sought out different members of the community, for example men and women, young and old, to see how their experiences differed. I believed their different embodied histories would lead them to have different understandings. I also investigated the professional training of local level economic development staff and how

they interpreted development discourse and incorporated these development program concepts and ideologies into their work and lives.

Ultimately, I expected that people's different experiences of food security, development, and participation in economic development projects would influence their survival strategies and the effectiveness of development projects. I also expected that alternative and subordinate interpretations might conflict with dominant interpretations of development and food security.

### *Sampling Design for Examining Economic Development Projects*

I asked women in the first and second samples whether anyone in their household was participating or had ever participated in economic development projects in Wawina. This question allowed me to make comparisons. I interviewed community members from the fifth sample about their experiences with development projects. I specifically explored their understanding of the terms development and underdevelopment and what, if anything, they wanted from development initiatives promoted in the area. I also carried out in-depth interviews with economic development staff from MOPAWI and INFOP as well as with local public officials regarding their experiences with development in Wawina and the region. I collected information on the development programs and objectives, as well as on staff training. My goal was to understand how community members encountered development agendas promoted in Wawina, how staff understood and promoted the agendas, and what this meant for goals of economic development programs to improve food security.

## **Part 2: Description and Construction of the Five Main Samples**

### *First, Second, and Third Samples*

The first sample included 111 households with children two to five years of age and their mothers or caretakers. Children who participated in the study are referred to throughout the dissertation as target children. This is done to distinguish children who participated from other children who lived in the household. To draw this first household sample, I walked with an assistant to each house in the community and attempted to invite all of the mothers in the community with a child between the ages of two to four to participate. I did not know the total number of women in the community with a child the appropriate age.

I was able to invite many potential participants in the community, although some women were always working in agricultural fields when I passed their homes, and thus I was unable to invite them to participate. Of all of the households in the community, approximately one-fifth were at their agricultural fields when I stopped by to invite their participation. Not all of these households would have included a woman with a child the appropriate age. Four to eight months into the study many women who initially declined, or were not invited, did ask to join the study.

The first sample participated in a series of interviews throughout the study period including four rounds of anthropometric measurements and dietary data collection (further discussed below). Some women in this sample dropped out of the study or moved away, so I continued to accept new participants throughout the research period. At the end of the data collection period, there were 117 children and 96 mothers actively participating in this main sample; throughout the year 147 children and 120 mothers

participated (see Table 2). In six households, more than one woman had a child two to five years of age and both agreed to participate in the study. For example, a 36-year-old mother with a young child and her 18-year-old daughter with a young child both agreed to participate. In these cases, the women participated in all of the interviews but information for the household was collected only once.

When women agreed to participate in this study, I collected data on nine household indicators (see Table 3). The main indicators dealt with household composition and key economic activities:

- 1) Did the mother of the target child live in a nuclear family household?
- 2) Did she live in a multigenerational household?
- 3) Was she a single mother and the only adult in her household?
- 4) Did a household member grow cacao?
- 5) Did the household have a member who migrated to the coast to work in the seafood diving industry?

Further discussion of these indicators is found in Chapter 5.

I originally planned to include 150 target children, their mothers, and their households spread approximately evenly across these categories. I quickly realized that these indicators were not mutually exclusive and throughout the year some women changed categories or I came to realize they fit into more categories than originally documented.

Initially, I was not able to find enough women with children the appropriate age to fill each of the categories. I decided to include a group of women without children two to five years of age. I thought the fact that they did not have young children might

indicate an important difference in their access to resources. Perhaps they were controlling their fertility, which would suggest they had knowledge and resources not necessarily available to all women in the community. It was also possible that the women were past reproductive age and thus older than the majority of women in the first sample. If they were older, they might have accumulated more resources over their lifetimes. Older generations, however, had had less opportunity to receive formal schooling or learn Spanish. I expected that age differences and fertility control might indicate important differences in an individual's and household's food security.

For comparison, I included a second sample of 19 women who were not mothers of children two to four years of age. They were selected through opportunity sampling. I asked my assistant to help me locate women who fit the characteristics and I invited them to participate. Generally, the women agreed to participate.

The women in samples one and two participated in the interviews dealing with household characteristics, the food security questionnaire, the maternal weekly food recall, the maternal reproductive questionnaire, and the first familial household interview. During the research period, seven participants in the above two samples moved away from Wawina and dropped out of the study. The seven women had a total of eight children who were part of the study. Also, eighteen participants dropped out during the research period and their 24 children were also withdrawn from the study. Most women who dropped out of the study did so out of concerns that I might be an antichrist. Some dropped out due to their husbands' or other family members' repeated arguments against their participation and not because they perceived the study or myself as dangerous. The first and second samples diminished 26% from attrition.

I continued to accept participants in the study throughout the research period. As a result, not all mothers and children participated in the four rounds of the height and weight measurements and 24-hour food recall data collection because these measures were scheduled by the time of the year. I considered this a necessary weakness of my study. Those who joined the study later did complete all other interviews administered to the rest of the sample.

After I had lived in Wawina for several months, many people's reservations about the study had diminished and they requested to be part of the study. Thus, 87 children who had participated in the first round of measurements and 104 in the second round were also among the 116 children measured in the third round of height and weight measurements conducted in late August and early September.

A third sample included 43 women from the first and second samples of women. In October, these women participated in a total of three interviews. This included two 24-hour food recalls and the second familial household interview focused on animal and agricultural household resources. I chose to carry out these interviews with only a subsection of the first and second samples because the economic resources discussed in the second familial household interview were perceived as sensitive topics. My assistant and I thought that not all participants would be comfortable divulging this information. In this sample, I included women from a variety of household compositions and whose household members engaged in different economic activities (e.g., nuclear family household, single mother of a target child, someone in the household worked in the seafood diving industry, etc.). My goal was to include a range of socioeconomic statuses in this sample.



With the third sample, I initially conducted the two 24-hour food recalls with women in early October. Then, I returned and explained the purpose of the livestock and agricultural questions and why I needed to collect the second set of information. At that point, two women from the third sample declined to participate in the second familial household interview. I was able to recruit other women in their place. Another two women did not participate in all of the interviews conducted with the third sample due to scheduling conflicts. Ultimately, 41 women completed the two 24-hour food recalls and 41 women completed the second familial household interview centered on economic resources. The third sample included a total of 34 women from the first sample and nine women from the second sample who each participated in at least one part of the interviews.

#### *Fourth Sample*

The fourth sample included seven older community members who participated in a one-time, open-ended, food-focused life history interview. My assistant and I selected these seven older community members primarily based on their age. Six of the seven participants were considered the oldest members of the community. We purposefully tried to include both male and female participants and people from various socioeconomic status groups to compare differences in experiences and opportunity histories, as well as present-day perspectives.

A food-focused life history provides important information related to changes in the quantity and quality of the diet through an individual's lifetime. I probed for information regarding what foods were available, how they were acquired and prepared,

reasons the diet has changed, and comparisons of the diet over time. Elderly community members discussed the foods available in their childhoods, the crops they grew, and how often they consumed different foods, such as meat. I asked about extreme or seasonal hunger and how they compared their diets now to their diets at previous times in their lives. They told me about employment possibilities in the past and how this impacted the foods and other products available in their lives. We also discussed major changes that had occurred and what they thought of the current quality of their diets and lives. The food-focused life history provides rich, qualitative information about changes in and risks of food insecurity through time.

#### *Fifth Sample*

The fifth sample in this study included 23 community members who participated in a one-time, open-ended interview focused on community economic development, political leadership, gender roles and household decision-making, and food security and hunger. These interviews were conducted near the end of the research period, and I invited people to participate based on their age, gender, political activity in the community, socioeconomic status, and likelihood of participating. While I included women in this sample, I purposefully tried to include men and a variety of ages because I felt they might have different perspectives on these themes than reproductive-age women. Through participant observation and other interviews, I had already conversed with women about many of these issues.

In the first part of this interview, I asked participants about hunger and its seasonality and about household management of food. I collected data on the times of

year when food was scarce and how they knew whether their neighbors did not have enough to eat. Also, I asked how they acquired cash, who decided how the money was spent, and who decided what crops were planted, sold or consumed by the family. I also asked, in general, what people did more often to treat illness: use home remedies, purchase medicines, or seek health care from the health center. I probed as to why and when they chose one form of health care over another and which form, in their opinion, was better.

The second part of the interview focused on questions pertaining to the position of men and women in Miskitu and Honduran society, their access to cash income, and who was involved in town meetings and political leadership in Wawina. The third part of the interview focused on questions about economic development. I collected data on people's perceptions of development and their views of organizations that come through Wawina promoting development and other types of aid. I also collected data on whether people felt empowered to influence or change national politics that affected Wawina and the Mosquitia. Last, I asked participants whether they wanted to visit the interior of Honduras, what they thought it was like, and their impressions of Ladinos and Anglo foreigners.

In summary, based on sampling procedures, the data collected from the first and second samples were representative of the community. In a community household census, I counted 240 households in the community; of those, 111 with young children participated in the study at some point during the year. Other samples were smaller and purposefully selected based on characteristics of individuals. The complexity and nuances of the participants' different points of view did not represent every opinion or

experience in Wawina concerning economic development and household food security. The interviews did shed light, however, on different perspectives and the multiple factors shaping the experience of economic development and household food security at the community and individual level.

### *Key Informant Interviews and Activities*

I carried out key informant interviews and other activities throughout the year in order to learn about the community. The key informant interviews involved political and education leaders in Wawina, political leaders in Ahuas, and local economic development staff. Other interviews and activities centered on a variety of topics, such as learning about local views of wealth, health and activities of young children, or meal planning. In this section, I explain the process of key informant and activity sampling, including the data collected as well as relevant sampling procedures.

### *Economic Development Staff*

I interviewed NGO and GO staff on the delivery of development assistance to Wawina and the Mosquitia in general. How economic development staff understood, translated, and delivered development policies to the region would influence how they were received and carried out at the local level. I thought it was important to interview staff to understand the regional context of economic development at the local level.

I conducted individual open-ended interviews and participant observation with various staff members of organizations present in Wawina during the research year. The purpose of collecting this information was to critically analyze the economic

development programs in Wawina and how the projects were described and carried out. I tried to understand the staff's perceptions of the place of economic development programs in Wawina, who participated and why. I specifically asked for their experiences with promoting economic development projects in Wawina and their interactions with and understandings of community relations in connection to these programs.

The staff interviews included organizational development plans for Wawina and the region. The staff explained their job descriptions and objectives, as well as the varied training they had received to date. We discussed the problems they face in carrying out their duties, particularly in promoting community participation. I asked staff about their concepts of development, underdevelopment, and participation, what Wawina and the region required to develop, and how they saw the future for the Mosquitia. We discussed the problems and benefits associated with development programs. They also told me about community support and issues of working in Wawina specifically. I attended several NGO and GO meetings, as well as spoke with staff from other economic development initiatives that came through the area.

### *Public Officials in Ahuas*

Public officials in Ahuas hold powerful positions in carrying out government policy and mandates. Specifically, they hold the offices through which many of the official government economic development policies are carried out. In this capacity, they may be especially important figures determining and carrying out development agendas. I interviewed them as key informants regarding economic development plans for the

region, which I thought would relate to food security at the community and household level in Wawina.

I interviewed public officials in Ahuas in order to learn about official government development perspectives and plans for the region, with a special emphasis on Wawina. We discussed official development plans and the officials' personal understandings and experiences. The interviews also focused on officials' understanding of problems in the region as well as problems limiting equitable participation of Miskitu peoples in the development process.

#### *Local Political Leaders in Wawina*

Political leaders may play important roles in determining access to environmental resources, including land and community resources, all of which potentially influence food security and economic development initiatives. As the local arbiters, political leaders have some responsibility for resolving disputes and handling individual and community crises. Political leaders in Wawina are powerful, and it was important to interview several of them to learn about their perspectives of the community. I was especially interested to learn about the problems and issues they deal with and their understanding of food security and economic development initiatives.

The interviews with local political leaders were focused on the responsibilities of elected political leaders. We also discussed the hierarchical political structure linking local leaders to the political center of the municipality in Ahuas. The leaders described the election process, length of time political appointments last, problems they face and

how they resolve them. We also discussed the role of political leaders in calling for collective community action related to community problems, public works, and crises.

### *Director of Schools*

I interviewed the Director of Schools to learn his opinion about the community, as well as problems and benefits of the schools in Wawina. I felt the schools in Wawina played a potentially important role in educating youth about their possibilities and their future. I also thought the Director of Schools might have insight into the dynamics of the community and could offer explanations regarding food security and participation in economic development projects in Wawina.

The interview with the Director of Schools in Wawina was focused on the status of the schools in the community, including the problems as well as positive aspects. We discussed the bilingual education program and other training required for children to succeed. An important part of the interview focused on gender roles in the community, the high dropout rate from schools, and the negative influence of the seafood diving industry on male graduation rates. The interview dealt with general problems in the community and the director's ideas about causes and possible solutions.

### *Midwife*

I wanted to learn more about the role of midwives as health care providers in Wawina. I interviewed a Wawina midwife on her role in prenatal, childbirth, and postpartum care. Poor health status and inadequate access to health care are important

variables that may stunt a child's growth and limit a person's ability to consume sufficient food.

Through the interview, I learned about the history of midwifery in Wawina. The interview was concentrated on where and how she acquired her training and her practice. We briefly discussed her skills, the problems she faces and her decision making. I also observed her conduct a prenatal check on a pregnant woman.

### *Store Owners*

I conducted interviews with storeowners to learn what products were available for purchase in the community, especially in regard to food sources. I selected three storeowners who had the most prominent and biggest stores on the main path through Wawina, each located in a different section of the town. In interviews I asked about the products they sold, variety, seasonality of products and pricing. All stores in the town sold similar products, generally basic necessities. The largest stores offered more variety and occasionally items of clothing or kitchen utensils and products.

### *Meal-Planning Interviews*

Early in the study, I conducted meal-planning interviews with three women. I had several objectives in these interviews. First, I wanted to learn how far in advance women planned out the meals, who meals were planned for, and how meals were cooked. I also probed about methods of storing cooked and uncooked foods, how long foods were stored, and other factors they took into consideration when meal planning. I tried to



understand how lack of refrigeration and the limited number of foods available impacted meal planning, food availability, and other food security concerns.

I interviewed these three women because they spoke Spanish and enjoyed talking with me. Based on talking informally to other people about meal planning and through participant observation throughout the year, I did not feel it was necessary to conduct more meal planning interviews.

### *Child Following*

The purpose of child following was to learn how young children spent their days and to observe child feeding and hygienic practices. I expected to use this contextual information in analyses of child health risk factors, growth status, and feeding. These factors can affect child growth status throughout the year and may influence indicators of food security.

I conducted four child following activities. In three cases it was with the children of the same three women who participated in the meal-planning interview. The fourth child was the child of a neighbor. Because the three women who participated in the meal-planning interview spoke Spanish, I was able to thoroughly explain the purpose of collecting data on the daily activities of young children. Rosa helped me explain to the monolingual Miskitu speaking neighbor the purpose of the child following and she agreed to allow her daughter to participate. The four families represented different types of households and economic statuses, including large families with many children, multigenerational families, single mothers, and nuclear families.

During the first weeks of data collection I carried out this activity with four children between the ages of two and four. I followed a methodology similar to that found in time allocation studies (Pierce Colfer 1994). I made arrangements with the mothers of the children in advance and explained that they should act as if I were not there. After a few minutes, the children generally ignored me.

During the child following I accompanied the child non-stop for the duration of the activity and every five minutes wrote the behavior of the child. Also, I included information regarding hygiene, health, and eating habits immediately when they occurred. I initially planned to follow each child for six hours. I did this with the first participant but found it too long. It was difficult for me to pay attention for six consecutive hours. Also, I felt I could gather enough relevant information regarding young children in a shorter amount of time. The second child I followed for five hours and the last two children I followed for four hours each. I chose two boys and two girls. The boys were two and four years old and the girls were two and three years old.

### *Wealth Ranking*

I carried out a card-sorting activity ranking households by wealth (Grandin 1994). The goal of this activity was to learn about local ideas of wealth and poverty in the community through participants' explanations of why different piles of cards represented different degrees of wealth or poverty. I wanted to make sure that I understood local views about wealth and poverty. This was a useful means to draw out general themes regarding the distribution of wealth in Wawina. I carried out this activity with three community members.

Collecting data on wealth status via card sorts was problematic. Rosa, the woman I lived with, and Socorro, my assistant, felt some people would be upset about this activity if they knew their name was on a card with an identification number. They thought some community members might think I was trying to mark them with 666, some other satanic activity, or that the Honduran government would want this information to take away their resources. I explained the purpose of the wealth ranking via card sort and ultimately only had Rosa's son Andres, Rosa's son-in-law Memo, and Socorro conduct card sorts in private.

In February, Rosa helped me identify all of the households in Barrio El Peal. I wrote down the names for each household on index cards, but she could not remember all of the people and houses in the other two major barrios. The next day I conducted a wealth-ranking exercise for Barrio El Peal with Andres, Rosa's 19-year-old son. I had Andres sort the index cards into piles of poor, middle class, and rich. Each pile was then further sorted into poor, middle, and best off until there were many small piles of cards. For example, the original pile of "poor" was further divided into most poor, middle poor and best off of the poor. We discussed why he classified a household as rich or poor and the differences between the households and the piles. The interview lasted approximately 45 minutes.

I needed information for each household to carry out card sorts for the entire community. In April, Socorro and I walked the length of Wawina conducting a household community census. We documented each house structure as to ownership and purpose of the structure, for example, a kitchen, an abandoned home, or a home under construction. We did not count the number of people occupying each household. I wrote

every household name on an index card with an estimate of the number of people who lived there. Socorro documented whether the household was multigenerational, single mother, nuclear family, or a combination.

With these index cards, I conducted two more wealth-ranking activities, in April with Memo, and in June with Socorro. Socorro identified a few households that had separated or changed. We did the activity for all of Wawina using the same methods as described above with Andres. These interviews lasted one and half to two hours.<sup>7</sup>

### **Part 3: Anthropometry, Instruments and Procedures**

In this section I provide a brief description of the anthropometry, survey instruments and procedures followed in surveys (see Appendix B for instruments). I developed these methods to collect data on the wide variety of factors that I thought would influence household food security and participation in economic development projects. The methods are based on those used by nutritionists, anthropologists and other social scientists to study child growth, indicators of health, household food security, demographics, and economic resources.

#### ***Height and Weight of Children and Mothers***

A powerful index of food security is the growth status of children, which is a primary variable in this study. Height and weight measures of children are sensitive indicators of change. For example, they may be linked to changes in food intake, seasonal influences on the diet, and periodic and chronic food insecurity. Changes in the

height and weight of mother may also indicate food shortages and seasonal influences on the diet.

I collected height and weight measures of children and women, and 24-hour food recalls with mothers about the target children, four times during the year (see Table 4 & C. Food recalls are discussed below). To collect height and weight data for the children and mothers in the first sample, I walked from house to house measuring children and their mothers. Along with height and weight of children and mothers, I also collected the following information regarding the child, mother, and household (see Appendix B.1). For the child I collected the name, date of birth, sex, the number of children less than five years of age living in the house, birth order of the child, birthplace and type of attendant, and birth weight. For the mother and the household, I collected her name and age, whether the father of the child, grandmother and grandfather lived in the house, the barrio where they lived, and if anyone in the household grew cacao or worked in the seafood diving industry. Household composition and key economic activities (cacao grower or seafood diver) were potentially important statistical links to socioeconomic status and food security of households.

I measured height using an infant/child/adult wooden height measuring board with a measuring tape graduated in metric units (198 cm x 0.1 cm) made by Shorr Productions. This apparatus came apart in three pieces. It measured 13 pounds, 3 oz. and had a water-resistant finish. The height board was necessary because it would have been impossible to assure a 90-degree angle between the floor and walls to conduct the measurement with a metal tape measure attached to a wall.

At each height and weight measurement, I wrote the date of measurement and reviewed the date of birth of the child with the mother or other family members. Either the assistant or the mother helped hold the child in position during the height measurement. For some children, it was impossible to collect height information because they refused to stand in a correct position while they screamed, cried and fought. Although we always attempted to measure height, for some children it was impossible. We also collected height and weight information from as many mothers as possible. Two women complained that they were too fat and were afraid they would fall over during the height measurements. Because their buttocks were large, they had difficulty touching the back of their ankles, buttocks, back and head to the board, as is the correct position to measure height, when this problem occurred we did our best to get them into the correct position and took the measurement.

I measured weight of children and their mothers using a Seca 770 scale. This is a high quality strain gauge digital scale with a 400 pound capacity that weighs in 0.1lb increments. This scale has a bar that when touched by the foot activates the scale and returns it to zero. With this feature, an adult can stand on the scale and when the bar is pushed the scale returns to zero, at this point you can hand a child to the adult and the scale will show the weight of the child. Many children in this study had to be weighed with their parents because they cried, screamed and refused to stand still on the scale to be measured on their own. When weighing mothers I asked whether they were pregnant and how many months (see Appendix B.2).

There were only two cement floors in Wawina at the time of the study; one was the floor of the house I lived in, and the other was the floor of the health center, and both

were located at one end of the community. Ideally I would have collected all the height and weight measurements from either of these two locations. Unfortunately, it was too great of a burden on participants to ask them to go to these locations. In order to collect data from a large number of households, I had to go to their houses. As a result, all measurements took place on the wooden planks on the floors of houses or on the ground when it was hard and dry.

Because I knew the weight of the height board, I used it to correct the placement of the scale to get consistent measurements. For example, in a new location I first placed the height board on the scale, then, if necessary, I moved the scale until it read the correct weight of the height board. After weighing two to three participants, I would re-check the scale.

Also, during the rainy season it was often difficult to find a hard, dry location to place the scale while conducting the measurements in the houses. Houses were generally built above ground on posts that stood about four feet high. Due to the wet weather, especially during the third weighing in August and September, the wooden planks of the floor would soften. Because they were suspended off the ground four feet, it was difficult to find a hard place in the house to place the scale. I generally looked for a support beam and weighed the height board, moving the scale if necessary, until I could establish the correct weight. From that position, I would conduct the weight measurements.

### *Twenty-Four-Hour Dietary Food Recalls*

Repeated collection of 24-hour dietary food recalls provides information on the quality and quantity of the diet throughout the year. It is especially useful for analyzing diets heavily dependent on seasonal foods.

For target children in the first sample, I conducted 24-hour food recalls on the day I measured height and weight of the children (see Table 4 and Appendix B.3). During this interview I collected information on whether the child consumed a vitamin that day, and whether the household boiled their drinking water or used chlorine or another water purifying method. I asked whether the child had experienced any illness during the previous week and probed specifically for cough, fever, diarrhea, stomachache, headache, mucus and colds. I also noted the date and day of the week of the interview. The only day I did not conduct 24-hour food recalls was on Sundays because it was culturally inappropriate due to religious observance. However, because I did collect 24-hour dietary recalls on Mondays, some dietary information for Sunday afternoons and evenings was collected.

In the 24-hour recall, I asked the mother, or other appropriate person who had fed the child during the previous 24-hours, what the child consumed starting with the most recent food or liquid. Each food, ingredients and method of preparation, was noted as well as the time of the day. The two most common food measures were a large cooking spoon and a tablespoon. Based on these two measures, the women described the ingredients and portions served to the child. I also asked whether the child consumed all of the food served. I determined the amount of liquids consumed by having the mother show me the drinking glasses or other drinking receptacles, such as a bowl. For older



children who would leave the house unattended, I asked the child and other older children who were with the child whether he or she consumed any other foods or liquids.

I also conducted two 24-hour food recalls with the third sample of women in October (see Table 5). I used the same methods as those described for the children, but also documented whether the women were pregnant or breastfeeding (see Appendix B.3).

### *Maternal Food Frequency*

A food frequency for the previous week provides useful information regarding quality and quantity of the diet, key indicators of food security. For each woman in the first and second samples, at the same time as the maternal reproductive history in March and April, I collected information on the foods consumed by the women during the previous week and the frequency of consumption (see Appendix B.6).

The data collection instrument used in this interview was adapted from the “Malnutrition among the indigenous children of the Mexican Sierra” study (Bates, Arellano, and Rios 1995). I adapted this weekly food frequency questionnaire for Latin America and added other foods consumed in the region. The food categories were divided into grains, fruits and vegetables, animals and animal products, and fats and sugars. I also asked whether the women consumed a vitamin during the previous week and whether their child suffered from diarrhea or had a cough during the previous week.

The food frequency questionnaire was the most difficult interview conducted during the study, and I think the least valid. Women had a difficult time with this interview because many could not recall more than several meals in the past. In this study, women were generally not accustomed to thinking about the world in weekly time

slots and they often did not know what day of the week it was and could not remember what they ate a week before. It seemed that women were simply recalling what a normal diet would be and not what they actually ate and some women were annoyed by the questions. It was clear that some provided answers simply to finish the instrument and that the answers were not based on what they actually ate. Women complained to my assistant afterward saying they did not want to participate in any more interviews with those types of questions.

I anticipated using the weekly food frequency questionnaire to collect dietary data again in October when other foods were in season, however, based on these problems I decided against it. Instead, I carried out two 24-hour food recalls of women's diets in October (discussed above). Women did not mind completing the 24-hour food recalls for their children's diets and no one complained when I conducted them for the women's diets in October.

Overall, women generally recalled eating a limited variety of foods and the foods consumed were seasonally based. When women joined the study later in the year I did not have them complete the food frequency interview because I felt the data collected were not valid. The food frequency questionnaire data are used cautiously in this study.

### *Physical Characteristics of Households*

This data collection instrument was adapted from research materials I collected at the Instituto de Nutrición de Centro América y Panamá (INCAP) in August 1997. The instrument included information on the physical characteristics of the household, such as sources of water, disposal of human and household waste (see Appendix B.4). Later

parts of the instrument included socioeconomic information, such as ownership of a refrigerator, radio or gas burning stove. Poor health may be related to food intake and child growth. Lack of refrigeration is linked to issues of food insecurity and the inability to store many perishable items. Cash was required to construct or purchase a latrine, radio or refrigerator. As a result, these were important socioeconomic indicators. Community members who owned such items tended to be of higher socioeconomic status, and consequently, were less likely to be at risk for food insecurity.

I collected data on household characteristics from the women in the first and second samples. I asked where they collected their water and the type of well or water source, how they disposed of their trash and whether they had a functioning latrine and when it was built. I also asked whether they owned a radio and a gas stove and if they functioned. In the beginning I asked if the household had a refrigerator, but I quickly learned that only one person in the community had one.

### *Maternal Reproductive History*

The data collection instrument used in this interview was also adapted from the “Malnutrition among the indigenous children of the Mexican Sierra” study (Bates, Arellano, and Rios 1995). I elicited reproductive histories to gather information on access to health care, diet, and other aspects of pregnancy and lactation, and demographic information about the woman and her family. I thought that reproductive behavior might be related to socioeconomic status and risk of food insecurity. For example, would wealthier women start childbearing at older ages, have fewer offspring, and otherwise control their fertility?

I collected information about the reproductive history of each woman in the first and second samples (see Appendix B.5). Data included age at first pregnancy, the number of pregnancies, miscarriages, deaths of newborns, and age of the youngest child. Information about prenatal care and vitamin intake during the last pregnancy, and other behaviors during pregnancy (food intake, alcohol intake and smoking) was also solicited. I also collected data from each woman on how many of her children were born in the hospital and whether she had children born premature or low weight.

The last part of the interview focused on breastfeeding and weaning. I collected information on how long each woman breastfed her last child, when she began breastfeeding, and whether she gave the child colostrum. I also asked when she began feeding the child “tastes” of solid foods and liquids other than breast milk. Last, I collected information on the “first foods” and liquids given to the children.

### *Food Security Questionnaire*

The questions asked in this interview were adapted from the food sufficiency questions developed in the Radimer/Cornell Scale (Radimer et al. 1990, 1992; Kendall et al. 1995, 1996). I also referred to the wording of questions in the Third National Health and Nutrition Examination Survey (1990) for the U.S. and to Briefel et al. (1992). The food security questionnaire was adapted to specifically measure risks of food insecurity. The closed-ended survey questions cover various dimensions of food insecurity. For example, they are meant to distinguish risks of food insecurity at the household, adult, and child levels. They also measure different elements of food insecurity, related to both

quantity and quality of the diet, such as food inadequacy, food insufficiency, and disrupted eating patterns (Radimer et al. 1992).

I conducted the food security survey with women in the first and second samples (see Table 5). The first part of the interview was open-ended (see Appendix B.8). It focused on general ideas about what constitutes a good diet, the specific foods one had to consume, and how often to eat well.

Participants then answered six food security questions related to the individual woman and to her children using the following scale for five of the six questions: no/it's not true, sometimes it's true, and many times it's true. The other question requires a "yes" or "no" response. Four adult-centered questions ask about the quality and quantity of the woman's diet. An example of an adult-centered question is "Sometimes I'm hungry but do not eat more because there is not enough food." Two child centered questions relate to the quality and quantity of the diet. An example of a child-centered question is "I cannot feed my children the way I think I should." At the beginning, I tried to ask food security questions related to the level of the household but these questions were poorly understood and I stopped asking them.

### *Clinical Assessment of Children*

A clinical assessment is an important means to identify advanced stages of malnutrition, a key indicator of food insecurity. Clinical assessments also provide important information regarding health status, also associated with risks of food insecurity.

The data collection instrument used in this interview was adapted from the “Malnutrition among the indigenous children of the Mexican Sierra” study (Bates, Arellano, and Rios 1995). I conducted a visual clinical assessment of the children in the first sample (see Table 4). I assessed the hair, eyes, teeth and gums, face, tongue, skin, nails, and muscles, bones and joints (see Appendix B.9). I noted any problems associated with the body part. The most common problems I identified were dental problems, including cavities and discoloration, and less common were skin problems. During this interview, I also asked the mother if the child had been ill during the previous week and probed specifically for cough, fever, diarrhea, stomachache, headache, mucus and colds.

#### *Familial Household Questionnaire #1*

This data collection instrument was adapted from research materials I collected at the Instituto de Nutrición de Centro América y Panamá (INCAP) in August 1997.

The familial household questionnaire #1 provides additional information about household demographics for each member of the household, indicators of socioeconomic status, and household resources. I also asked participants if they had participated in economic development projects. This information provides additional contextual information regarding the make-up of the households in this study. It also helps distinguish important differences among households that participate in economic development projects and who may be at risk of food insecurity.

I conducted the first familial household questionnaire with the women in the first and second samples. I carried out a household census and gathered information on each household member regarding age, sex, last grade entered, ability to read or write, fluency

in Spanish, up to two main occupations and kinship with the participant. If household members lived in another town, for example attending junior high or high school, but were economically supported by the household, they were included in the census.

I collected a vaccination history for each target child. I asked participants if they had the vaccination cards of the target children in the study and copied the dates. Many women said that the child had received all of their shots so they threw away the card. At this time I also asked the mother whether the child had been ill during the previous week and probed specifically for cough, fever, diarrhea, stomachache, headache, mucus and colds. I also asked each participant who hunted or fished for the household, how often they pursued these activities, and whether the activities were seasonal. Finally, I collected data on whether anyone in the household had ever received technical advice, seeds, or advice from any employee of an NGO or GO promoting development programs.

Before or after the interview, I visually collected information on the house and kitchen structure. I noted the type of floor, roof, walls and whether there was a separate kitchen or it was part of the living quarters.

For each household, I determined the household head. In order to do this, first I considered whom the occupants in the house would consider the household head based on cultural expectations, but I also examined who owned the house and who made primary economic decisions regarding the household. Usually the household head was the husband, but if a couple lived with one of their parents, the eldest male was usually the household head, generally the grandfather of the target child. In a few cases, the grandmother of the target child lived in the household with the child's mother, her husband, and their children. In those instances, I determined the household head on a

case-by-case basis. As expected, sometimes the identity of the household head was ambiguous. For example, a 60-year-old single mother and her 33-year-old single daughter lived in the mother's house with the daughter's children, but the daughter was the primary economic support for the household. They made decisions and contributed jointly to the household. In this case, in order to be consistent, I named the 60-year-old mother the head of household.

Overall, there were few female-headed households. Some women became the heads of households when they were widowed or deserted by their husbands; others had always been single mothers and maintained their own households. In female-headed households, the number of adult children who contributed to the household substantially influenced their household food security and socioeconomic status. Most single mothers lived with one or both of their parents because the fathers of their children were not under community pressure to support the children. Because women had extremely limited employment opportunities outside the home and high paying jobs were only available to men, most single mothers were unable to support themselves and their children independently outside of a multigenerational household.

I collected data for the first familial household questionnaire with the women in the first and second samples. The information was only collected once for each household, regardless of how many women in each household participated in the study. I collected information from the eldest female participant when both a daughter and mother lived in the same household and were in the first sample. If one woman was in the first sample and another was in the second, then I collected information from the woman in the first sample.



### *Familial Household Questionnaire #2*

This data collection instrument was also adapted from research materials I collected at the Instituto de Nutrición de Centro América y Panamá (INCAP). The information collected in the second familial household questionnaire provides detailed information regarding the distribution of wealth in the community and decision-making rationales about household resources.

I collected information on agricultural and livestock holdings from the women in the third sample for their households. I conducted this information only with women in the third sample because community members perceived economic information as sensitive. During the first part of the interview, I focused on subsistence and cash crops produced by the household. I asked women how many pounds of rice and beans were cooked to feed everyone in the household, when these foods were cooked, and how many meals it took to consume the rice and beans. I asked the same questions for the varieties of banana consumed in the household. I probed to learn about seasonal availability of these foods.

Questions also focused on planting, harvesting, and use of basic grains and cash crops, including rice, beans, yuca, maize, vegetables, and cacao. I asked women if they were the owners of or had free access to various fruit trees and in what quantity (I assumed they were all producing fruit). Questions also focused on the household's plans to plant basic grains and cash crops. The second part of the interview focused on animals owned in the household. I asked women about the number of chickens, ducks, pigs, cows and horses owned by household members, how they were acquired, and whether the women expected to eat, sell, or give the animals away. I probed specifically about

whether chicken and duck eggs were consumed, sold, or allowed to hatch. If households owned cows, I asked whether they made cheese or butter and whether they consumed or sold cheese, butter, and milk. The last part of this interview focused on the rationale used when an animal was killed and consumed or sold and how often this was done.

#### **Part 4: Data Analysis**

Based on my experiences during the predissertation year, I collected data on factors that I thought would most influence household food security and participation in economic development projects. These ideas were the basis of my hypotheses (Listed in Appendix C). There was a two-pronged approach to this study (see Table 1). First, I examined household food security and the factors that predict and influence it. Second, I carried out qualitative analysis of perceptions of development, specifically among community members, staff of economic development organizations, and local public officials. I was exploring how participation in NGO and GO economic development programs related to food security and whether there was a perceived difference in some community members' abilities to participate in these programs. To understand the research questions posed, it was necessary to conduct both parts of the study.

#### ***Statistical Analysis***

I conducted statistical analysis of the relationships among indicators of household food security, household indicators, wealth status, and involvement in economic development projects. Data analysis focused on comparing household food security among nuclear family households, multigenerational households, households that

participated in the seafood diving industry, households that grew cacao, households that included a single mother of a target child, and households that participated in economic development projects. Important variables included height and weight of children and their mothers, responses to the food security survey, and wealth indicators.

Survey and other quantitative data were entered into SPSS databases for statistical analysis. Once entered, all data entry was checked. After data entry and checking were complete, the databases were merged, and I conducted statistical analysis of the variables. The hypotheses tested in this study were planned before I collected the data. Most of the pertinent variables used in statistical analyses were categorical. Analyses focused on frequencies, descriptives, counts, chi-square cross tabulations, analysis of variance (ANOVA), Mann Whitney U, Kruskal-Wallis, and Student's t test for independent samples. For statistical analyses, the alpha was set at  $p \leq .05$ .

For the analysis of anthropometric data of children, I computed the Z scores as follows. First, I calculated the age in months for each child for each of the four height and weight measurements. Then, I grouped all of the children's height and weight values by age. For example, all children less than two years old were in one group, other groups were two-year-olds, three-year-olds, four-year-olds, and five-year-olds. As a result, a child 2 years and nine months old at the first measurement would have the first set of height and weight values in the two-year old age group. For the next weighing, three months later, the height and weight values would be part of the three-year-old age group. I computed Z scores for the height and weight with SPSS and sorted them by round of measurement. This allowed me to compare mean Z scores of height and weight of children at each round and examine differences among groups in the community.

There are important assumptions in some of the statistical tests carried out in this study. Analysis of variance is a parametric test that assumes a normal population distribution with an equal variance. Anova also assumes data were collected from random samples (Norusis 2000: 263). The Kruskal-Wallis test is a non-parametric alternative to the ANOVA. The data must be independent samples from populations with the same shape (2000: 334). The Student's t test for independent samples is a parametric test that assumes a random unbiased sample from a normal population or that the sample size was large enough to rely on the Central Limit Theorem to make normal the distribution of sample mean differences (2000: 220). The Mann Whitney U test is a non-parametric alternative to the Student's t test for independent samples. It assumes the shape of the distribution is the same for both groups being tested (2000: 332). I conducted all of the statistical tests with the same groups of people, and consequently, the answers may not be independent. Importantly, I planned the hypotheses to be tested before I collected the data.

### *Qualitative Analysis*

To analyze qualitative information, open-ended interviews and other field notes were entered into a word processing program and sections were coded and sorted by subject according to a system I developed. In content analysis of open-ended interviews with community members, development staff and public officials, I compared concepts of development, participation in the community, and household food security. For example, through open-ended interviews and participant observation I examined

experiences of food insecurity, hunger, seasonality of available foods, and ideas about a good diet.

### *Limitations of the Study*

I notes various limitations of the study and reservations during the data collection period. First, during data collection, I was concerned about respondent burden. Participants and other locals often did not understand why I needed to collect so much data and ask the same questions regarding food intake multiple times during the year. Before my study, most people in Wawina were not familiar with the research process or the purpose of conducting research. As discussed earlier, some people were prone to conspiracy theories and spread rumors about my presence.

As may occur in any study, during the data collection period, I was concerned that that people's self-reports might not be valid or truthful. I discussed this with my assistant and asked her to inform me if she knew someone was not telling me the truth. I explained that this allowed me to treat those data differently and that the fact that someone was purposefully untruthful was in itself data. Rarely, but when possible, Socorro informed me if she thought someone gave me misinformation.

Another limitation was that Socorro was the only assistant I was able to hire for most of the study. Overall she did an excellent job. It would have been useful, however, to have an additional assistant to work more days. Socorro worked at home or in agricultural fields during the morning, and then we usually worked four hours collecting data in the afternoon. This could be a demanding schedule.

A concern with the study is that during my stay I only interviewed four economic development staff who worked in Wawina. Further, only one of the staff worked for INFOP. I spoke informally with a higher level INFOP employee but did not carry out an open-ended in-depth interview with that individual. Thus, the interview responses presented in this dissertation might not be representative of the experiences and perceptions of other INFOP and MOPAWI staff working in Honduras or could represent extreme opinions. During the predissertation year, I had interviewed other higher level MOPAWI staff in Tegucigalpa and in the Mosquitia. I had spent several days each with three other MOPAWI technical assistants in other areas of the Honduras Mosquitia. Overall, I have spent many hours and days with MOPAWI staff and interacted with them on a much more continual basis during the predissertation and dissertation phase than I did with INFOP. While I do not claim the responses and experiences of those who worked in Wawina are representative of all economic development projects in the Mosquitia, they do represent some of the experiences typical to the lower Patuca region.

A further concern throughout the study was the accuracy of the reporting of children's birth dates because this information is particularly important for analysis of the anthropometric data. While all people in Wawina had a general sense of the time of the year or the day of the week, especially Sunday because of religious observance, most did not keep track of the exact date on a daily basis. At the time of the study, for most activities in Wawina and particularly for women, it was unnecessary to keep track of the date to the degree of accuracy provided by a calendar, and keeping track of one's age or birth date had little relevance to their lives.

Many families did not remember or record the exact date of birth for anyone in the household. For those who did know this information, some had it recorded in the family Bible or only one person in the family, such as the father or grandfather, kept track of the information. It was surprising to see adult women ask their parents how old they were. For the purposes of this study, the accuracy of ages for adult women was much less of a concern than that for children, and I did not probe for accuracy when women told me their ages.<sup>8</sup>

While some women did know the exact dates of birth of their children, others gave the age in years but estimated the month or date of birth. Other mothers had only the vaguest recollection, saying their child was either three or four years old and they were not sure. Because children less than five years of age grow rapidly and experience growth spurts, it is important to have the most accurate reporting of age possible for analysis of anthropometric data. As a result, at each round of anthropometric measurements, I asked women to report the age and birth date of the child and probed to find out how the women determined the age reported. When a woman was unsure about the age of her children, she usually consulted with relatives or neighbors to make an educated guess. For example, a woman would compare her child with another child whose birth date was known. Also, Socorro had a three-year-old son and a six-year-old daughter whose birth dates she knew accurately. Many times she was able to determine the age of a subject's child based on whether they were pregnant at the same time or gave birth around the same time.

In hopes of strengthening the validity of the birth dates reported to me by women, I went to the National Registry of Persons in Ahuas during May 1998 to double check the

birth dates of children and adult participants in my study. The National Registry contains large books from each community with handwritten entries. The names, birth dates, addresses, and names of the parents are listed for each individual. Because the data are entered as they are received, the information is not in any easily retrievable order such as alphabetical. I had to review every entry with my list of subject's names.

I did find entries for participants in my study and sometimes the information matched that reported to me. At the time, I spoke to a representative from the Civil Registrar of the Municipality of Ahuas about how they collected the information on birth dates from people. He said that five registrar assistants went to Wawina and the residents who chose to wrote the information on a form and gave it to the registrar assistants who copied down the information into the registry books. The assistants did not question or probe about the information in any way to ensure the data were accurate.

Although witnesses signed the form as well, there was no assurance that the information regarding the birth dates or other information was correct. In fact, in one case, I noticed that a child of a single mother was listed as the child of the single mother's parents. In October 1998, I discussed with Marjory her experiences at the Registry in Ahuas. She said that they did not register her second son immediately when he was born but waited one month until a trip was planned to Ahuas for another reason. The registrar insisted that the birth date of the child would be recorded as the day she registered him and not the actual date of birth. As a result, her son's date of birth was recorded erroneously. After questioning parents and family members repeatedly regarding the birth dates and ages of young children and mothers and learning how the registry functioned, I consider the dates at the national registry to be unreliable.



## **CHAPTER FIVE: COMMUNITY DESCRIPTION OF WAWINA AND THE MOSQUITIA**

This chapter describes Wawina in historical and contemporary perspectives by drawing on various sources of information. My own data was collected through surveys, life-history interviews with elderly community members, other open-ended interviews with community members and staff at community institutions, and the health center in Wawina. I also draw on previous research carried out in the region.

This chapter has three parts. In the first part, I describe Wawina and its connections with surrounding communities. In the second part, I discuss key household indicators that were particularly useful for examining differences within the community with respect to household food security, socioeconomic status, and participation in economic development projects. The third part of the chapter provides general information about community characteristics, such as the distribution of socioeconomic status in the community, subsistence strategies, demographic characteristics, and health indicators for different groups in Wawina.

### **Part One: Wawina**

Wawina is a river community on the Patuca River south of Ahuas. The entire region around Wawina is flat pine plain with mountains in the distance. According to accounts of local people, one family founded Wawina 60 to 70 years ago. In the beginning, there were only two houses, and area occupied by the current town was woods and brush. Some of the people who were children when the community was founded were still alive at the time of my study. In the 1930 or 40s, a well was poisoned in a nearby community, and many people died almost immediately after drinking the water.

As a result, the entire community was abandoned, several families came to live in Wawina, and more houses were built. Elderly community members told me about these events, including the deaths of their relatives after the poisoning, and they recalled moving to Wawina. At the time of my study, the town had grown to approximately 240 households and was about three miles long. The town limits were expanding as young families continued to clear land for their houses.

### *Current Layout of the Community*

In 1998, there were three main barrios in Wawina. Barrio Peal was the least populated. It was the closest to the northern dock and overall considered the poorest. Barrio El Centro and El Rey were more densely populated, and houses were much closer together. Most houses in Wawina were constructed on wooden pillars from one to four feet off the ground.<sup>9</sup> Typically, households had one structure used for sleeping and socializing and another structure for cooking. Poorer households had only one structure, used for both sleeping and cooking, while wealthy or large families sometimes had two or more structures for socializing and sleeping.

Social organization in Miskitu communities has been described by Dodds (1994a), who collected detailed information regarding postmarital residence patterns of Miskitu households in Belen, a coastal community in the Mosquitia of Honduras. In Belen, women mostly married men from other communities. Postmarital residence in Belen was mostly uxorilocal, with couples establishing their homes in the bride's community next to her parents' and extended family's homes. Dodds explains that this was an adjustment to men's participation in migratory wage labor (1994a: 111). Within

communities, households were generally established in extended family groupings.

Dodds used the Miskitu word “kiamp” to describe these groupings (1994a: 117).

In comparison with coastal communities such as Belen, where tourism and the seafood diving industry were concentrated, people in Wawina had fewer interactions with people from other communities. Consequently, a larger number of couples were ambilocal, with groom and bride both from Wawina. Dodds expects the incidence of ambilocal residence to decline in Belen, I suspect it will remain more steady in Wawina (1994a: 127).

Settlement patterns in Wawina tended to follow the uxorilocal kiamp pattern, with couples establishing their homes next to the bride’s parents. There were exceptions; for example, lack of available space around the bride’s family settlement or work obligations caused some couples to build their homes in other parts of the community. Most people avoided living next to the river because of potential flooding and marshy ground. Those lacking adequate space to build their houses often looked to Barrio Peal for available land.

### *Political Organization*

Wawina is connected to several levels of local and state political organization. In daily life, the most important level is that of local elected leaders from each of the three barrios in Wawina. Community members explained that local leaders are elected to four-year terms by groups of respected men, and some women, in the community and are charged with resolving disputes and town problems. The election of local leaders is informal and public.

Wawina is in the Municipality of Ahuas, established in 1997, and local leaders could turn to governmental representatives in Ahuas for additional support. At the time of my study, there were three municipalities in the Mosquitia, with Puerto Lempira, Brus Laguna, and Ahuas as the political centers of the municipalities. These three municipalities are located in the Department of Gracias a Dios. A departmental representative (*diputado*) is elected to represent the Department at the national level as part of the national congress in Tegucigalpa. The goals of political leaders in Miskitu communities are to improve transport and communication within the Mosquitia and reinforce educational and health infrastructure.

In Wawina, local leaders are not paid, but their role is similar to that of a local judge. The Departmental Authorities recognize their positions. Community members bring their grievances to a local leader. He considers the events and circumstances, makes a ruling, and determines punishment and fines. If the leader is unable to resolve the problem, or if those involved do not follow his ruling, he can go to the judge in Ahuas, who could make his own ruling, including the possibility of incarceration.

Local leaders are also responsible for organizing town projects, such as cleaning the barrio, fixing a road, or digging a well. Helping to control natural resources is another responsibility. For example, a man moved back to Wawina after a long absence, and local leaders designated plot of land on which he could build his house and grow his crops. Leaders I spoke with stated their role was important to community harmony but also demanding. When their terms were over, local leaders said they were ready to step down. In Wawina, the position of leader was open to both men and women, but only

men were ever elected. I was told that in neighboring communities women had been elected but it was uncommon.

In Ahuas, there was a police station with several policemen and a judge. Community members in Wawina only called upon the judge and police under serious circumstances, when local leaders could not arbitrate a dispute or settle a grievance. The mayor of Ahuas was a middle-aged Ladino who had moved to the Mosquitia as a policeman when he was 23 years old. He stayed in Ahuas and began a business, married, and raised a family but did not speak Miskitu. He explained that, in general, the people in this municipality were not accustomed to the existence and purpose of a municipality, and they especially did not like paying taxes. In 1998, businesses began to be taxed, as were bicycles and other types of vehicles.

Various indigenous federations in Honduras represented indigenous interests. The Miskitu, Tawahka Sumu, Pech, and Garifuna populations each had an organization that dealt with such issues as titling land, improving communication and transportation, promoting the customs of their group, and supporting laws about the use of resources. Miskitu Asla Takanka or MASTA was the name of the Miskitu organization. Regular meetings included representatives from each Miskitu community. There were also subgroups within this organization to address local and regional concerns.<sup>10</sup> While MOPAWI often worked with these federations, they were not development organizations.

### *Infrastructure and Communication*

Wawina is located approximately 10 miles up river from Ahuas and is next to the community of Waxma (see Figure 1). There is regular travel between Ahuas and

Wawina by river, by foot, and occasionally, by horseback. It is also possible to hire a small Cessna plane to fly, but it was expensive and, thus, rare. The Mosquitia receives on average 3000-3400 mm of precipitation a year (Zuniga Andrade 1994: 15). The rainy season is from June to November, and the dry season is from December to May, although it can be hot or rain any time of the year. During the rainy season, it is much more difficult to walk to Ahuas as the plains fill with standing water or mud, which can be a foot deep.

There are few roads in the Mosquitia, and it is impossible to drive there from the interior of Honduras (see Figure 1). Ahuas is located approximately eight hours upriver by motor boat from the northern Honduran coast. To get to Ahuas from the interior, one must either travel by boat along the coast or down the Patuca River, or fly from La Ceiba or Tegucigalpa. At the time of the study, flights from La Ceiba arrived several days a week. The fact that no road connected the Mosquitia to the interior was described as positive by political leaders because it impeded the mass migration of landless Ladino peasants to the Mosquitia in search of land to farm. One negative consequence is that products from the interior are very expensive. In the interior, price controls are in effect for items such as gasoline and basic grains, but controls are not enforced in the Mosquitia. Store owners and peddlers determine prices. Competition helps keep some prices in check, but transportation of goods to the major towns in the Mosquitia and then to smaller communities makes most products much more expensive than they are in the interior.

Communication in the Mosquitia is limited. In the Honduran Mosquitia, there were few roads between communities and none connecting the three political centers of

Puerto Lempira, Ahuas, and Brus Laguna. There is radio communication between Wawina and nearby neighboring communities, such as Ahuas, but not to distant communities or to the interior. The Moravian Hospital in Ahuas is capable of long-distance communication with ham radio operators in the U.S. and in the interior of Honduras. With radio operators in the U.S., it is possible to put through a phone patch and make a collect call to another U.S. telephone. The only phones in the Mosquitia are located in Puerto Lempira. From Ahuas, people can fly to Puerto Lempira (around \$60 round trip), or they can walk there in two-and-a-half days. Thus, phone use is limited for residents in Wawina who want to call relatives in the interior. There is a postal service, and a mailman walks from Ahuas to Wampusirpi weekly, delivering mail to the towns in between. It takes two to three days to walk each way, and it usually takes several weeks for mail to travel between the Mosquitia and the interior.

A public official in Ahuas explained that only during the Callejas government in the late 1980s did government support increase to the Mosquitia. Funding for various health, education, transport and infrastructure programs came from the Honduran government and international aid. I was told that because of problems of corruption with the municipal governments in the past, it had been difficult to secure international funding.

#### *General Differences between Riverine and Coastal Communities in the Mosquitia*

It is easy to assume that most communities in a marginal space such as the Mosquitia are similar; however, ways of life, access to resources, and infrastructure differ between coastal and riverine communities.

In general, communication is more difficult for riverine communities than for coastal communities. Coastal communities have more contact with the seafood diving industry and other sea trade and industries. In addition, the northern coast is physically closer to the interior, and development efforts have been made to promote eco-tourism in the Platano River and Biosphere, especially by MOPAWI. The coastal communities on the eastern coast are closely connected to Puerto Lempira and to the city of Puerto Cabezas in Nicaragua. Because of these connections, the coastal communities have more infrastructure, such as roads and permanent cement buildings, and the residents are likely to have more material possessions. Products from the interior are less expensive because the cost of transport is lower. The only river communities with amenities comparable to those in coastal communities are the political centers, such as Ahuas and Wampusirpi.

The coast has more small businesses, such as restaurants, bars, hotels, and home bakeries, along with larger general stores. In Wawina, children are sent through the community to sell bread or cakes to earn money, and some women sell cooked meals to visitors, but there is not enough demand to support a restaurant, hotel, or home bakery. In Ahuas and in some coastal communities are large general stores, but in Wawina there are only small stores run out of people's houses. These stores all sell essentially the same products, which are the basic necessities, such as cooking fat, grains, and salt.

Besides having more cash, commerce, and infrastructure, the coast is described by many as dangerous and immoral because of traffic in drugs, alcohol, and prostitutes. These activities cater particularly to men who work in the seafood diving industry. Neither these activities, nor the allegedly greater incidence of violence and robberies, are obvious to visitors. In contrast, riverine communities are considered more rural,



conservative, and religious. Wawina in particular has a reputation for being an extremely religious community that does not tolerate the open selling of alcohol.

*Institutional Infrastructure in Wawina: Education, Religion, and Health*

The Moravian Church was the first to successfully establish education, health, and Christian church institutions in the Mosquitia, and it continues to be the dominant religious institution in the community.

Moravian missionaries built the first schools in the Mosquitia in Brus Laguna approximately 50 years ago. In Wawina, first to third grades were taught off and on in the following decades by Moravian missionaries. Most community members over 40 years of age in Wawina had no opportunity to go to school when they were young unless they moved to another community, such as Brus Laguna.

In 1998, there were three school buildings in the community that had been constructed by the Honduran government.<sup>11</sup> The Director of Schools in Wawina explained that the schools were overcrowded and there were not enough teachers. The Mosquitia has approximately 160 schools, but only 12 new teachers are hired a year. In Wawina, the school in Barrio Centro has 340 students and only six teachers. Normally, teachers are expected to have a maximum of 36 students per classroom, but in Wawina the numbers are much higher. In 1998, there were 87 first-grade students in one classroom with one teacher, 62 each in the second and third grades, 42 in the fourth grade, 54 in fifth grade, and 33 in sixth grade. The Director complained they did not have enough supplies and the buildings needed repairs. The rooms were not constructed to hold such large numbers of students. Because of the large number of children and lack

of adequate space and desks, children in the lower grades sit three to one desk. Although the population is increasing and families are more likely to send their children to school, the dropout rate increases in the higher grades.

At the time of the study, the schools were piloting a bilingual education program, and the Director said that test results showed improvement. Students in fourth to sixth grades, however, had Spanish texts, as were used throughout the country. The Director explained that the local children did not have the Spanish language skills to learn from these texts. The children lacked sufficient Spanish vocabulary and did not understand the exercises because of cultural barriers. The Director emphasized that the Latino culture was not equivalent to the Miskitu culture. By the time teachers explained everything in the book that was culturally foreign to the students, there was not enough time to complete the lessons. Although the books were pretty, he complained they were not functional.

The Director explained that the schools had enough books provided free by the Honduran Ministry of Education. This included texts for the bilingual education program. He also reported that the Honduran government was starting to add more grades in some communities, and four communities in the Mosquitia now offer seventh and eighth grades. They also recently started diversifying the education in some areas. For example, in Brus Laguna, there is a post-high school program in ecoagriculture, and in Puerto Lempira, there is an agroforestry program. Unfortunately, there are few scholarships available, and only a few families can afford to send their children to board in another community to attend the programs. The director described the Mosquitia as

the most marginalized zone in the country but said that since 1995 the government had shown more interest in the area.

### *Moravian Church*

The Moravian Church is the dominant form of Christianity in Wawina, but there is also a small Catholic Church and Church of God presence. Considerable community money and labor has been invested in constructing large Moravian Church buildings as well as houses for the reverend and pastors assigned to Wawina. Few people are able to complete the formal training to become reverends. Many more people study to be pastors. Most communities had a pastor assigned to their community but few had a reverend. The reverend from Wawina traveled to nearby communities to offer communion, perform marriages and carry out other religious services.

The Moravian Church building is the largest and most impressive structure in the community. It is a long building about three feet off the ground, with painted walls made of wooden planks and a roof of corrugated metal. Inside, there are about 15 rows of benches on either side of a central aisle and more benches in front of a stage. The church is located on the highest point of the flat community, about one mile from the northern dock. The houses of the reverend and the pastor are located near the church.

In 1998, a new, cement Moravian Church building, financed by the congregation, was being constructed behind the original. The community had constructed a house for the pastor and his family, and a community member had provided the house of the reverend. During my study, a new house, complete with solar panels on the roof, was being constructed for the reverend near the new church building. It is the first individual

house to have solar panels in the community. There is a solar panel in the Catholic Church building, but it is used to run a radio and does not provide light at night.

Several times during the year the local Moravian Church organizes work groups to help construct or repair the houses of widows and orphans and they distribute clothes and food to those in need. They also perform other needed community tasks.

### *Health*

Many people in Wawina seek assistance at the Moravian Church hospital in neighboring Ahuas for serious sickness or complicated childbirth. Wawina has a government-run health clinic near the church. It is one of the few buildings in the community, other than a school and the new Moravian Church, that is built of cement. The clinic has four small rooms and is run by two government-employed nurses. A community health committee is mandated to oversee the clinic, but the group holds very little power and did not meet or do anything while I was in the community.

The government supplied the clinic with a solar panel used to run a refrigerator, which holds vaccinations and other medicines. The health clinic is supposed to be open five days a week with consultations in the mornings. Consultations cost two Lps. (approximately \$.18 U.S.). Community members often complained that there was no medicine or that the nurses stole the medicine and sold it. I noticed that the nurses frequently did not work, and the health clinic might be open only one or two days a week or closed for weeks at a time. The nurses had received up to two years of training. They complained that they were paid poorly (approximately 1,000-1,200 Lps. or \$100 a month). Nurses are rarely assigned to their home communities, and because of their work

obligations, they are generally not able to farm. One male nurse complained that he could not afford basic necessities and maintain his family in another town on his salary.

### *Religion, the Supernatural and Spirits*

Christianity is a fundamental aspect of Miskitu culture and society. Spanish Catholic missionaries attempted to convert Miskitu populations during the 17<sup>th</sup> and 18<sup>th</sup> centuries with little success. It was the Moravian Church that eventually became the dominant religion in the Mosquitia (Floyd 1967). The official name of the Moravian Church is the Unity of Brethren, which originated in Prague in 1457. In the 1500s and 1600s, Moravians participated in religious wars in Europe, which reduced their numbers. In the early 1700s, a group of Moravians fleeing religious persecution settled in southern Germany. By the 1720s, the group agreed upon the basic tenets of behavior that guide the Moravian Church to this day. A significant element includes missionary work, also known as world mission, to spread the word of God (Unity of Brethren 2000). In 1732, the first missionaries were sent from Germany to the Danish West Indies, and today there are missions throughout the world. The missionaries preach Christianity and offer projects to meet basic needs, such as medical care and disaster relief (Moravian Church, Board of World Mission 2000).

First established in the Nicaraguan Mosquitia in the mid to late 1800s, Moravian missionaries came to the Honduran Mosquitia in 1930 (Dodds 1994a). In Wawina, several elderly community members recalled how the first Nicaraguan Miskitu missionary came to the area when they were young and that was how they learned about God and the Church. At the time of my study, the majority of people in Wawina were

Moravian, and on Sundays the church was filled with about 250 men, women, and children. There are two other churches in Wawina, the Church of God and the Catholic Church, each with approximately 10 families as members. From the 1930s until recently, there was little contact or support from the national government, but the Moravian Church provided health care, established a hospital in Ahuas, and founded schools for the native populations in the region.

The dominance of Christianity in the region, specifically the Moravian Church, compelled Miskitu peoples to evaluate their actions and beliefs in relation to the Church. As a result, many traditional ideas about spirits, dead souls, and evil beings were overtly suppressed or renegotiated, but they continue to play a significant part in shaping Miskitu people's worldviews. When I asked Rosa, the woman I lived with, and other Christians about black magic and the supernatural, they usually responded by informing me that it was not Christian to believe in magic or evil spirits.

The Miskitu word, *sukia*, is the term for people who have the special, dangerous ability to call on spirits for good and bad purposes, such as causing sickness. Bad spirits may cause incurable or long-term illness. Rosa explained that *sukias* are bad because they work with spirits instead of with God. At first she insisted she did not know any, however, later in the year she admitted that *sukias* did live in Wawina and many lived in neighboring communities. I was told that occasionally it was necessary to seek their help when someone had paid another *sukia* to cause problems or hurt someone. Rosa's daughters explained that sometimes there were no other options but to have another *sukia* combat the evil work.<sup>12</sup> Other people in the community are healers and skilled in

treating illness with herbs and home remedies, but they reportedly call on God's help.

Calling directly on God is considered an acceptable Christian way to resolve illness.

Supernatural beings and spirits reportedly inhabit the woods, water sources, and the entire outdoors at night. They might go after anyone walking alone outside of the community, even during the day. It seemed to me that bad spirits were blamed for many illnesses not cured with common home remedies or biomedicine. Fear of bad spirits and the supernatural shapes peoples' lives and helped explain events. For example, Rosa would not walk home alone after sunset out of concern of spirits attacking her or making her sick. She did not want me leaving the community and working on people's farms in the daytime. She feared that evil dwarfs who lived in the bush and owned the mountains, and who especially liked white people, would make me sick and I would die. (She also feared that I would die of a poisonous snakebite and always gave me garlic cloves for protection when I went to work on people's farms). Evil mermaids are blamed for drowning and sickness that occurs after visiting water sources.

Throughout the year I heard various accounts of illness and death caused by spirits or supernatural beings. One of the wealthiest families in the community told of bad spirits that did not allow their infant daughter to sleep from the time she was three months old until she was six years old. When she was supposed to be sleeping, she was always awake and seeing spirits. They explained to me that God finally cured her after years of prayer. A man I knew became sick after walking the 10 miles from Ahuas to Wawina alone. He regularly made this trip, but his sickness was blamed on spirits who attacked him during the journey because he was alone. He consulted various healers and biomedical staff but was unable to resolve the sickness. Another man suddenly became

very ill and his stomach bloated. He died a few days later. I was told that evil spirits had attacked him while he worked his agricultural fields away from the community. These examples show that while being a good Christian is important in Wawina, this concept coexists with understandings about *sukias*, evil spirits, and the supernatural, especially in regard to illness and death.

### *Representations of the Mosquitia and Inhabitants*

It is important to note how those from the interior and abroad describe the Mosquitia and people who live there. In my view, perceptions of indigenous groups in the Mosquitia shape national policy rationales regarding the region and help justify the unequal power relationships between inhabitants of the Mosquitia and those from the interior.

Ladino Hondurans from the interior often juxtapose themselves to Miskitu peoples and consider them a wild or exotic “other.” Many who have never visited the Mosquitia perceive it as a wild jungle with dangerous animals, where people live in the rain forest with few resources, are extremely underdeveloped, and barely survive. A Miskitu student studying in the interior of Honduras told me that young Ladinos there call her a witch and say she has dark powers. Many Ladinos from the interior were horrified that I would chose to conduct research in the Mosquitia.

Honduran newspaper articles about the Mosquitia are often unreliable because reporters are rarely sent there, many reports are based on dubious sources, and facts are often wrong. Newspapers generally report on the Mosquitia when there is a crisis, such as drought or a cholera epidemic. I also read newspaper stories describing it as a drug



trade pit stop where illegal planes or speedboats from Columbia refuel before heading to the United States with their cocaine cargoes.

Other representations of Miskitu peoples are equally superficial and stereotypical, such as the classic view of the gentle indigenes, living practically the way their ancestors have for hundreds of years in ecologically sustainable harmony with the environment. Eco-tourists visit the area to view the remote and endangered cultures and environment. Many are surprised to learn that much of the region is a not dense rain forest, but flat open plains. They are also surprised to see photographs of some Miskitu with white skin, blond hair, and light eyes. Others are surprised to learn there are differences among communities. Outsiders' representations of Miskitu peoples and communities usually place them as "underdeveloped others" who are fundamentally different from (and inferior to) the "civilized" people in the interior of Honduras or abroad. Popular ideas about people who live in the Mosquitia, that they are poor, uneducated, illiterate, and Indian, legitimize and naturalize their position at the bottom of the social power hierarchy.

### *A Historical Perspective of Life and Work in Wawina: Now and Then*

Information in this section comes from elderly community members as they discuss daily life and work through their lifetimes as inhabitants of Wawina. Their accounts document some of the profound social, political, and economic changes that have taken place in the region, especially over the last 60 years. I also discuss current work and other activities of importance.

### *Diet Over the Lifetime*

The diet in the Mosquitia varies by region and local ecological resources. In recent decades, there have been many more processed and packaged products available to purchase, and the transport of products from the interior has become more reliable and sophisticated. Unlike people from other Miskitu communities in Honduras and Nicaragua, the eldest community members from Wawina said they never traveled following annual sea turtle migrations along the coast. It is possible that earlier generations did participate in this migration pattern, but the community members reported that during the early part of the 20<sup>th</sup> century, they employed different subsistence strategies. Information below is from two interviews with elderly community members regarding their diets and how they have changed during their lifetimes.

Older community members explained that when they were young, there were no stores or packaged food products in Wawina. The eldest community member, Juan, who was a child when Wawina was founded, recalled that they grew rice, maize, yuca,<sup>13</sup> various banana varieties, and other plants. Each household reportedly grew more acreage of these crops in the past than they do now. When he was young, they did not grow beans or cacao, and today's most common banana varieties, such as pilipita, guineo cortos and cubanos, were introduced later. Juan explained that Dr. Marx, a Moravian missionary, brought the pilipita back from a trip to the interior and introduced it to the Mosquitia.

Hunting was also different when Juan was young. He explained that hunting used to be easy because the animals were found closer to the community. In the past, the diet was good because it regularly included different kinds of meat and fish. They did not

need cash to the same extent as they do now, and when they slaughtered a cow they gave the meat away or salted it. Now, most of the meat from a slaughtered animal is sold for cash. Although there were many cows when Juan was young, the people of Wawina did not know how to make butter or cheese.

Juan was ambivalent about whether their lives were improved in 1998. He explained that in the past, many animals would drink at the river and they were easily hunted. They always had plenty of meat to eat and other products were inexpensive. When he was young, a machete only cost one lempira (about \$.09 at the time of the study). The people had to travel great distances to acquire many products, however, and there was less access to rice, flour, or sugar. He recalled traveling to Brus Laguna in a canoe, poling the craft for several days, in order to purchase 100-pound bags of flour and sugar.

Juan complained that now there is never enough meat and they have to go far to hunt, but purchased foods are more accessible. Now there are many people, animals stay away from communities and are difficult to find. The first store opened in Wawina in the late 1970s and in 1998 there are many small stores located throughout the community. Juan said he is happy that they have packaged cooking fat, sugar, coffee, and flour. He has enough money to easily purchase these products at the stores in Wawina, although everything is much more expensive now than it was when he was young.

Roberta is similar to other older community members who described their past diets as better than the present, generally because they eat less meat now. She claimed that when she was young, they ate meat every day and each household owned 20-30 head of cattle. Roberta explained that when there were only 10 families in Wawina there was

more food available and people ate a more satisfying diet. Now she goes weeks without eating meat and complains of meat hunger. When she was young, migration by men to the interior or to other countries, as well as foreigners and multinational companies coming to the Mosquitia to extract raw materials, affected their diet. They were introduced to and had more access to different and packaged foods. She liked eating these foods; however, she claimed that now she experienced hunger and food scarcity and this never happened in her youth. Despite the new products and foods introduced to the community, farming was always an important occupation and ensured they met their subsistence food needs.

In 1998, she described herself as a poor elderly woman who could not easily purchase foods from local stores. There was not much meat available, and it had to be purchased. She and her family depended on subsistence agriculture, and she missed the meat that used to be a regular part of her diet. Like Juan and Roberta, many community members complained to me that their current diet lacks certain foods. Similar findings have been reported elsewhere. For example, in July and August of 1992, 98 women from Wawina participated in a study including a 24-hour dietary food recall. Of the 98 women 55 (56%) reported they lacked sufficient food the day of the interview (Roordas and Salinas 1992).

### *Current Perceptions about Food*

In open-ended questions from the food security questionnaire (see Appendix B.8), women explained that they enjoyed eating all foods; thus, most women reported their diet are good. Certain foods, such as meat, beans, rice, eggs, fish, packaged soups, and

spaghetti, are particularly desired. Other products and ingredients used in cooking, for example, packaged fat, sugar, and flour, are also prized. Kool Aid and coffee were mentioned as desired beverages. Many women told me they would eat meat three times a day if it were possible and said they were happiest when meat, beans, and rice were readily available. They described a “bad diet” as being forced to eat foods they did not want, as when they could not afford to purchase the desired foods. For example, during times of scarcity, one might be forced to eat unripe-banana-based foods, such as *wawul*,<sup>14</sup> for many days in a row; this they described as a bad meal.

I also asked women how often they had to consume these desired foods to feel their diet was good and they were satisfied. Some women insisted they must eat these foods at two or three meals a day to feel satisfied. Other women commented they only needed to consume them once or twice a week. The variation in these answers distinguished those who had more variety in their diet and access to expensive store-bought foods from those in the poorer households. It is interesting to note that only women who had lived in the interior of Honduras, for example those who had studied to become teachers, mentioned that their diet was poor because it lacked spices, condiments, and vegetables that were not locally available.

### *Seasonal Food Availability*

In open-ended questions, I asked men and women about seasonal hunger and the most difficult times of the year to have sufficient food. People responded that March to September corresponded to the times of food scarcity. Within this six-month period, responses focused on two time periods: March through May; and June through

September. Those who indicated that March through May were difficult explained that the sun was very strong during these months and frequently burned bean seedlings and stunted the growth of other food plants. During these months, the rice harvest might be completely consumed or sold but the bean harvest was not yet ready, and the poorest households did not have the cash to purchase more rice or beans from the store. A few people mentioned that rice harvests were completely consumed by January and beans were not yet planted; thus some families began to face food scarcity then rather than in March. The variation in responses to this question may differentiate families who were more likely to experience chronic food insecurity (have multiple hungry seasons) from those who experienced periodic food insecurity (one or no hungry season). It may also reflect the dependence on different economic and agricultural resources.

The majority of people reported that June through September were the main periods of food scarcity, especially the months of June, July and August. This was primarily because of moratoriums in the seafood diving industry and the resultant lack of cash to purchase food. The population also increased at this time as men stayed in the community instead of migrating for work. Among those who grew rice and beans, many had consumed or sold their bean harvest by this time and the rice harvest would not be ready until mid-September. Also, birds ate many of the partially ripe bananas during this time of the year, diminishing this staple food source. Many families reported they had to purchase rice, beans, and yuca from the store and that they were expensive during these months. This was also the rainy season and there were many mosquitoes, which made farming work unpleasant. People reported there was more sickness, such as diarrhea, fever, malaria and colds, during these months of the year.

Some people explained that the most plentiful times of the year for food were November and December. This was because the rice was recently harvested, yuca was available and many fruits, such as oranges and grapefruit, were in season (see Table 23 for an abbreviated list of foods available by season in Wawina). Others indicated that two times a year, immediately after the rice harvest in September and October and the bean harvest around April were the best times of the year. For households with large agricultural holdings and multiple sources of cash income, there was less experience with annual fluctuations between food scarcity and plenty. Poorer households planted and harvested less acreage and, in times of scarcity, stopped eating many foods or ate them in much smaller quantities and less regularly. In contrast, wealthier households generally planted and harvested more acreage and were able to spend money to purchase foods regularly during times of scarcity.<sup>15</sup> Regardless of economic level, a number of households indicated that the best times of the year were around the harvests of rice and beans, but for poorer households and households heavily dependent on the seafood diving industry, food intake was affected more dramatically by season.

### *Work and Migration*

Historically, Miskitu men have migrated for work to other areas of the Mosquitia, to the interior of Honduras, and to other countries. In the 1930s, men from Wawina migrated to work for fruit companies in the Mosquitia and the interior of Honduras, as well as to other countries, primarily Nicaragua and Belize. Employers included Standard Fruit Company plantations on the Sico River and other plantations near Castillo and Trujillo in the interior of Honduras. They traveled these long distances by poling canoes.

At around the same time, men also said they worked for other U.S. owned companies. For example, one company in Olancho, also in the interior of Honduras, made gum from rubber trees. Lumber companies also worked in the Wawina region, extracting mahogany and pine for export.<sup>16</sup> Men also came to the Mosquitia to pan for gold in the rivers.

There were no motors for canoes at this time and men who migrated for work were less able than men in 1998 to return frequently to their home communities. Of those Miskitu men from Wawina who migrated for work, some took their wives and families with them, but others only came back to Wawina for brief trips every year. They explained that men did not want to leave their wives home because of jealousy and concern over infidelity. They said that many people were killed over infidelity and disagreements because they did not yet know the word of God or Christianity.

Men from the U.S. who came to work with the lumber companies or other export extraction ventures fathered children. Only a few stayed in the area after the companies pulled out. One of the oldest families in Wawina said that their father was from the United States and that he originally came to the area to pan for gold in the Patuca River. He met a Miskita and married her, raised a family, and later died in Wawina of old age. Some of the Miskitu and coastal men not from the area who came to work in the region visited Wawina during their breaks. Through these contacts they met women from Wawina and married, never returning to live in their places of origin. In Wawina, as in the rest of the Mosquitia, the Miskitu genetic make-up is a combination of indigenous, Anglo, and African ancestry, and there is a broad phenotypic range.



The Miskitu have been involved in the economies of North America and Western Europe since colonization of the Americas (Floyd 1967). Older community members explained that as men migrated further into the interior of Honduras and to other countries for work, they were eventually forced to wear western clothing. Before that time, adults wore wraps made of tunu, a plant-tree fiber. The men came back from these trips and brought western clothing, blankets and sheets, machetes, guns, dishes and drinking glasses. They also brought rice, beans, packaged cooking fat and salt, flour, sugar, and soap. The companies they worked for often sold them these products.

One man laughed as he recalled how the people who sold them the western clothing had to teach them how to wear it. When they first brought back clothing, there was only one set of pants and a shirt for the entire community. These clothes were only worn on special occasions and loaned to who needed them.

### *Migrating for Work in the Seafood Diving Industry*

Migration to work in the seafood diving industry off the Caribbean Coast has had an important economic impact in Wawina for the last three decades. The lack of occupational safety standards makes this very dangerous work, but many men take the risk to earn high wages. In Wawina, only men work in this industry, and the products are sold to restaurants in the U.S., such as Red Lobster.

The seafood diving industry off the coast of Honduras began to be a dominant economic force in Wawina around the 1970s. Although panning for gold was, and continues to be, common in some river communities, in Wawina it was never as common as migrating to work for U.S. companies or in the seafood diving industry. One woman

said that her brother began diving for lobster without an air tank off the northern coast of Honduras in 1961 when he was 25 to 30 years old. He earned .25 Lempira a pound, which was a good wage. He continued to work in the industry after air tanks for diving were introduced and remained for 36 years. Most of the elderly males in the community considered themselves too old to work in this industry when it started. Among younger generations and at the time of the study, it was considered a good, quick source of cash, albeit very hard, dangerous and unpleasant work. Because marine products are being over-harvested, threatening a collapse of the industry, in recent years the Honduran government has imposed annual moratoriums, which last several weeks to months depending on the marine species.

In 1998, every two weeks for ten months of the year, 60 to 120 men in the community went to the coast to work in the seafood diving industry. Some men traveled to other countries to work as divers in order to earn higher wages. At the time of the study, there were many boat owners, and competition was intense to find divers and men to steer canoes. I was told that boat owners came to the community and gave cash advances and cattle to the men to lure them to work in the industry. On the boat, meals are provided for the workers free of charge. Boat owners also pay local managers, *sacabuzos*, to hire men, transport them to the coast, return them to Wawina, and dole out their pay. The managers are responsible for securing a sufficient labor force, providing cash advances, and addressing problems among the divers.

Compared to other cash generating activities, working in the seafood diving industry pays well and does not require up front investments. Other kinds of work require, for example, a chain saw or a boat engine. In late January 1998 during bean

planting season, Rosa paid women 20 Lempiras a day (around \$1.80 U.S.) to work planting beans from 6:30 am until about noon. She paid the men 30-35 Lempiras (around \$3 U.S.) to work planting beans and preparing the fields by doing such things as clearing trees. Rosa also supplied breakfast and lunch in the fields to the workers. At the same time, one diving manager paid 650 Lempiras (around \$59 U.S.) in advance to each of 18 men to ensure they would work as divers for the next two-week trip. The manager complained to me that of the 18 men, three did not go on the trip and he lost that money. Some men were reported to earn 5,000 Lempiras (around \$455 U.S.) or more diving for lobster or conch in a two-week period, far more than could be earned in farming.

In Wawina, and throughout the Mosquitia, there are men who are partially paralyzed, paraplegics or quadriplegics as a result of diving. Unfortunately, many men have no diving instruction before entering the field, and it is not considered cost effective to follow PADI (Professional Association of Diving Instructors) approved diving procedures. As a result, they stay under water longer than recommended repeatedly throughout the workday. Also, the equipment is reportedly not well maintained, and sometimes they must resurface faster than is safe. I was told that the boat captains and owners do not encourage men to follow safe diving practices.

Many divers are aware that safe diving guidelines exist. One Miskitu diver complained that he had been diving for 12 years and recently paid 100 Lempiras (around \$9) to take a diving training class from an U.S. instructor. He explained that what he was taught did not mean anything because he would not follow the recommended procedures. I told him that following the instructions meant he would be less likely to get the bends

from diving, which he was familiar with. He did not respond to my comment but argued that foreigners and Miskitu dive differently.

Another Miskitu diver, Norman, came from a large family. He worked as a diver to pay for his high school education to become a teacher. He said that divers made good money but it was not safe. On the other hand, being a teacher was safe and secure, although they earned much less money (around 1,500-2,000 Lempiras a month). The men who steer the canoes earn considerably less than a diver, but they are generally young teenage boys just entering the industry, and they will eventually go to work as divers. They still earn a significant wage by local standards. Generally, divers are out to sea for two weeks, then home for about four days, and out to sea again for another two weeks for 10 months of the year.

Norman described a typical day of diving. They left the main boat around 7:00 a.m. in canoes with a crate, four tanks with air for 30 minutes each, and a man to steer. He would dive with a tank of air and a regulator. There were no wet suits despite the coldness of the water and the length of time they spent beneath the water. Norman would only come to the surface every 30 minutes when he ran out of air or if his crate was filled, but he would immediately change the tank or empty the crate and dive again. After the four tanks were emptied, they would return to the main boat for an hour-long break. He would dive again from 10 a.m. until noon. After a one-to-two-hour lunch break, they would dive for another two hours in the afternoon, using 12 tanks of air by the end of the day. An alternative system of diving, which he called Dominicana, involved going out in a boat with a huge tank of air and a hose attached. This way the air was continuous and he would stay beneath the water non-stop for 2-3 hours at a time until the crate was filled.

I was told that some divers take multivitamins to give them strength when diving. Some men work only occasionally in the industry when they needed to earn money, but many men worked continuously. Seafood diving is a major source of income for the community.

Norman had worked as a diver in Jamaica, Grand Cayman, and Columbia in both small vessels and large boats. He said that despite the money they earned, seafood diving was not necessarily a respectable profession because some men were known to spend all their money on alcohol, drugs, and prostitutes when they were on the mainland. Norman said that many men spent their nights on the main boats smoking marijuana or other drugs. They did this out of boredom and as a way to escape from the harsh reality of their day jobs. While not all divers participated in these stigmatized activities, the reputation existed. For example, I was told that some doctors at the Moravian Hospital in Ahuas assumed that all divers were HIV positive until proven otherwise. In Wawina, the wealthiest households usually steer their children away from this profession because it was too dangerous.

### *The Influence of Work in the Seafood Diving Industry on Youth in Wawina*

The seafood diving industry has had a profound effect on Wawina in terms of access to cash income, the health of male divers, and how young community members view their future. The Director of Schools in Wawina complained about the influence of the seafood diving industry on youth in Wawina. He claimed that educating students in Wawina was difficult because the lure of the seafood diving industry produced a high dropout rate among male students. Students see diving as an easy job that does not

require one to study or to save money. Divers are seen to have a lot of money and prestigious items, including bicycles, radios, and cassette players. Unlike others, they can afford cigarettes, alcohol, and drugs for regular consumption. They also have easy access to women. This makes it difficult for teachers to tell male students they should stay in school for many years, at great expense, only to have lower paying careers with the government, generally the only employer of educated persons in the Mosquitia. As a result, the Director of Schools sees the seafood diving industry as a negative influence on youth.

Another teacher explained her frustration with the way most men in the seafood diving industry did not follow the diving guidelines taught in training classes or show interest in forming a union. They also refused to work with teachers to support a local communal bank and cooperative. MOPAWI promoted a program to give seafood divers training. A man from the U.S. who had retired from his career as an industrial diver came to the Mosquitia for several years to train divers to work safely. He tried to get them to form a union to fight for safer working conditions. Unfortunately, few divers accepted him, and his attempts to help them professionalize diving and create a union failed. The teacher's rationale for failure was that the majority of divers were "backward and ignorant." She argued that most divers did not finish primary school and lacked educational preparedness and critical thinking skills. She also said they were likely to promote conspiracy theories. She was convinced that they were not capable of logically analyzing situations or preparing for the future.

The Director of Schools explained that it was difficult to get many parents and students to understand that they have options in life. In Wawina it was normal for a

young girl, starting around 13 years old, to get married or live with a man. The Director perceived this as an obstacle to finishing primary school because many girls were engaged by 5<sup>th</sup> or 6<sup>th</sup> grade, although many were older than their grade level would imply because they had been held back a year or more. Sometimes the girl was not involved in the decision; the man talked to her parents and she was sent to live with him. Not surprisingly, many times the arrangement did not last. The Director claimed that fathers generally did not push daughters to marry young, but mothers repeatedly talked about how well off girls who were married were. The Director summarized the dropout problem by saying that few boys envisioned their lives beyond the seafood diving industry and girls expected to marry at a young age. This deterred many from completing primary school or going on to high school or other training.

Furthermore, it is appropriate to reinforce here several issues previously discussed. In the section, "Institutional Infrastructure in Wawina: Education, Christianity, and Health," the Director of Schools described various other significant obstacles limiting the success of Miskitu children to complete primary school to the sixth grade. For example, the schools are terribly overcrowded, and the children lack sufficient knowledge of the Spanish language. A bilingual education program was recently begun but is only for the first few years of primary school. Classes in higher grades are carried out completely in Spanish using textbooks created for Ladino children. There is little material benefit to completing sixth grade, especially if families have no intention of, or ability to, send their children to other communities to pursue higher degrees. Miskitu children from Wawina who do continue their education for 7 to 12<sup>th</sup> grades, often find it very difficult and fail several years before completing their degrees.

### *Promotion of Cacao as a Cash Crop*

In recent years, governmental and non-governmental organizations have been promoting the production of sustainable cash crops. The major cash crop is cacao, and to a lesser extent, hardwoods, such as mahogany or cedar, and basic grains. They are also starting to promote fruit trees. Jorge, a MOPAWI employee, explained that the land around Wawina, and the Patuca River in general, is extremely fertile. Agriculture in the interior of Honduras relies on fertilizers, pest control, and control of plant disease. Without major investments in these inputs, the Patuca region almost doubles the national average in production of crops per *manzana* (a measure of land similar to an acre). The problem for local producers in the Patuca region is the lack of access to markets to commercialize agricultural products, thus it is not worthwhile to exploit the fertility of the land to its fullest potential.

In Wawina, most households began planting cacao in the early to mid 1990s, and in 1998, there were approximately 68 cacao producers. Wawina is one of the most prolific cacao producing communities in the region. Fewer households reported they grew hardwood trees. Almost all cacao producers have reportedly received some technical assistance from economic development projects, but a much smaller number of producers, between six and eight men, have benefited the most and have the largest plantations.



*Summary of Findings from “Inventario y Análisis del Cultivo de Cacao en Río Patuca 1996-1997”*

MOPAWI and Servicio Alemán de Cooperación Social-Técnica, a German NGO, conducted a study focused on inventorying and analyzing cacao production in the Patuca River in 1996-1997 (MOPAWI and Weijst 1996). They interviewed 370 cacao producers in the Patuca River region from Kropunta to Kraotara, including Miskitu, Tawahka and Ladinos native to the area. They identified 65 cacao producers in Wawina and interviewed 18.

In the Patuca River region, 92% of producers were male and only 8% were female. Women who produced cacao were generally characterized as widows who inherited the cacao plantations. A few women planted the cacao on their own initiative and used family labor. Other women producers included single mothers who generally had very small plantations and hired men to perform the hard labor. Less common were female producers with spouses or partners. Some married women had the plantations from previous marriages or they grew the cacao on their own as a form of income because their husbands did not support the families economically (1996: 3).

While low numbers of women were cacao producers, women were an important source of labor for cacao plantations. Of the producers, the main form of employment was agriculture (95%). Only 5% were involved in other businesses or public appointments (1996: 6). Most producers were middle-aged, over 40 years old, and only 28% were less than 30 years old. Sixty-two percent of producers were 31-60 years old (1996: 4).

Most plantations in the Patuca River region were young at the time of the study. Of the plantations, 30% were still immature and not producing fruit, 30% had recently reached production, and 40% were at maximum production (1996: 12). The authors stated that this reflected the recent expansion and support of cacao production in the region during the previous 10 years (1985 to 1995). In the region, the number of plantations and acreage planted reached a peak in 1994 to 1995 but in 1996 had declined (1996: 13).

In Wawina, those producers with cacao plantations of two *manzanas* reported they earned approximately 3,445 Lps. a year, or 287 Lps. a month, and sold at a price of 3.25 Lps. a pound. In the Patuca River region and Wawina, most producers had only .38 *manzanas* in production. In Wawina those with .38 *manzanas* earned on average 655 Lps. a year and 55 Lps. a month (approximately \$4.5 U.S.). Wawina offered the lowest price per pound of cacao in the Patuca River region while Wampusirpi offered the highest price at the time, 4.30 Lps. a pound (1996: 12). Wawina was approximately 5 to 6 hours downriver in motor boat from Wampusirpi, and it was too expensive and risky to send cacao upriver to sell because there were not always buyers.

From a list of six limitations of growing cacao, the researchers asked cacao producers to choose the two most important based on their experiences. During this exercise, the researchers realized that when cacao producers chose, “lack of money” they considered it equivalent to “lack of labor.” Apart from tools and seed there were no other costs associated with cacao production in the Patuca River region and all cash was spent on paying labor. This was also the most important limitation cited by producers (1996:25).

For the majority of producers, cacao is considered only one more economic strategy. It produces only a small monthly supplemental income, for most around \$5 at the time of the study. Despite the small amount, it is an important cash source and generates income throughout the year to buy household essentials such as salt, sugar and cooking fat (1996: 7).

The researchers described the level of management of the cacao plantations as very low. Most producers did not have any training and showed low levels of technical knowledge and management (1996: 27). One problem cited was that producers underestimated the amount of labor needed to maintain the plantations, and lack of labor (including lack of cash) was a significant concern. While most producers had access to quality hybrid cacao seeds, most training was concentrated around towns with large populations. Importantly, the researchers stated that no women had received any training at the time of the study (1996: 34).

#### *Promotion of Cacao in Wawina by Economic Development Organizations*

MOPAWI workers generally visit Wawina every one-to-two months and reportedly came more often when trees are producing. They live in the region in which they work and are assigned to a specific number of communities that they visit on a rotating basis. It was reported that for the past few years, many community members in Wawina disliked the technical assistant assigned to their community and this affected participation in the MOPAWI program. In mid-1998, a new technical assistant was hired from Wawina specifically to address this problem, and it was anticipated that relations would improve between the newly assigned MOPAWI technical assistant and community members.

There are only three INFOP technical assistants assigned to the entire Mosquitia (INFOP is a governmental organization; see Chapter One). One assistant had worked with producers in Wawina for several weeks in 1996. Because of the large number of communities he was assigned, he was not able to return to Wawina until 1998. Throughout the study period, he worked with a small number of producers for several weeks on three occasions.

In late 1997, MOPAWI sent a group of 12 cacao producers from the Patuca region to the interior of Honduras to view plantations and visit a cacao-processing factory. A community member from Wawina went on this trip and told me the factory produced chocolate, cooking fat, and candy products that were sold primarily to Europe. He explained that the group of cacao producers was able to establish an accord with the company to commercialize the cacao grown in the Patuca region. They established a buying price (approximately 7 Lempiras a pound or \$64 per 100 pounds) and they must finance the transport of the product to the factory. The goal was to eliminate the middlemen and establish a link to sell the product directly and regularly to the factory for a higher price.

In Wawina, a small number of men are having substantial long-term success growing cacao. Each has one to two *manzanas* of cacao planted and is planning to plant more. These men were most interested in the accord and spoke of the potential of cacao production to ensure their economic security in the future. The largest cacao producers are the wealthiest men in the community. Overall, however, the majority of community members are not interested in making a significant investment in this cash crop. Cacao requires periodic cleaning of the trees and cutting the branches, checking for pest

infestation and disease. Often, cacao producers pay day laborers to help with these tasks. In addition, it takes several years for the trees to mature and produce the fruit eventually sold to factories. Thus a person involved with cacao must be able to invest time, labor, and physical energy for at least five years without a return. Growing cacao requires a long-term economic vision.

Generally, seafood divers did not invest in cacao, although they may have provided the cash to family members who used it to invest in cacao plantations. Many community members explained that in their opinion, growing cacao was too much work and not profitable. A few told me how they attempted to grow cacao when it was first promoted by economic development projects in the region, but their plantations flooded or pests and disease killed the trees before they could produce. As a result of their experiences, the cacao production is perceived as a loss and too great a risk. Others explained that they would rather invest in cattle, which require practically no labor.

### *Subsistence Crops*

In regard to other crops, most households grew rice and beans. At the time of the harvest, the price is very low, around one to two Lempiras per pound, and at other times of the year, long after the harvest, the price is higher, sometimes as high as four to five Lempiras a pound. Most households who sell their rice and bean harvests in bulk have to do it when Ladino buyers, known by the derogative name “coyote,” visit the community. This is invariably around the time of the harvest when the price is the lowest and the supply the most plentiful. Thus a 100-pound bag of rice is often sold for \$9 to \$18, compared to \$64 for a 100-pound bag of cacao.

Whereas people pay a daily wage for labor on the cacao plantations, many families exchange labor when preparing fields, planting, cleaning, and harvesting rice and beans. Thus, for every day a member from one household works on another's field, that household is responsible for providing equal labor. Overall, this is the preferred method of acquiring sufficient labor for subsistence crops because it does not require a large amount of cash. At labor-intensive times of the year, households with several adolescent girls or young adults do well because they have a large supply of labor to exchange. Most young women do not enjoy the work but do not have a choice. Occasionally, workers insist on being paid, usually if they need cash and feel the household can afford to pay.

### *The Immediate Future*

The week of October 26, 1998, Hurricane Mitch hit Honduras and caused devastating flooding throughout the entire country. In the interior of Honduras, thousands of people were killed and many more were left homeless as a result of mudslides and flash floods. In the Mosquitia, there were fewer deaths as a direct result of flash flooding or mudslides, but the rains that fell in the interior slowly made their way down the rivers through the Mosquitia on their way to the sea. After a week, many river communities in the Mosquitia were left underwater and the rice and banana crops were ruined. The flooding washed away the fertile topsoil; thus, at the next harvest, the farmers lost both their crop and seed. At the time of the slow flooding, the majority of community members in Wawina evacuated to Ahuas, which is located on higher ground. The water receded in Wawina after a week, but damage occurred to many houses that

were flooded. At the time of the hurricane, community members were most concerned because even the banana trees, the only year-round abundant food source, were devastated. Because of the immediate crisis and the emergency situation for months following the hurricane, I was unable to continue collecting data.

In April 2000, the Honduran newspaper, La Tribuna, reported that at least 18 communities in the Mosquitia were suffering from famine (Manzano 2000a). The World Food Programme (WFP) carried 40 metric tons of food to approximately 11,000 people, including communities on the Patuca River. On May 22, 2000, a second food transfer took place, and this also included beans and rice seed for planting (Manzano 2000b). The newspaper articles reported that as a result of the flooding and loss of fertile land, many inhabitants had been forced to plant in less fertile mountainous regions and increased fishing and hunting in order to feed their families.

## **Part Two: Household Indicators**

In this section, I describe social and economic household indicators that I initially identified during my predissertation year. I hypothesized that these indicators had important influences on household food security and were particularly useful in understanding differences in the community regarding household food security, socioeconomic status, and participation in economic development projects. The indicators are related to household composition, key economic activities, and indicators of wealth. I analyzed the distribution of these indicators among households that participated in the survey data collection.

### *Household Composition and Key Economic Activities*

In this study, the 119 households that participated in the survey data collection were categorized as follows: 1) multigenerational household; 2) nuclear family household; and 3) single mother household (see Table 3). Multigenerational households included at least one person each from the grandparent generation, parent generation, and child generation. Most single mothers lived in multigenerational households. Nuclear family households included an adult man and woman living as a couple and their children. Single mother households were a single woman and her children only.

I hypothesized that single mothers would experience food insecurity regardless of whether they lived in their own households with their children or in multigenerational households. For the purpose of this analysis, both groups of women were combined into the category called “single mothers of target children<sup>17</sup>” (N=33). Most single mothers of target children (89%) lived in multigenerational households.

I also hypothesized that two key economic activities would be important indicators of food security (see Table 3). The first activity is working in the seafood diving industry (N=49). Adolescent and young men worked in this industry and were paid well by local standards. The men responsible for steering the canoes earned less money than those who actually dove, their incomes were still high by local standards. For this analysis, I combined the two into one category, although most men in this category worked as divers. Table 3 shows that 60% of nuclear family households had a member working in this industry, whereas only 23% of multigenerational households did. No members of single mother households worked in this industry.



The second key economic activity is cacao farming (N=26). Growing cacao requires long-term investments of cash, labor, and time. Fewer households grew cacao than worked in the seafood diving industry. In this study, a total of 16 nuclear family households (26%) grew cacao and 15% of nuclear family households engaged in both key economic activities. In comparison, 10 multigenerational households (19%) grew cacao, but only 2% participated in both key economic activities. No single mother households grew cacao.

### *Explanations of Household Indicators*

I hypothesized that household composition, economic activities, and marital status of mother of target child were important household indicators of food security and socioeconomic status in this study. It is important to keep in mind, however, that the indicators are not mutually exclusive. For example, many seafood diver households were also nuclear family households, but not all nuclear family households participated in the seafood diving industry. Also, most single mothers lived in multigenerational households, but not all multigenerational households included single mothers. To test these indicators I created five dichotomous variables (i.e., yes/no). With these variables, I analyzed the relationships of these indicators to wealth indicators, food security questionnaire responses, and anthropometric measurements. I expected similar findings for single mothers and multigenerational households, as well as similar findings for nuclear family households, seafood diver households, and cacao farmer households.

I expected that those who lived in multigenerational households would be more likely to report food insecurity. Often, multigenerational households had a higher

dependency load with more young and elderly dependents who did not contribute substantially to the maintenance of the household. I anticipated that male heads of multigenerational households would be less likely to participate in the seafood diving industry because they tended to be older men. I also expected that multigenerational households would have few unmarried adolescent and adult sons who contributed to the maintenance of the household. If adolescent or adult sons were married, I expected most would live in a nuclear family household separate from the multigenerational natal household. Because of their nuclear family obligations, married sons would be less able to contribute economically to the natal household.

I also expected that single mothers would be more likely to report food insecurity. Most single mothers lived with one or both of their parents because the fathers of their children were not under community pressure to support the children. Because women had extremely limited employment opportunities outside the home and high paying jobs were only available to men, most single mothers were unable to support themselves and their children independently outside of a multigenerational household.

In contrast to my expectations about multigenerational households and single mothers of target children, I hypothesized that households with men who worked in the seafood diving industry would be less likely to report they experienced food insecurity. Men in the seafood diving industry earned substantial income compared to local standards for 10 months of the year, and thus, had more access to purchased foods to complement household subsistence agriculture. I also anticipated that households with cacao farmers would be less likely to report they experienced food insecurity. Cacao was a long-term investment and required considerable cash, labor, time, and risk before

producing any returns. I expected that only well-off households who were food secure would be able and willing to make this investment.

These household indicators highlight important differences among households in the community. Because of the diversity of household composition and survival strategies, it was important to identify key variables that might predict and explain differences in household food security and access to resources and opportunities within the community. In the next section, I provide more detailed information regarding households and families who participated in this study, particularly in the survey data collection.

### **Part Three: General Description of Community Characteristics**

In this section, I provide quantitative and qualitative descriptions for Wawina and groups within the community. Most data were collected from the first, second and third samples in surveys conducted throughout the year. Other information was collected from local sources, such as the health center records in Wawina. The data mostly describe women and children in Wawina and focus on health and nutrition information, as well as information about community and household resources.

#### *Census*

I conducted a household census as part of the survey on household food security. The women in the first and second samples lived in 105 households with a total of 761 people. The mean number of people per household was 7.25 (see Table 6). Nuclear families had a lower mean number of people in the household, 6.46. In contrast, multigenerational households had a higher mean number of people, 8.79.

In a count of the entire community in late April and again in August 1998, I found a total of 240 households. I did not count the total number of persons in the community. A 1996 census of the entire community reported 1,400 people lived in 175 houses in Wawina with an average of eight people per house (Munar, 1996). In contrast, a 1992 study reported there were 162 houses with a total of 933 inhabitants, considerably fewer persons than that reported by Munar (Roorda and Salinas 1992).

Following Godoy et al. (2000: 226), I define adults as persons 12 years of age or older. In the census I conducted, of the 761 people living in the 105 households, 389 (51%) were adults and 372 (49%) were children. Nuclear family households tended to have fewer adults and multigenerational households tended to have more (See Table 7).

### *Characteristics of Target Children*

I collected information on demographic and health variables that might influence health, nutrition, and food security status. Nutrition and growth status, important indicators of household food security, are influenced by disease, environment and food intake. Demographic variables may provide important explanatory information regarding health, growth, socioeconomic status, and household food security. For example, when a child is malnourished, demographic information, such as the number of children less than five years of age in the household or child- to-adult ratio, may help explain the cause.

A total of 147 target children participated in this study. Of the 147 children, 78 were male (53%) and 69 were female (47%) (see Table 8). Six of the children were twins and four of the children were adopted. The majority of children (75%) lived in households where there were two or three children less than five years of age. Of the 147 children, 31 (21%) lived in households where only one child was under the age of five,

the target child. Sixty-three (43%) lived in households with two children and 47 (32%) with three children under the age of five. Only six target children lived in households with four children under the age of five. The other children under five years of age living with the target child were generally their siblings, cousins, aunts or uncles. Most children (86 of 147, 59%) lived in nuclear family or in multigenerational households (58 of 147, 39%). Only 2% of children lived in single mother households.

Among multigenerational households, in 38 of 58 cases (66%) the grandfather lived in the household with the target child. In 49 of 58 cases (84%), the grandmother lived in the household with the target child. In 55 of all households (37%), the grandfather lived next door, and in 57 cases (39%) the grandmother lived next door to the target child.

A total of 63 of 147 children (43%) lived in households where at least one member worked as a seafood diver or steered a canoe in the seafood diving industry. A total of 34 of 147 target children (23%) lived in households that grew cacao (see Table 8). Additionally, among all households, 36 of 147 target children (24%) were the children of single mothers.

The majority of children in this study were from young mothers. Of the 147 children, 38 (26%) were their mother's first born child and 86 (59%) were either the first, second or third born (see Table 8). Most children, 105 of 147 (71%), were born in the house with a midwife. In 16 cases (11%) the mother reported she gave birth by herself in her house, and in three cases (2%) her mother or other female relative attended her. In 14 cases (10%) the child was born in the hospital in Ahuas. The nurse at the health clinic in Wawina also attended seven women (5%).

*Other Household Factors Related to the Health of Children and Other Community Members*

With the 147 target children, I collected data on vitamin intake and the purification of drinking water consumed in the household at four intervals throughout the year. I collected this data while conducting the four rounds of anthropometric measurements and 24-hour dietary food recalls.

*Vitamin Intake*

Few children were reported to have consumed any type of vitamin the day of the four rounds of data collection throughout the year (see Table 9). Only 7 of 114 children (6%) consumed a vitamin during the first round, 5 of 120 children (4%) the second round, and 11 of 116 children (9%) the third round. The nurse at the health clinic explained that because vitamins were in limited supply, they generally only gave them to children from poor households who were underweight, reported to not be eating, or sick. For other children, parents had to purchase vitamins at the stores in the community if they wanted their children to consume them. A bottle of vitamins cost about two to three dollars U.S. and would last about two weeks if used as instructed. Because of the cost, few families purchased vitamins.

To examine differences in the community further, I analyzed the Z scores for height and weight of children who reportedly consumed a vitamin the day of data collection at each round. In general, there were no patterns in the mean Z scores for height or weight of children at each round regarding vitamin intake (see Table 10). I carried out the analysis for rounds when at least four children had consumed vitamins.

There was one statistically significant finding; in the second round, the mean Z scores for weight of children who consumed a vitamin were significantly lower than those of other children, ( $p = .029$ , equal variance was assumed in the samples). This finding supports the statements of the nurse.

### *Purifying Drinking Water*

Consuming unpurified drinking water is associated with increased incidence of diarrhea and other diseases. Public health recommendations urged people to purify drinking water in Wawina and throughout the Mosquitia.

Drinking water was usually stored in the kitchen area in buckets covered with a cloth or lid. Some people said they used “cloro” to purify their drinking water. Cloro is the local-term for a type of bleach, but I am not sure of the direct translation in English. My Spanish-English dictionary translates cloro as chlorine (Dutton, Harvey and Walker 1969: 43). I use this term throughout the rest of the dissertation.

Use of chlorine was the most common means of purifying drinking water; however, most households did not report they used it consistently throughout the year. No household reported boiling the water because it required too much wood to purify large amounts of drinking water. Also, a few women told me that they covered a bucket with cheesecloth as they poured the water into it, and they thought this purified the water. In a 1992 study, Roordas and Salinas reported that all 98 women in the study said they had a problem with access to safe drinking water in Wawina. In addition, when the women were asked to report the most significant problem in the town, most complained

about the lack of good water, wells that were not covered, and the difficulty of keeping the wells clean during the rainy season (Roorda and Salinas 1992).

I was concerned that people would say that they purified their drinking water because they thought that was what I wanted to hear. Instead of just asking once, I decided to continue collecting this information at each of the four rounds, and I specifically probed whether they used chlorine or boiled the drinking water. At the first round of data collection, only 9 of 90 children (10%) lived in households that reported they purified their drinking water. During the next two rounds of data collection, the numbers increased to 29 of 118 (25%) in June and 25 of 116 (22%) in August. During the last round in late October 8 of 19 (42%) children lived in households that reported they purified their drinking water .

It was interesting that the number of people reporting they purified their drinking water increased during the last three rounds of data collection because the timing coincided with the rainy season. During the rainy season, women made every effort to catch rainwater in buckets. This water was considered pure and to have a better taste. Furthermore, women did not have to carry water from wells, generally located 10-15 minutes walking distance. During the rainy season, however, rainwater was not always available and that found in hand-dug wells might be muddy. Also, in 1998 there were reports of cholera infections in distant parts of the Mosquitia, near Puerto Lempira, around June and July, and this may have motivated some households to purify their drinking water. In general, most people thought chlorine made the water have a bad taste and it cost money to purchase it, so they were unlikely to use it continuously. A few



women explained to me that they finished the bottle of chlorine they had and could not afford to purchase another at the time of the interview.

In regard to the taste and smell, I learned that people did not necessarily know how much chlorine to use to purify drinking water. In March 1998 two men from the U.S. came to Wawina to help construct the roof on the new Moravian Church building. After several days, I noticed a woman who brought them water purify it with chlorine. She put a heaping capful into a container of several gallons when she should have measured out a specific number of drops per gallon. This was too much chlorine, and it left a very strong taste and smell. I suddenly understood why the men had been complaining about the taste. They had been unable to consume the water without mixing in a powdered drink. If this woman's use of chlorine was typical, then it was possible that many women did not know how much chlorine to add to the water, which affected their likelihood of using it to purify the drinking water for their households. The few bottles of chlorine I saw in people's homes did have droppers and instructions on the bottle in pictures and in Spanish.

### *Latrines*

Use of latrines is associated with reduced transmission of disease compared to open air elimination. Lack of latrines in Wawina probably affected the health of most children and other community members. Of 105 households, only six (4.5%) reported they owned a latrine that was functioning. Only the wealthiest households or those in positions of power, such as the reverend or pastor of the Moravian Church, had latrines.

Almost all community members in Wawina went into nearby brush to urinate and defecate. Because of its cost, there was limited use of toilet paper by most households.

I heard various justifications for the low number of latrines in Wawina. Those in the most crowded barrios explained that they did not want the smell associated with latrines, and while there was still brush located nearby, latrines were deemed unnecessary. In contrast, those who lived in less crowded barrios argued they did not need latrines because there was plenty of easily accessible brush. One man joked that as long as people continued to build houses at a fast rate and cut down the brush around the new construction, then everyone would soon need latrines because there would be no brush left. Overall, latrines were a relatively new phenomenon in the area.

### *Hand Washing*

Hand washing is also an important component in reducing the transmission of disease, especially oral-fecal transmission. I noticed the lack of hand washing during my first weeks in Wawina. I never collected this data systematically in a survey, but through participant observation and child following activities I learned that regular hand washing with soap was uncommon, even after eliminating or cleaning up after young children. Also, few people used cloth diapers on their infants and toddlers, and none used them regularly on a daily basis. (There were no plastic disposable diapers in this area).

The woman I lived with, Rosa, babysat her grandsons (one to three years old) every day while their parents worked as teachers. By watching the grandchildren on a daily basis and in the child following activities, I repeatedly saw toddlers urinate and defecate in the house and later consume their meals sitting in the same area. Urine was

usually ignored, and feces were picked up with pieces of wood and deposited outside the house. The spot on the floor was then cleaned with water and rubbing the bare foot into the area until it was gone. The child was then cleaned by having him or her lean into the leg of the adult while the adult then poured water down the child's back and rubbed a bare foot into the backside of the child. Any soiled undergarments were removed and washed with soap and water later. The adults never washed their hands or feet or the children's hands with soap and water after these events. Based on my observations, adults and children bathed every day with soap and water, but they were not in the habit of regular hand washing throughout the day. Soap must be purchased and the cost may have impeded some of the poorest households from using it on a regular basis for purposes other than bathing and washing plates and clothes.

In the house where I lived, and in many households, the floors and counters in the kitchen and main living area were scrubbed with a brush, water, and soap every Saturday. This was the main area the grandchildren inhabited when staying at the house and where they were most likely to eliminate. Chickens were also likely to enter the kitchen if left unguarded, and once inside they also defecated. The grandchildren, and many toddlers in the community, generally ate their food off a plate on the floor in the kitchen. At their age, they would not be able to sit in a chair and reach the table even in the households that owned such furniture, and there were no highchairs. In the house where I lived, the grandchildren tended to eat with their hands, drop food on the floor, pick it up again, lean one hand on the kitchen floor while they ate, and then switch hands and continue to eat. Occasionally an adult made an effort to prevent the child from eating food that fell on the floor, especially if they knew I saw it, but they were busy preparing meals, serving food,

or eating and this was difficult and too time consuming. I suspect through oral-fecal transmission, many children became infected with parasites and other illnesses as a result of their living and eating environment and lack of hand washing.

The health clinic did not regularly dispense anti-parasite medicine or other purging treatments for children. Rosa's children, both teachers, purchased and gave their sons anti-parasitic treatments several times during the year. Most households, however, did not regularly purchase anti-parasitic treatments. I noticed that Rosa's grandsons were congested and had productive coughs the entire research year; the parents treated them on several occasions, but the illnesses never completely resolved. During my first few months in Wawina, I held the boys frequently and I noticed that I continued to get upper respiratory infections. Once I stopped holding the boys, I never got sick again.

#### *Vaccination History of Young Children as Reported by Mothers*

While conducting the census, I collected information on the vaccination history of 115 target children in the study. Three to four times a year the health clinic nurse spent several days walking through the different barrios in the community vaccinating children against polio, diphtheria, measles, and tuberculosis; the children also received a vitamin A solution orally. Pregnant women were also vaccinated at this time. At these times, it was common to see groups of women with their children waiting for the vaccinations. Mothers reported that most children had received the entire vaccination regimen. During the census, I asked to see the vaccination cards and documented when possible the dates the child received each treatment. Mothers of 84 target children reported that their children had completed the vaccination regime and they disposed of the vaccination

cards; thus, I was unable to verify their statements with documents. Another 17 children did have the vaccination cards and were still receiving the vaccinations. Five mothers indicated that their children did not receive all of the required vaccinations, and nine more said they lost the cards, and it was unclear whether the child had received all the vaccinations. Overall, it was likely that most children in Wawina (88%) received the required vaccinations. This was not surprising considering UNICEF country statistics reporting that 96-99% of children in Honduras under one year of age are fully immunized (UNICEF 1999).

#### *Epidemiological Reports from the Health Clinic for 1997*

The incidence of many diseases increased during certain months of the year. Sickness may affect growth status of children and the consumption of sufficient foods. I collected data from the health center regarding the incidence of disease to relate it to other health and growth measures. The nurse at the health center gave me access to the weekly epidemiological reports for 1997. The reports tracked the incidence of pneumonia, diarrhea and upper respiratory infection per week presented to the health clinic from January to November.<sup>18</sup>

In 1997, the reports showed that for all three diseases the highest incidence occurred among children less than five years old (see Table 11). There were a total of 36 diagnoses of pneumonia, all among children less than five years of age. Most cases occurred in January, June and October. There were 151 diagnoses of diarrhea and 121 occurred in children less than five years of age. The majority of cases of diarrhea presented from May to July and September to January. There were 269 diagnoses of

upper respiratory infection (URI) that occurred steadily throughout the year. Children under five accounted for 262 cases. There were 48 cases of URI in March, 31 to 33 in June, July, and October, and 38 in January. The nurse reported that although adults contracted upper respiratory infections, they usually did not seek treatment for themselves, only for their young children. This may have been true for pneumonia and diarrhea as well.

The epidemiological reports from the health clinic showed that the incidence of each disease tended to increase in January, June and October. There may be several factors influencing these trends documented in the reports. First, with the health center closed in December, illnesses which developed in that month might not have been treated or reported until January, thus inflating the incidence for January. The rainy season began around June and lasted through November, so the incidence of diseases at this time might have been exacerbated by increased problems with sanitation at this time. Also, the moratoriums on diving for lobster, conch and other sea products began around June and lasted through August. With the moratoriums, many households did not have a cash income, especially some nuclear family households with young children that depended almost exclusively on the seafood diving industry for cash and food. The moratoriums may have restricted access to food and medicine and thus contributed to the higher incidence of diseases at this time. Last, based on observations of the health clinic during the research year, it was clear that on many days and even some weeks, the nurses did not open the clinic when expected. These unscheduled clinic closings would have affected the incidence of diseases presented at the clinic and documented in the reports.

### *Illness and Symptoms among Young Children as Reported by Mothers*

In 1998, I also collected data on the incidence of illnesses among the target children three times during the year when I conducted the last three sets of anthropometric measurements and collected the 24 hour dietary recalls<sup>19</sup> (see Table 12). I specifically probed for cough, fever, nasal mucus, stomachache, diarrhea, congestion, and conjunctivitis. At the time of the second measurement, primarily in June, of 111 children in the sample, 52 were reported to have experienced an illness or symptom during the prior two weeks (47%). Cough (44%) and fever (31%) were the most common reported ailments. Children also suffered from congestion and phlegm (19%), diarrhea (15%) and stomachaches (12%) among other illnesses.

At the time of the third measurement, primarily in late August, of 116 children, 89 were reported to have experienced an illness or symptom during the two weeks prior (77%). This was a 30% increase in reports of illness from June to August. While many children continued to experience a cough (79%) and fever (44%), many more had excessive nasal mucus (79%), stomachache (65%) and diarrhea (65%). As discussed above, there were various factors that might have influenced the incidence and timing of illness, such as the weather, water supply, lack of adequate food, moratoriums in the seafood diving industry, and increased exposure to contagious disease.

### *Reproductive Histories of Women and Feeding Infants and Young Children*

A reproductive history sheds light on important health and demographic characteristics of households. For example, number of children, spacing and prenatal

care might indicate differences in socioeconomic status, education, controlling fertility, access to resources and health status.

I collected survey information on the reproductive histories of women in the first and second samples. The 133 women had a mean age of 30 years (see Table 13). The mean number of pregnancies was 5 with a mean age at first pregnancy of 17 years.

To examine trends found among different groups, from the first sample, I analyzed the number of children less than five years of age living in the household by various household characteristics. There were significant differences in number of children under five years of age by household type (see Table 14). Nuclear family households tended to have more children under five years of age in the household ( $p = .016$ ). In contrast, multigenerational households and single mothers tended to have fewer children less than five years of age in the household. There were no significant differences according to economic activities, including participation in economic development projects.

I also examined the total number of children born to the mother of the target child by household characteristic (see Table 14). The results were similar to the number of children under five years of age living in the household. In nuclear family households, the mothers were significantly likely to have more children compared to other households ( $p = .019$ ). Women in multigenerational households bore significantly fewer total children.

During their last pregnancy, almost all women reported receiving prenatal care from a midwife, the nurse at the health clinic, or the Moravian Hospital in Ahuas. Some women received prenatal care from all three, but the number of visits to each varied. Of



133 women, 103 reported they took vitamins during their last pregnancy. Of 100 women, 40 reported they began taking vitamins during the first trimester of pregnancy, 42 said they began in the second trimester, and 18 started in the third trimester. Although 68 of 133 women reported they changed their diet during their last pregnancy, they all reported the change was due to nausea, and they stopped eating a certain food because it made them sick. When I probed, I was told there were no common lay ideas about foods that should be eaten or avoided during pregnancy and lactation.

One elderly woman said that many women previously feared childbirth because the woman usually died if there was a complication. She did not recall anyone specialized in midwifery when she was young; instead family members helped the woman giving birth. Another older woman said when she was young there were no home remedies to help childbirth and when she gave birth women pushed and rubbed the sides of her uterus and stomach to help expel the child. At the time of the study, there were many women with midwifery skills, as well as nurses and doctors to help in emergencies. Around 1980, and possible at other times, the Moravian Hospital in Ahuas gave classes in midwifery and many women, as well as a few men, received training. During the year I asked many young women who were pregnant if they feared giving birth and they invariably laughed and said “no.” Compared to the past, it was now unusual for a woman to die as a result of childbirth.

Nine women reported they gave birth to premature babies. Seven babies were reportedly born at seven months and one baby was born at eight months. Nineteen women reported they gave birth to low-weight babies.<sup>20</sup> At one point I saw a newborn premature baby who was born at seven months and was very small. The family did not

take him to the hospital, and he was still alive several months later when I finished data collection.

Almost all women breastfed their babies, and most women breastfed for at least one year (46/129). The range was one month to four years, although four years was considered unusual because most women became pregnant again and stopped. Most women reported they started breastfeeding the day of birth and gave the baby colostrum (110/130). Only seven women reported purposefully not giving the newborn colostrum. All women reported they attempted to breastfeed. Powdered milk was expensive and out of reach for most households on a regular basis; as a result, breastfeeding was obligatory. While conducting the research, I met a few women who had not been able to breastfeed and several more who only breastfed for one month. I only knew of one household where the woman could not breastfeed and she fed her children powdered milk exclusively and the infant(s) did not die. The woman and her husband were teachers and had a secure year-round income. Other households reported they could not afford to purchase sufficient powdered milk, and the children were fed various types of gruel or other foods and died.

The mean age women reported they started feeding their children liquids other than breast milk was 2.5 months (standard deviation, 1.5 months). The mean age women reported they started feeding their children solid foods was 7.1 months (standard deviation, 2.8 months).<sup>21</sup>

#### *Previous Reports of Height and Weight of Children in Wawina*

A 1992 study reported that of children measured in five towns on the Patuca River, Wawina had the lowest incidence of malnutrition among children less than five

years of age (Roorda and Salinas 1992). Based on the Waterloo classification, the majority of malnourished children were classified as stunted and were between the ages of two and three.

The raw data suggested that among all five communities, children less than 12 months of age showed the lowest levels of growth problems. There was a large increase in the number of malnourished children between the age groups 0-11 months and 12-23 months. Most women reported they stop breastfeeding at 12 months (1992). Weaning children are growing rapidly and experience growth spurts. They may have trouble consuming sufficient food, especially during growth spurts, or become ill from eating unsanitary foods. Young children older than six months and those no longer breastfeeding are also more susceptible to diseases as the immunity they receive through breast milk diminishes. The raw data suggested that many of the two and three-year-olds were becoming malnourished at the onset of weaning and at a time when they were experiencing rapid growth spurts.

### *Characteristics of the Heads of Household*

In this study I did not regularly ask women to identify the heads of household. I learned about characteristics of the heads of household through participant observation and informal interviews. I decided to examine the characteristics of the heads of household in relation to sex, age, literacy, employment, and knowledge of Spanish. It is important to note that determining the head of household and examining community wide characteristics of heads of household does not mean that the person had total control over

the household or that other important dynamics did not take place in households influencing resources and opportunities.

Generally, I identified the head of household as the person who owned the house, provided substantial support to the household economically, and had considerable power regarding household decisions. It tended to be the eldest person in the house, but not always. It usually was the eldest male, but again there were a few exceptions. In most cases, determining the head of household was straightforward.

There were 105 heads of household in the first and second samples. In 71 cases (68%), the head of household was the husband or partner of the woman participating in the study.<sup>22</sup> In 16 cases (15%), the head of household was her father and in seven cases (7%) it was the woman participating in the study. The head of household was the woman's mother in six cases (6%), her father-in-law in three cases (3%), and her grandfather in two cases (2%). Only 13 women were heads of household (12%) and 92 were male (88%) (see Table 15).

The mean age of the heads of household was 42.11 years (standard deviation, 15.18; median, 39 years; mode, 60 years). The women reported the ages. The youngest household head was 20 years old and the eldest was 90. The mean number of years of formal education was 3.96 (standard deviation, 3.03; median, 4 years; mode, 6 years). Only six of the 13 female heads of household (46%) received any formal education and only one reached sixth grade. In comparison, 72 of the 90 male heads of household (80%) received some formal education and 28 reached sixth grade (31%). Four also reached ninth grade (4%) and another four graduated from 12<sup>th</sup> grade (4%). As would be

expected, those in younger cohorts completed more years of formal education compared to those in older cohorts.

In Wawina, most community members worked in agriculture. Of 103 heads of household, 94 reported that one of their two main jobs was farming and 29 worked as seafood divers. Five heads of household worked steering canoes for men who were divers, seven owned small stores, three were teachers or retired teachers, and three were pastors. Three household heads worked as carpenters and two worked managing the men who migrated to the coast to work in the seafood diving industry. Eleven other types of work were mentioned once each. In 46 cases, there was no second job mentioned (see Table 16). Most female household heads worked in farming (12/13) and their only other jobs mentioned each once, were housework, seamstress, and midwife. In Wawina, working in the high cash generating jobs, such as seafood diver, steering a canoe, or diving manager, was not perceived as something women could do. This was also the case for other jobs mentioned by men, such as carpenter or chainsaw operator.

In 69 cases (66%), women reported the household head was bilingual in Spanish and Miskitu (see Table 17). Thirteen (12%) did not speak Spanish and 23 (22%) were reported to speak “a little” Spanish. Male household heads were more often bilingual than females.

The household head was reported to read in 72 of 104 cases (69%) and to write in 71 (68%). Only three females were reported to read and write, while eight could not, and two could do so “a little.” Not surprising, overall, the younger age groups, 20-39 years of age, were more likely to speak Spanish, read and write compared to other age groups.

### *Wealth Characteristics*

In this section I discuss wealth indicators documented during data collection. I discuss differences found in the community as well as my own and others' perceptions of wealth in Wawina.

#### *Indicators of Wealth: Materials Used to Construct the House and Kitchen*

In order to examine the distribution of wealth and economic status in the community, I collected data on various indicators of wealth during the household census survey with 105 households from the first and second samples. I collected data on several indicators other than landholdings, as have other researchers in the area.<sup>23</sup> The indicators may be considered indirect measures of income. I collected data on the materials used to construct the walls, roof, and floors of the house and kitchen, and whether the kitchen was a structure separate from the house and sleeping quarters. I also collected data on whether the household owned a latrine, a radio, or a gas stove.

I ranked the materials used to construct the house and kitchen according to expense; however, the ranking also coincided with culturally based definitions of quality. I observed this through everyday conversation about houses and wealth. All participants used this as a way to rank socioeconomic status.

A floor made of wood, any variety, was more expensive than a floor made of dirt. A roof made of sheets of zinc (locally these sheets of metal were called zinc, they were actually corrugated metal. I use the term zinc in the rest of the dissertation) was more expensive than a roof made of leaves. Also, walls made of wood planks were more expensive than those made of wood poles (sugarcane poles being the most common).

Last, a separate kitchen structure was more expensive than cooking in a corner of the sleeping quarters. Some homes had a kitchen on the front porch outside of their sleeping quarters, which was also less expensive than constructing a completely separate building for the kitchen.

Sixty-nine households had a separate kitchen structure and 33 did not (see Table 18). Three of the households had their kitchen on the front porch of their house. When reporting the materials used to build the kitchen, I combined the responses for the three front porch kitchens with the 69 separate structures for a total of 72.

Of the 105 households, most houses (102/105) and kitchens (66/72) had wood floors. Only three houses and six kitchens had dirt floors. In terms of the materials used to construct the roof of the house, 58 (55%) used leaves and 47 (48%) used zinc sheets. For the kitchen, only 7 of 72 households used zinc sheets and 65 used leaves. Zinc sheet material was an obvious indicator of wealth and only the most economically secure households had zinc sheets on both their house and kitchen. Of the 105 households, 56 used wood planks to build the walls of their houses, 46 used sugarcane poles, and three used other types of wood poles. Overall, construction of the house was a priority over construction of the kitchen and when economically feasible, better quality, more expensive materials were used.<sup>24</sup>

Along with materials used to construct the house and kitchen, I collected data on whether the household owned a latrine, a radio, or a gas stove used to cook. I considered any of these material possessions an indication of wealth. Of 132 women from the first and second samples, only six (4.5%) reported they owned a latrine that was functioning. Three more had a latrine that was either being constructed or was in a state of disrepair

and could not be used. As I suspected, almost all households that reported they had a latrine were of higher socioeconomic status. Thirty-four women (23%) said that someone in the household owned a radio. Only 13 women (11%) reported they owned a gas stove. Generally, households that owned one or more of these three possessions were of higher socioeconomic status in the community.

#### *Card Sorting Activity: Socio-Economic Status of Households*

With three individuals I conducted a card-sorting activity focused on wealth ranking households in the community. The goal of this activity was to learn about local ideas of wealth and poverty in the community through participants' explanations of why different piles represented different degrees of wealth or poverty. This was a useful way to draw out general themes regarding the distribution of socioeconomic status in the community (for more details on this activity see Chapter Four).

For each of the three barrios in the community, I wrote the names of each household on a 3 x 5 card. Then, for each barrio, participants sorted the 3 x 5 cards into four piles: poorest of the poor (1 point), middle low a little better than poorest of the poor (2 points), middle high (3 points), and rich (4 points). When pilot testing the activity, one participant, Andres, the son of the woman I lived with, did the card sort for only one barrio. Later, two participants (Socorro, my assistant, and Memo,<sup>25</sup> the son-in-law of the woman I lived with) did the activity for all of the barrios. For the entire community, 19 to 20% of the population were described as rich and 21 to 27% were described as the poorest of the poor. The mean scores for the entire community were 2.45 and 2.62, the medians were 3 (middle high) and the modes were also 3 (see Table 19). Socorro and



Memo described each of the four socioeconomic status groups and the different problems these groups face. These descriptions are outlined below.

Socorro explained that those who were rich lived in good houses, which were made with expensive materials and were well maintained. Sometimes they had several houses if they were a large family. People from rich households did not lack food, they had nice clothes, and large agricultural fields (3 to 4 tareas). She explained that they might have worked in the seafood diving industry, and if they were smart and invested their money, they owned some cattle, ran stores, or owned a boat motor, canoe or chainsaw, with which they earned additional income. Also, the rich tended to send their children to junior high and high school in other communities.

Memo's descriptions of the rich corresponded to those of Socorro. He emphasized that the rich employed several different economic strategies and they were able to make them profitable. Importantly, they did not squander their money on alcohol, drugs or prostitutes. Memo explained that few of the rich were educated professionals, but they had good management skills.

Although a person could have some of these qualities, Socorro pointed out that he or she might not be rich. For example, earning a high school degree did not guarantee wealth for the individual or the family. She described one person who received his high school degree in bookkeeping, but he and his wife did not own a house, had no agricultural fields or run a store. He was not considered rich. Socorro also described the situation of her mother. Two of Socorro's siblings were professionals, one was a nurse and the other a teacher, but they did not send her mother money at the end of every

month as many professional adult children did. As a result, her mother was poor because she did not benefit economically from her children's education.

The rich did have some problems. Occasionally, people stole from their houses or agricultural fields. Some had problems with their children who did not want to work or study. However, compared to other households, the rich never lacked for food or other basic necessities.

Socorro and Memo explained that those households described as middle high wealthy were relatively well off. They often had an average house, a good source of income, and they dressed and ate well. However, compared to rich households, they were not involved in diverse economic activities. They might have had easy access to cash and purchasing power, such as from working in the seafood diving industry, but some of these households decided it was too much work to invest in several economic strategies, such as agriculture, livestock, stores, or a boat motor. Also, the middle high wealthy included younger families that were financially secure but just beginning to establish their agricultural fields or diversifying their cash generating activities.

The third socioeconomic group, middle low, was only a little better off than the poorest of the poor. They generally lived in poor quality houses or did not have enough money to build their own houses. Socorro and Memo said members of these households usually worked in manual labor and were not involved in the seafood diving industry nor did they have professional careers, such as teaching. They often worked for the rich and middle high wealthy as day laborers. They worked for others during peak agricultural times of the year and they could only plant small plots for themselves. They were unable

to pay others to work in their fields. Their children were unlikely to pursue a junior high or high school education, partially because of the cost of boarding in another town.

According to Socorro and Memo, the poorest of the poor were generally orphans, widows, and some single mothers.<sup>26</sup> They lived in poor quality houses, often in disrepair. The people in this group did not own any livestock and planted extremely small agricultural fields ( $\frac{1}{2}$  or  $\frac{1}{4}$  *tarea* total). The poorest of them worked in manual labor every day. All the money they earned was used to purchase food; they lacked money to buy clothes or other basic necessities. The people in this group worried about where they would find sufficient food or clothes. Although they wanted to purchase cows or have large agricultural fields, they could not because they did not have the money, credit, or the means to exchange enough labor. Some women in this group were elderly with no adult children or husband, or their families did not help support them in their old age. Memo explained that although seafood divers often earned a high wage, most had their own nuclear family obligations and could not provide for their extended family members.

*Subsistence Strategies: Food Consumption, Agriculture, Livestock, Fishing, Hunting, and Wage Labor*

In this last section, I describe information collected on subsistence strategies from surveys carried out with the first, second and third samples. This information was primarily collected for analysis of household food security in the community.

### *Food Consumption, Agriculture, and Livestock*

With the third sample of women, I collected information on household food consumption, and agricultural and livestock holdings. I only carried out this survey with the third sample because this was considered sensitive information and most community members were uncomfortable discussing these issues with me. While there were only 41 respondents in this sample, the descriptive information reflected the larger community and the variation found within.

At the time of the study, there was no electricity in Wawina. There was no refrigeration and women explained that they planned their meals either the same day or at most one day in advance. Season and availability of cash determined the diet, which was generally based on a limited number of foods. Most households cooked using clay ovens with metal sheets on top. A few households owned gas stoves, but these were not used regularly.

Among 40 households, most women (37/40) said their spouses and children ate the majority of their meals at home. Only three women said their family ate most of their meals at another house, and in all cases it was at the women's mothers' house. While most staple foods were cooked and consumed in one meal or over one day by the household, for example with rice, bananas or yuca, beans usually lasted several meals and over several days (see Table 20). Although the same amount of beans and rice might be cooked, more rice was eaten at each meal. When there was sufficient supply, it was common to have two carbohydrates served at every meal, such as rice and bananas or bananas and yuca.

Ripe or unripe cooked bananas were served at most meals and were the basis of the diet. Women explained that in times of food or cash scarcity, they could always find bananas to eat. They were available year round in their fields and plentiful. Very few people reported they sold their bananas varieties and people easily give them away. Other staple crops might only be available seasonally depending on how much was planted, sold, and saved. Some households sold most of their crop. As a result, they only ate large quantities of rice or beans at every meal for a few weeks around the harvest. The rest of the year they purchased rice and beans intermittently and in small quantities. For example, of 35 women who reported their household grew rice the previous year, only 12 (34%) said they did not run out of rice before the next harvest. Of 39 households that grew beans, only 15 (38%) did not run out before the next harvest.

Most women reported their household grew rice (79%) and beans (87%) (see Table 21). Thirty-eight households grew at least one variety of banana (95%) and 22 grew all four varieties mentioned (55%). The most common banana varieties reported were *pilipita* and *ikik*. They only needed to be replanted once every six or seven years in comparison to other varieties which must be replanted more often. Fewer households grew yuca (42%), maize (23%), or cacao (20%).

Many households owned citrus trees, such as orange and grapefruit, and other fruit bearing trees, such as cashew and water apples, but the fruits were only available on a seasonal basis (see Tables 22 and 23). Green vegetables were rarely grown or consumed. Of 40 households, only 13 grew cilantro, 11 grew sweet peppers, four grew sweet potato, and three grew squash. The cilantro and pepper were used sparingly in

cooking, for example, a small pepper might be sliced and pieces added to a pot of cooking rice or beans.

Among the third sample, 25 owned *pejiballe* trees, 20 had coconut trees, 17 owned cashew trees from which both the nut and fruit were eaten, and eight had palm trees. *Pejiballe* trees are found in Central America and they produce a dense round orange-yellow fruit the size of an adult thumb. People ate coconuts off the tree but women also cooked with coconut milk, made by grating the mature hard coconut meat and mixing it with water. Women described this as a type of flavoring and cooking fat, but it was labor intensive and many used it only with specific dishes. Palm fruits were traditionally used to make cooking fat but it was more labor and time intensive than making coconut milk, as a result, cooking fat from palm was produced much less frequently. Most people regularly purchased packaged cooking fat in soft tubes from stores. Storeowners would cut the packages to sell a portion when a buyer could not afford to purchase the entire pound.

I asked women to explain how they decided to sell or consume their livestock. While some households did not own any livestock, many owned at least a few chickens. The women explained that the number and type of livestock owned varied by year depending on consumption and the need to sell them for cash. As a result, in the survey some women responded to questions on their previous behavior and rationale, although they currently did not own the livestock. Cows and horses, and to a lesser extent pigs, were considered a large investment. In general, all livestock except pigs roamed freely. Cows and horses were branded and some people tied pieces of cloth to chickens to mark their ownership.

Household consumption and selling of livestock was associated with socioeconomic status. Those with fewer resources tended to own fewer livestock, purchase livestock and its produce less often, and sell it more frequently. There was one exception to this tendency, some younger households with steady cash income explained that it was too much work to care for livestock. As a result, they did not own them but purchased these products from others. Poor households generally did not have the cash to purchase livestock or their products from others. If they did not acquire young livestock, chicks for example, then they did not regularly consume them. The poorest households reported they received gifts of livestock or crops from others in the community occasionally.

Of 32 women who reported they owned chickens, 27 said they planned to consume them and five did not. Of the same women, six said they would sell their chickens and 26 would not. Eight women (25%) reported they sold a chicken or duck in the past when they needed cash. Most women said they ate the eggs (30/32) and 11 said they sold chicken eggs for cash, either occasionally or frequently. Of 13 women, six said they regularly purchased chicken eggs to consume. One woman explained that she could sell the eggs produced every day, about six, for 1 Lempira each (approximately .09\$ each at the time of the research). While this was very little money, over days and weeks it added up and required almost no labor. Furthermore, 6 Lempiras could purchase a portion of cooking fat, or a pound of rice or beans depending on the season. Eggs were plentiful and I regularly received chicken eggs as gifts throughout the year. Generally, the wealthiest households never sold chickens or eggs and frequently purchased them,

while the poorest households ate chickens and eggs much less often and many times were forced to sell them for cash.

Of 40 women, 15 (38%) said their household generally consumed one chicken or duck a month. Three women said their household consumed one a week and another three said they consumed two to three a week. In contrast, 12 women (30%) reported their household consumed a chicken or duck once every two-to-six months. The number of chickens consumed and how frequently also depended on the household stock, when the stocks were high, women were more likely to consume chicken.

Women explained that they would usually decide to eat a chicken or duck when they had gone too long without eating meat. For some households, that meant several days and for others it meant a month or more. Socioeconomic status influenced the perception of lack of meat and whether households consumed meat or chicken more often. There was a perceived lack of meat when no one had slaughtered a cow or pig recently, or no hunted meat was available, but this also varied by the season. For example, during the seafood diving moratoriums, more livestock were slaughtered in order to sell the meat and raise cash, thus in times of cash scarcity there was generally more meat available. Chicken egg was a readily available product and many considered eggs a good substitute for meat.

In regard to livestock other than chickens or ducks, fewer people owned pigs, cows and horses. They were slaughtered and sold much less frequently, women reported about once a year on average (see Table 24). Of the 15 households that owned cows, nine reported they would consume the cows, and only four reported they planned to sell cows. Among 11 households that owned cows, nine reported they consumed the milk.



Of the same 11 households, two reported they sold the milk (see Table 25). Most women said they only sold cow meat or horses in order to raise money in an emergency, or to pay for a large expense, such as building a house, paying agricultural workers, or for a wedding. It was less common to slaughter a pig or cow simply to consume the meat because they were too expensive.

Agriculture and livestock ownership and consumption behaviors provide contextual information regarding household food security resources. They highlight socioeconomic and household food security differences in the community that were manifested in other variables in this study, such as child growth status and responses to the food security questionnaire.

#### *Fishing, Hunting, and Wage Labor*

Fishing, hunting, and wage labor also provide information about access to food and cash resources. I collected information on fishing and hunting activities of household members from the first and second samples. This included who fished or hunted for the household, how often, and whether it was primarily a seasonal or year round activity.

One person was reported to fish in 87 households, with 51 fishing on a year round basis. Generally, those who fished or hunted seasonally were involved in the seafood diving industry on the coast. Usually the husband (50/87) was reported to fish or the son (18/87). Other household members included the woman's father, brother, son-in-law, grandson, nephew, other relative, adult female relative and the participant herself. In 18 households two to three people were reported to fish. Among the 87 households where one person fished, 48 reported the person fished one to two times a week, seven reported

the person fished three to six times a week (See Table 26). This suggests fishing was a significant food source for some households. Fish were small in size in rivers close to Wawina. On average they were two and a half inches long by one and a half inches deep. Much larger fish were available in distant lakes and ponds that were several hours away on foot. Generally, people only fished at those lakes on Saturdays.

In contrast to fishing, only males were reported to hunt and it was less common. In 24 households one person was reported to hunt, and in five households two to three people hunted. Women said that usually their husband hunted, but also the son, brother and nephew were mentioned. Twelve of the 24 households only hunted seasonally. Also, men sometimes took rifles with them when they worked in agricultural fields and were able to shoot game. Men regularly hunted small animals, such as birds or squirrels, as well as boars, deer and other larger animals.

Farming was the most common type of work reported among all household members in the first and second samples (295/761 people). Mostly adults over 12 years of age farmed, but so did some children. The second most common type of work was domestic housework (44/761). Only women were reported to perform housework, which included cooking, washing clothes, cleaning, collecting firewood, and carrying water for example. The third and fourth most common jobs involved working in the seafood diving industry as a diver (37/761) or as a man who steers a canoe (22/761). Also, 12 people reported they owned stores, six worked as teachers, five were chainsaw operators, and three were carpenters. There were 17 other types of work mentioned (see Table 27).

In summary, households engaged in various subsistence and wage earning activities in order to meet their basic needs. Most households reported they planted

subsistence crops, fruit trees, and fished on a regular basis. Many households owned livestock, and chickens and eggs were regularly consumed or sold depending on need. Larger animals were considered an investment and were slaughtered and sold less often. Farming was the most common work reported and women and children were a significant part of this labor force. Most paid and unpaid labor was segregated by gender, the only overlap was among teachers and those running stores. This detailed information helps clarify differences in socioeconomic status and household food security in the community.

## **CHAPTER SIX: HOUSEHOLD FOOD SECURITY AND PARTICIPATION IN ECONOMIC DEVELOPMENT PROJECTS**

To explore food security in the community, I analyzed characteristics of households and individuals with anthropometric and dietary information collected four times during the year, responses to survey questions, formal interviews, and other ethnographic data. I expected that multigenerational households and single mothers of target children would experience more food insecurity and be poorer than others. In contrast, I expected nuclear family households and households in which a member grew cacao or worked in seafood diving would have more food security and be wealthier. (Household composition and key economic activities are further discussed below). I used statistical analyses to examine whether various measures of food security had significant relationships to household composition and economic activities.

As stated in an earlier chapter, household food security is defined as the ability of people to consume sufficient food, in terms of quality and quantity, throughout the year for an active, healthy life (Haddad et al. 1994). Foods must be nutritionally adequate and safe, and people must be able to access sufficient foods in socially acceptable ways (Anderson 1990). Food insecurity exists when any of these requirements are not met.

This chapter is divided into two main sections. The first section describes food security issues in Wawina. I specifically explore which groups experience the most food insecurity in the community. In the second section, I discuss findings regarding what groups in the community participated in economic development projects. I describe characteristics of households that participated in projects, including wealth indicators, responses to the food security questionnaire, anthropometric measurements of women and children, and household indicators.

## **HOUSEHOLD FOOD SECURITY**

As one measure of food security, I conducted frequency analyses of responses to the food security questionnaire (see Appendix B.8). The questionnaire included four questions about the mother's food security and two questions about the child's. The questions focused on quality and quantity of the diet, including diet inadequacy, intake insufficiency, and disrupted eating patterns. The mothers answered the questions by choosing one of the following three responses: "no it's not true/never"; "sometimes it's true"; or "many times it's true." An example of an adult level question asks the mother to respond to: "I eat less than I should because there is not enough food."

My analyses show that among 124 women, 70% responded that they experienced at least some food insecurity (see Table 28). In contrast, few mothers (4%) indicated that their children did not receive enough to eat either in quantity or quality.

I asked women whether their diet was good. I meant to elicit information about quality and variety of foods, but women interpreted the question differently. They understood the question as asking whether they enjoyed the taste of and desired the foods that they ate (which are also important aspects of the diet). Most women in the sample indicated that the quality of their diet was adequate, and only 14/124 women (11%) said their diet was not very good at least some of the time (see Table 29).

Many women reported that sometimes they did not have enough food to eat. On the questionnaire, 74 of 124 women (60%) indicated that they were hungry at least sometimes. Of the 124 women (55%) reported they ate less than they should at least sometimes, and 36 (29%) said they had missed at least one meal in the previous month. These findings indicate a serious lack of food. In response to questions about their

children, only 3% said they were unable to provide them with sufficient food (see Table 29, Part II, two questions).

In summary, of the 124 women, 70% reported they periodically did not have enough food to eat. I collected responses to the food security questionnaire in June and July. Because that is the hunger season, some responses, specifically those reporting having missed a meal during the last month, may have reflected the time of year. Mothers' responses to questions about their children's food intake suggest that many mothers buffered their children from household food insufficiency in times of scarcity.

### *Food Security Measures: Differences among Groups in the Community*

In this section, I present statistical analyses relating food security measures to household characteristics. I hypothesized that household composition would be an important indicator of food security because it tends to be associated with certain economic activities, socioeconomic status, and age of members. I hypothesized that nuclear family households and those that participated in the seafood diving industry or cacao farming would be more food secure. In contrast, I hypothesized that multigenerational households and single mothers of target children would have increased risk of food insecurity. (Hypotheses are listed in Appendix C.)

### *Household Composition*

I divided the households in Wawina into three basic types (see Table 30). Multigenerational households (45%) were defined as those with at least one person each from the grandparent generation, the parent generation, and the child generation. Most

single mothers lived in multigenerational households. Nuclear family households (52%) were defined as those that included only an adult man and woman living as a couple and their children. Single mother households (3%) were defined as including a single woman and her children only.

I hypothesized that single mothers would be more likely to experience food insecurity regardless of whether they lived in their own households with their children or in multigenerational households. For the purpose of this analysis, both groups of women were combined into the category called “single mothers of target children<sup>27</sup>” (N=33). Most single mothers of target children (89%) lived in multigenerational households.

I also hypothesized that two key economic activities would be important indicators of food security (see Table 3). The first activity is working in the seafood diving industry (N=49). Adolescent and young men worked in this industry and were paid well by local standards. Table 3 shows that 60% of nuclear family households had a member working in this industry, whereas only 23% of multigenerational households did. No members of single mother households worked in this industry.

The second key economic activity is cacao farming (N=26). Growing cacao requires long-term investments of cash, labor, and time. Fewer households grew cacao than worked in the seafood diving industry. In this study, a total of 16 nuclear family households (26%) grew cacao and 15% of nuclear family households engaged in both key economic activities. In comparison, 10 multigenerational households (19%) grew cacao, but only 2% participated in both key economic activities. No single mother households grew cacao.

### *Household Indicators*

I hypothesized that household composition, key economic activities, and the category “single mother of a target child” were important indicators of food security. It is important to keep in mind, however, that the five indicators are not mutually exclusive. For example, many seafood diver households were also nuclear family households, but not all nuclear family households participated in the seafood diving industry. Also, most single mothers lived in multigenerational households, but not all multigenerational households included single mothers.

I created five dichotomous variables (i.e., yes/no) to test the relationships among these household indicators and measures of food security. I also analyzed the relationships of these indicators to wealth indicators, responses to the food security questionnaire, and anthropometric measurements of women and children (hypotheses are listed in Appendix C). I expected similar findings for single mothers of target children and multigenerational households, as well as similar findings for nuclear family households, seafood diver households, and cacao farmer households.

I hypothesized that those who lived in multigenerational households would be more likely to report food insecurity because they tended not to engage in the two key economic activities. In particular, I anticipated that male heads of multigenerational households would be less likely to participate in the diving industry because they were older men. I expected multigenerational households would have a higher dependency ratio with more young and elderly dependents who did not contribute substantially to the maintenance of the household. Also, I expected that multigenerational households would have few unmarried adolescent and adult sons who contributed to the maintenance of the



household. Married adolescent or adult males would be expected to live in their own nuclear family households and, because of their nuclear family obligations, would be less able to contribute economically to their natal households. For these reasons, I expected multigenerational households to be at more risk.

I also hypothesized that single mothers of target children would be more likely to report food insecurity. Women had extremely limited employment opportunities outside the home, and high paying jobs were available only to men. Most single mothers lived with one or both of their parents because the fathers of their children gave them no support (nor were they under community pressure to do so). Therefore, most single mothers were unable to support themselves and their children outside of a multigenerational household. For these reasons, I hypothesized they would be at higher risk for food insecurity regardless of whether they lived in their own households or in multigenerational households.

In contrast, I anticipated reduced risk of food insecurity for nuclear family households. In general, they appeared more financially secure than were other households in the community. Many nuclear family households had members who participated in the seafood diving industry and cacao farming. Also, more were involved in emerging economic activities that required cash investments and generated high incomes, such as lumbering with chain saws or renting boat motors. Because these activities were new and involved substantial cash investments, few households in the community pursued them.

The seafood diving industry is the most common high income earning work opportunity in the area. I hypothesized that households with men working in this

industry would be less likely to report food insecurity than would other households. For 10 months of the year, men in this industry earned incomes that were substantial by local standards. As a result, they had more access to purchased foods to complement the household's subsistence agriculture. The risk of food insecurity for these households is probably highest during the two months of annual moratoriums in the seafood diving industry, but overall these households would have reduced risk compared to others.

I also anticipated that cacao farmer households would be less likely to report they experienced food insecurity. Cacao farming required long-term investments in cash, labor, and time, and it was relatively risky. I expected that only households that were well off economically and food secure would be able to make this investment.

### *Household and Wealth Indicators*

To test the relationships among household indicators and indicators for wealth, I conducted statistical analyses with Mann-Whitney U and Kruskal-Wallis tests (see Appendix C, 1a-1e). To examine wealth, I collected data regarding the materials used to construct the house and kitchen, as well as whether the household owned a latrine, radio, or gas burning stove. (See subsection "Indicators of Wealth: Materials Used to Construct the House and Kitchen" in Chapter 5 for more details. See also Appendix B.10.)

Table 31 shows Kruskal-Wallis and Mann-Whitney analyses of relationships between household and wealth indicators. Cacao farmer households had significantly higher rankings on three indicators of wealth. They were more likely to have separate kitchen structures and to use wood planks for the walls of their kitchens and zinc to roof their houses. Seafood diver households were also more likely to have zinc roofs.

These findings support the impression that households participating in the key economic activities were better off than other households. There were no significant relationships of household composition or single mothers of target children to rankings in wealth.

### *Household Indicators and the Food Security Questionnaire*

To analyze the relationships of household indicators to food security, I conducted statistical analyses with Mann-Whitney U tests (see Appendix C, 2a-2e). To examine food security, I used data collected with the food security questionnaire (see Appendix B.8). As noted above, question one was not useful as interviewees understood it differently from my intention. In this section, I analyze questions two and three.

#### *Food Security Questionnaire, Adult Level,*

#2 *“Sometimes I’m hungry but do not eat more because there is not enough food”*

#3 *“I eat less than I should because there is not enough food”*

I used responses to these questions to examine the mothers’ food security in relationship to the quantity of food in the diet. Table 32 shows the results of Mann-Whitney analyses of responses to this question in relation to household indicators. For question two, single mothers of target children were significantly more likely to report they were hungry at least sometimes ( $p = .005$ ). In contrast, women in nuclear family households were significantly less likely to report this problem.

For question three, women in multigenerational households were significantly more likely to report food insecurity ( $p = .007$ ). More single mothers of target children

also reported food insecurity. Fewer mothers in nuclear family households reported this problem.

Responses to questions two and three had no significant relationships with the key economic activities. In summary, among different groups in the community, higher percentages of single mothers of target children and women in multigenerational households experienced food insecurity. In contrast, nuclear family households reported significantly lower percentages of food insecurity.

### *Household Indicators by Height and Weight Values*

I used measures of growth and nutritional status to evaluate food security, and I collected data on these measures for children and their mothers four times during the year. Height and weight measurements were collected in: 1) February and early March; 2) May and June; 3) late August and early September; and 4) late October (see Tables 4 & 5). Hurricane Mitch interrupted the fourth round of measurements, and only 18 children and 13 mothers participated in the last round. I hypothesized that household indicators would be related to height and weight values (see Appendix C, 3a-3J). To test these relationships, I conducted Student's *t* test for independent samples.

In the first round of measurements, children in multigenerational households had significantly lower *Z* scores for height compared to other children ( $p = .024$ ). The other household indicators in round one and all household indicators in the other rounds had no significant relationships to children's height and weight.

There were several significant findings in analyses of household indicators and BMI values of non-pregnant mothers (see Table 33). In the first and third rounds, single

mothers' BMI values were significantly lower than those of other women. Mean BMI values for women who lived in nuclear family households were significantly higher than those of other women in the fourth round ( $p = .037$ ). Mean BMI values for women in multigenerational households were significantly lower at the fourth round of measurements.

In summary, anthropometric values for children and mothers were significantly lower in multigenerational households and for single mothers of target children. They were higher in nuclear family households.

#### *Food Security Questionnaire and Anthropometric Measures of Children and Mothers*

To examine the relationships among anthropometric measurements of women and children and women's responses to the food security questionnaire, I carried out one-way analysis of variance (Anova) tests. I expected that women with food insecurity would have children with lower mean Z scores for height or weight compared to other children (see Appendix C. 4a-4d). Several significant findings show this tends to be the case (see Table 34). Similarly, I hypothesized that women who reported food insecurity would also have lower BMI values than did other women. There were no significant findings to support this hypothesis.

The significant findings regarding differences in Z scores for weight of children occurred during the second and third round of measurements. This timing coincided with the hungry and rainy seasons. The findings suggest that many community members lacked sufficient food during certain times of the year, and child growth was most affected during times of peak scarcity among those reporting food insecurity.

## **PARTICIPATION IN ECONOMIC DEVELOPMENT PROJECTS**

I collected data on whether anyone in each household had participated in economic development programs by receiving some type of assistance, such as technical assistance, training, advice, inputs or seeds. Based on my experience, I expected that food insecure households would have low participation rates in programs meant to improve food security. To test these hypotheses, I conducted statistical analyses of participation in development projects in relation to household and wealth indicators, responses to the food security survey, and anthropometric measurements of children and women.

Economic development organizations in Wawina were primarily engaged in promoting cacao as a cash crop. Consequently, I hypothesized that households who grew cacao would participate at higher rates in economic development projects (see Appendix C, 5a-5e). Nuclear family households reported growing cacao at higher rates than other household types. As a result, I hypothesized they would also participate in projects at higher rates.

In contrast, I expected that multigenerational households, single mothers of target children, and seafood divers' households would be less likely to report they had participated. I expected that multigenerational households and single mothers of target children would not have the cash, labor, time, or margin of security to risk participating in projects promoting cacao. I also hypothesized that seafood divers' households would be focused on earning income in that industry. Consequently, I expected they would be less interested in making the long-term cash and labor investment in cacao.

*Household Indicators: Household Composition, Single Mothers of Target Children, and  
Economic Activities*

Table 35 shows the significant results of Mann-Whitney U analyses between participation in economic development projects and household indicators. Households that grew cacao had a statistically higher rate of participation in MOPAWI and INFOP projects (MOPAWI,  $p = .001$ ; INFOP,  $p = .000$ ). Nuclear family households also participated at statistically higher rates in INFOP projects ( $p = .019$ ). In contrast, multigenerational households and single mothers of target children participated at significantly lower rates. There were no significant findings among seafood divers' households.

*Participation in Economic Development Projects and Wealth Indicators*

To learn whether participation in development programs was related to economic status, I conducted statistical analyses with Mann Whitney U and Kruskal-Wallis tests (see Appendix C, 6a-6b). Community members who reported participating in MOPAWI projects had significantly higher wealth rankings (see Table 36).

*Participation in Economic Development Projects and the Food Security Questionnaire*

I examined the relationship among participation in economic development projects and responses to the food security questionnaire (see Appendix C, 7a-7b; also, see Appendix B.8). There was one significant finding related to participation in INFOP projects (see Table 37). Women living in households that participated in INFOP projects were significantly less likely to say they ate less than they should ( $p = .009$ ). No other

findings were significant in analyses of food security questions and participation in development projects.

### *Participation in Economic Development Projects and Height and Weight Values*

I examined the relationships between participation in economic development projects and anthropometric values. I hypothesized that women and children in households that participated in MOPAWI and INFOP projects would have higher heights and weights (see Appendix C, 8a-8d). I tested these hypotheses with Student's t test for independent samples. Analyses of mean BMI values for non-pregnant women at each round were not significantly related to participation.

There were two significant findings regarding height and weight of children at the third round of measurements (see Table 38). Children in households that participated in MOPAWI projects were significantly taller ( $p = .015$ ) and those from households that participated in INFOP projects were heavier ( $p = .023$ ). There were no other significant findings for children. These measurements were taken in late August, a peak time of food scarcity.

### **The Intersection of Economic Development Projects and Household Food Security**

In Wawina, there was high risk of food insecurity and most women (70%) reported they or their children experienced it. At the household level, almost all households were at some risk of food insecurity because of the seasonal nature of income and of food availability and the occasional lack of variety of foods in the diet. A goal of economic development projects was to improve food security. Despite the high



incidence of food insecurity in Wawina, few households reported they had participated in projects.

Wealthier households with low food insecurity participated at higher rates in economic development projects. Children in these households had significantly greater heights and weights at the third round of measurements, which corresponds to the hungry and rainy seasons. Those who participated in INFOP projects reported significantly less food insecurity.

Some may question whether participating in economic development projects made these households wealthy and food secure. I argue that these households were among the wealthier households in the community before they participated and that their relative affluence helps explain why they were able to participate. Development organizations began promoting cacao in the early 1990s, and most plantations were young or not at full maturity at the time of the study. While participating in projects may have offered these households additional economic and food security as an additional income earning strategy, most of these households participated in multiple income generating activities before their involvement in development projects. Thus, they were at reduced risk of food insecurity before the projects began.

It is not surprising that wealthier households participated at higher rates in economic development projects. As previously discussed, the main projects in Wawina focused on cacao as a cash crop. Growing cacao required an investment of cash, labor, time and risk that most households were not able to make. Consequently, those with more food insecurity participated at lower rates.

In Wawina, economic development projects did not appear to improve food security for most households at risk. While children in households that participated in projects were significantly taller and heavier at the third round of measurements, as noted above, these households were likely to have experienced greater food security independent of their participation in development projects. Children in households that were food insecure had significantly lower heights and weights at the second and third rounds. This suggests that among the food insecure, children's growth was compromised during times of peak food scarcity and the increased illness associated with the rainy season.

Access to different opportunities influenced risk of food security for individuals and households. In Wawina, the breakdown of who participated in development projects reflected participation in other activities as well. As stated in previous chapters, income-earning activities were stratified by gender, age, and class. The majority of adults and some children worked at least minimally in subsistence agriculture. There were few opportunities for women to earn a living wage and most high-income jobs were only available to men. Lack of cash and the labor and expense of growing or purchasing food products severely limited women's ability to be independent and food secure.

With household indicators, I identified differences related to food security and participation in economic development projects among groups in the community. My analysis shows that nuclear family households were significantly more food secure and more likely to participate in economic development projects compared to other groups. They also participated at higher rates in the seafood diving industry and growing cacao. In contrast, multigenerational households and single mothers of target children reported

significantly less food security and were less likely to participate in projects. Members of these households worked less in the seafood diving industry and were less likely to grow cacao.

Other demographic characteristics discussed in Chapter Five contribute to understanding the distribution of economic status and food security in the community. For example, mothers in nuclear family households gave birth to a significantly higher number of children and had more children under five years of age in the household. Despite having significantly fewer children, women in multigenerational households and single mothers of target children reported higher food insecurity. Overall, this supports the finding that nuclear family households had better paying economic strategies and access to more resources than other households.

Access to high-income strategies and diverse economic activities diminished the risk of food security among households in Wawina. The most common high-income work was in the seafood diving industry, engaged in primarily by men less than 40 years old. Other high income earning activities, such as running chainsaws for lumbering, operating small stores in homes, or renting boat motors, required cash investments, and older men who were financially secure usually invested in these businesses. The wealthiest households participated in several high-income strategies.

As expected, households that engaged in the two key economic activities had significantly higher wealth rankings than other households. Cacao farmer households were also significantly more likely to participate in development projects. Seafood diver households did not participate at high rates. The high income and time commitment

associated with this industry left many young men uninterested in the long-term investment required to grow cacao.

Food security and wealth were distributed unevenly in the community. There were multiple ways to earn a living in Wawina, and most households engaged in various activities. For households that participated in economic development projects, growing cacao was one of multiple economic activities. Those households with more resources were likely to participate in cacao projects as a long-term investment strategy, and thus, benefit in the long term from increased household food security.

## **CHAPTER SEVEN: PARTICIPATION IN ECONOMIC DEVELOPMENT PROJECTS, PERSPECTIVES FROM COMMUNITY MEMBERS AND DEVELOPMENT STAFF**

In this chapter, I discuss qualitative findings about perceptions of and experiences with development projects among community members, staff of projects in Wawina, and local public officials. This is the second prong of the two-pronged approach to this study (see Table 1). In Chapter Six, I discussed statistical findings related to household food security in Wawina. A goal of development projects in the community was to improve food security. My findings show that poorer households at greater risk of food insecurity participated at low rates in development projects. In this chapter, I explore some of the factors influencing who participated in and benefited from projects in Wawina. I describe the context of development projects in the community and the everyday experiences with development from various points of view.

Discourse about development was commonplace in Honduras. Ordinary people, the media, and political leaders referred to the developing of Honduras and Central America on a daily basis. National and international development efforts had affected every corner of Honduras, and local people, in turn, shaped development processes locally, nationally, and internationally. Daily public communication about development led me to expect that most people in the Mosquitia would have heard about this concept, despite difficulties with communication, including limited access to telephones, television, and newspapers.

As further discussed below, participants expressed differing opinions about economic development and participation in projects. Some also critiqued the direction of economic and social change in Wawina and the Mosquitia. Participation in development

projects was selective in Wawina; for various reasons, some community members were not interested in the projects offered. Others did not think the projects were targeted at them. Not all community members thought economic development initiatives were needed. Economic development organizations promoted participatory community development, but few households actually participated in their projects, and practically none of those with pronounced food insecurity participated.

In the first section of this chapter, I discuss views of local development staff and public officials and their experiences with promoting community participation in development projects. The second section of this chapter focuses on community members' experiences with development and factors influencing local interactions with development projects. Finally, I analyze the contested nature of development initiatives and consider how differing perspectives of community members and development staff influence participation in development projects and shape household food security in Wawina.

## **VIEWS ABOUT DEVELOPMENT AND UNDERDEVELOPMENT**

In general, local development staff and public officials perceived the Mosquitia as ignored by the government, marginalized, and consequently less developed than the interior of Honduras with respect to infrastructure, commerce, other economic activities, and support of social services.

Various international and national organizations have been established to promote and economically support their vision of the development of the Mosquitia, with the implication that such development will benefit local indigenous populations and represent

indigenous interests. Typical organization missions focus on conservation of biodiversity in the region, developing local human resources, and supplying technical and financial resources to enhance the long-term management and sustainability of ecosystems and local populations. Such organizations describe the region as vulnerable because of social, political, and economic factors that continually threaten to destroy the rich resources and irreversibly damage the environment.

As a result of NGO and GO efforts, in December 1996 several areas of the Mosquitia were added to the catalogue of protected public lands. These included the River Platano Biosphere, the Patuca River, and the Tawahka Reserve. In October 1997, the River Platano Biosphere was extended to the west, and the new border was the Patuca River. This was expected to have long-term tangible and intangible protective effects for the communities on the Patuca River, including Wawina.

I asked local NGO and GO employees to describe the development of the Mosquitia and Wawina and what needed to be done in order to "develop." Staff explained the need to develop human resources in the region, promote formal education of youth, and strengthen local organizations. They also emphasized that residents needed training in the management of cash crops, crop diversification, and other technical assistance. They stated that it was essential to promote ecologically sustainable development because popular cash generating activities could not be sustained in the long-term. For example, the seafood diving industry was said to be over-harvesting marine products and was, therefore, not considered sustainable. Other traditional cash generating activities, such as making cayuco canoes, were becoming less common. In general, the rhetoric of the NGO and GO staff focused on environmental sustainability

and participation of indigenous communities as a way for locals to “own” the development process.

One Miskitu INFOP worker, Pred, described his vision that, as human resources increased through formal education, economic development in the region would ultimately result. Pred asserted that the Mosquitia must diversify crops to become self-reliant and not depend upon foods brought from the interior. He argued that increased education and food self-sufficiency would allow local agriculturists to expand their plantations. Such growth would result in economic prosperity. Pred argued that development comes from the work and vision of educated individuals native to the Mosquitia. As human resources developed, other types of development would follow.

Pred also explained that an important element of becoming educated included understanding the relationships among NGOs, GOs, and international donors. He argued that community members must learn to make requests from the government and politicians and demand accountability from all governmental and non-governmental institutions. He explained it was crucial for the Honduran government to invest in educating the Miskitu peoples to empower them. It was his conviction, however, that the government did not provide enough education resources.

When I spoke with MOPAWI staff regarding their economic development projects in the lower Patuca River region, they described a five-year plan for the region. This plan included a focus on agroforestry, such as growing cacao and mahogany and fruit trees, improved food security through technical education, and crop diversification. The plan also emphasized strengthening community organizations and promoting the spiritual development and ecological training of community members. Although the



official plan included these goals, most of the energy was invested in the promotion of cash crops.

MOPAWI workers imparted a wide range of understanding and opinions regarding how development should proceed in the Mosquitia. While some employees only spoke of the five-year plan, others with more experience offered thoughtful critical insights. An employee of several years, Jorge, explained,

Development should be based in the ideas and thoughts of people of the towns. They are the ones who should think about and shape the development appropriate for their towns. You have to see deep into the community to understand. Development here is not high-rises or cities like Tegucigalpa, but being able to use the land to make a decent living.

Jorge argued that natives of the Mosquitia were taught to view their lives as poor and lacking and that many people, especially those from the interior or abroad, did not understand how natives view life and poverty in the Mosquitia. Jorge gave an example of a scholarship sponsored by the U.S. government that described the Mosquitia as one of the poorest areas in the world. He criticized the perception that the Mosquitia was poor and argued that it was rich in natural resources. For example, soils in the Mosquitia supported abundant harvests with little to no inputs from agriculturists.

In contrast to local level NGO and GO workers in the area, a Ladino public official, Homer, articulated one of the narrowest perspectives on development in the Mosquitia. He asserted that he did not have a personal vision of development. He said that the Honduran government and international donors have plans for infrastructure development. In his view, the focus was on improving infrastructure for health, education, and transportation.

Homer also stated a conviction that in the long term, the Mosquitia would be important to the development of Honduras due to its ecological resources. Like many development staff, Homer opposed the construction of a road to the interior. It was feared that such a road would invite Ladino colonization of the Mosquitia. Homer was also against government-supported plans to construct a hydroelectric dam on the Patuca River, because he thought it would cause negative social, economic, agricultural and ecological changes in the region.

At the time of the study, the Mosquitia was receiving increased Fondo Hondureño de Inversión Social (FHIS) funds from the Honduran government. The Ahuas municipality expected to receive funding for at least one project per community over two phases of development. The general objectives of FHIS were to diminish the incidence of poverty through improvements in basic services, such as health, education, and infrastructure, and the production of employment and income through economic activities.

Homer explained that FHIS recently began to require communities to prioritize needs, which would be addressed in future projects. At the time of the interview, the Ahuas municipality had not yet collected information on community priorities. In September 1998, government employees from Ahuas and the interior, along with teachers in Wawina, helped organize meetings in the community. Within parameters defined by those who organized the meeting, community members who attended the meeting prioritized the community's needs. The two zones in Wawina were expected to receive one project each. Barrio Peal was approved 259,000 Lps. (about \$23,000) to construct a new school building in 1999.

GO programs, such as INFOP, generally received fewer resources and employed fewer staff than MOPAWI projects in the region. Although all programs were occasionally affected by lack of transportation or other resources, Pred, an INFOP employee, described GO projects being stopped for weeks because a politician in Tegucigalpa had not signed a check releasing funds. The Mosquitia is a large area, and local employees complained the government often ignored the region because of difficulties with communication and travel. Development staff also complained that not enough government resources and international aid resources sent to the country were designated for the populations living in the Mosquitia.

*Promoting Participation in Economic Development Programs: Perspectives of Local  
NGO and GO Staff and Public Officials*

As discussed in Chapter One, the concept of participation as used by development staff was multifaceted. One facet was associated with eliciting input from intended beneficiaries regarding current and potential projects. In general, community members were consulted about potential projects, but the specialized skills of development organizations and the expectations of aid organizations largely predetermined the types of projects available. A second facet involved requirements of physical and material investment by participants in these projects. The investments were to make community members feel “ownership” over the projects and to encourage Miskitu self-sufficiency. Community members were also to learn enough skills to continue the projects after development organizations pulled out. These factors would contribute to the projects’ long-term success. The development organizations promoting participation did not use a

community-based participatory framework mandating participation and equitable distribution of power among community members, development organizations, and funding agencies.

Local development staff and public officials saw a need for community participation in economic development planning, but the cultural and historical context of the Mosquitia influenced their ability to carry this out. Ethnicity, language, gender, worldview, and a history of paternalism by the Moravian Church in the region and, to a lesser extent, by the state, shaped forms and concepts of participation. Below, I review factors identified by development staff influencing community participation in projects.

### *Ethnicity and Language*

Development staff explained that some Miskitu people refused to work with non-Miskitu employees, those who did not speak Miskitu, and those who were not local residents. Pred, a Miskitu INFOP worker, described several cases in which Ladino technical assistants were unable to bring about community participation in projects. The local people would not accept a project until a Miskitu technical assistant explained it to them and the Ladino worker was no longer involved. Homer, a Ladino public official, and others cited Miskitu prejudice against Ladinos as a factor discouraging participation in development programs. NGOs and GOs made some effort to employ Miskitu and Miskitu-speaking personnel, but it was not always possible, especially for higher level positions, because few Miskitu had received sufficient formal schooling. In recent years, more Miskitu youth have completed high school, and some have continued in university, but the vast majority have not. Many GO employees, especially from the interior of

Honduras, were Ladino. Although organizations invited community members to participate in the projects, acceptance of projects was influenced by ethnic and language characteristics of the staff.

### *Gender*

Economic development projects in Wawina were aimed either at male or female participation, not both. As a result, gender of community members was an important factor limiting participation in projects. The main projects promoted in Wawina centered on cacao cash crop production and were aimed at male participation.

Both community members and local development staff saw the main local projects as not appropriate for women to undertake alone. For example, Pred explained that women rarely produced cacao because it required hard physical labor with a machete and cutting down trees, labor that women did not traditionally perform. He suggested that to assist women, development organizations needed to promote training in female-oriented cash generating activities, such as baking, sewing, nursing, family gardens, and bird farms. Pred also explained, however, that in his opinion, the government did not worry about people in the Mosquitia in general and even less about the women there.

Both wealthy and poor women in Wawina told me that they wanted opportunities to earn regular incomes independently from their husbands, boyfriends, sons, or fathers. In Wawina, I asked both male and female community members whether women could grow cacao or work with economic development projects to become more financially secure and independent. They all agreed with Pred's assessment and explained that growing cacao, mahogany, and cedar could not be done by women without male partners.

I was surprised to hear Pred and others suggest that women were not physically able to carry out the heavy labor required to grow cacao because women performed difficult tasks in agricultural fields and at home on a daily basis. As discussed, growing cacao required a considerable investment of cash, labor, and time before any return could be realized. Women had extremely limited occupational opportunities outside the home, and high paying jobs were only available to men. Thus most women did not have access to cash and labor to invest in cacao cash crop production. Explanations that women were not physically capable and that growing cacao was not women's work ignored these important factors.

MOPAWI did work with a female cacao producer in Waxma, a neighboring community. Despite its high number of cacao producers, Wawina had no women grow cacao. A local level MOPAWI employee explained that in the Patuca River region near Ahuas, MOPAWI did not aim to assist women in income generation. It was not a major focus of their five-year plan partly because of lack of staff and resources.

In 1996, I traveled to various communities up and down the Patuca River speaking with women who belonged to community women's groups involved in a craft project run by MOPAWI. The program trained women to produce arts and crafts from local materials to sell to tourists in the Mosquitia and at art fairs in the interior. MOPAWI subsidized the transportation of the crafts to the interior as the project was getting established. This program had not begun in Wawina by the time of the study, but local women had heard about it. In 1998, they complained to me that they were not included. According to MOPAWI and women in various communities in 1996, however,

there were several problems with the project that may partially explain why it was not expanded to the lower Patuca region.

The MOPAWI employee facilitating the project was a Miskitu woman from upriver where the project ran, near Wampusirpi. In 1996, women from various communities had similar criticisms of the project. They complained that they received only small amounts of income (10, 20 or 30 Lps. or approximately \$1, 2 or 3) and even these were sporadic. They were paid only for products that sold, and they received the money several months after producing the crafts. The women were required to purchase materials, such as glue and scissors, and gather the tunu materials (a fiber made from trees) used to create the designs. Sometimes they received special orders, requiring many hours of work in a short amount of time. Although they did make some money, it was difficult to meet household and other responsibilities during intense craftmaking periods. The craft project did not address how women could complete an order and meet their unpaid domestic obligations.

Women who participated in the craft project said they were frustrated because they did too much work for too little money. Sometimes, what they received four or five months later did not seem to cover the cost of supplies. Furthermore, the products were sold at very low prices.<sup>28</sup> In these discussions, the women said they would rather perform different work, including physically difficult work, if they could earn a higher income and were paid on a regular basis. This, they argued, would make a significant positive impact on their households.

Homer explained that FHIS had a policy to address the needs of women. FHIS programs stated that a certain percentage of women must be involved in the execution of

all projects. The rationale was that requiring women to be involved in all programs would give women experience and training in these areas. There was also an assumption that when women earned income, they were more likely than men to invest it in their households. Thus, involving women in projects was likely to have positive effects for women and their children. Homer described his conviction that in Miskitu culture it was difficult to have women participate in most economic development projects because of machismo and cultural limitations placed on women's activities. GOs specifically had difficulty finding a sufficient number of women to participate in FHIS projects and other economic development projects in general.

Lack of female participation and leadership was a reality in most infrastructure development projects, such as building schools, as well as in the male-oriented projects in cacao or other cash crops. Although organizations said they wanted to include more women and recognized they should, because of the gendered nature of the projects, participation by women was unlikely.

#### *Other Issues Influencing Participation in Economic Development Projects*

Multiple factors influenced community participation in development projects. Some related to the experiences and worldviews of community members, institutional practices, and community member-development staff relationships.

Romeo, a public official from Ahuas, saw a need to teach community members how to be development clients. He explained that although the government invited participation in development projects, locals were not accustomed to the idea. They had no experience being accountable for external funding that came to the region. He stated



that in the past, the government and Moravian Church fostered paternalistic relationships with local populations. As a result, many still expected external aid to be given and controlled by others. Romeo explained that only in recent years have those carrying out development projects begun to ask local people to rank their priorities and choose how to spend the funding. According to Romeo, other officials, and development staff, while organizations tried to promote community participation, many people in the community did not know how to participate.

Despite many years of effort, Romeo said MOPAWI had not been able to engage most community members in participating in projects. Romeo also pointed out that many Miskitu did not see the need for development projects, especially if they were required to work for them. These issues affected participation in economic development programs and showed that many did not share the worldview and expectations of NGOs and GOs about economic development for the region.

Although NGO and GO employees reported they had received training in organizing meetings and promoting participation, many times only certain households or groups were invited, or community members were expected to learn about proposed activities by word of mouth. This poor communication was likely due to the lack of resources and means to advertise meetings, but it probably influenced who attended meetings. One employee described how he held meetings in Wawina to explain new training he had received. He said that he advertised the meeting among people already associated with the project. Of the 12 men who were involved in the meeting, only three had not previously worked with the project.

Another factor that I suspect influenced participation in activities promoted by development organizations was that representatives from various organizations, national and international, regularly visited Wawina and wanted to hear from community members. An NGO or GO employee often accompanied the representatives, and usually the organizational representatives wanted to speak to certain groups, such as mothers, teachers, leaders, or cacao producers. Many community members took the time to address these representatives, partly with the expectation that the individual, group, or community would benefit in some way, even if they did not understand the purpose of the visit. Some visitors included potential donors, groups promoting an interchange of ideas regarding cacao production, a person collecting data, and groups promoting a specific health or training program. In reality, few organizations visiting the community offered a tangible improvement or benefit to the community. If there was a benefit, it was often long in coming. Over the long term, this might have had the effect of making some community members apathetic toward or suspicious of visitors.

For example, with only a day's notice of an impending visit by a potential international donor, an employee described how in one community a group of 35 community members were quickly convened to brainstorm about their needs regarding food security. Using participatory methods and after hours of work, the group produced an eight-page document. They met with the visiting representatives and submitted the document. Despite employing participatory methods and having community members outline and present their needs, priorities, deficiencies, and resources in their own way, there was concern that that the document might not meet the expectations of the donor representative. Although community members had been asked to participate, there was

an underlying concern that because they had used their own approach to produce a document, it would be perceived as inadequate. After the meeting with the representative, it was unclear whether they would receive funding.

Finally, NGO and GO employees had different experiences with participation in various communities along the Patuca River. As stated in a previous chapter, one example involved a project intended to increase year-round food security by promoting silos to store seed for the following season. A MOPAWI employee, Fabian, explained that up and down the Patuca River, communities that participated in the program stored the seed and the silos were full, except in Wawina. It was unclear to him why those in Wawina did not save the beans they received and use their silos as expected.

Fabian stated his conviction that community members in Wawina tended to be individualistic and not interested in receiving technical support. As a result, in Wawina development organizations had experienced several failures in community development. Wawina was one of the largest communities in the region and located close to Ahuas. The other participating communities had different characteristics; many were smaller, engaged in different economic strategies, and located farther away from the political and economic center of Ahuas. It was challenging to understand and address the rejection of specific programs by different communities or certain people within communities. Fabian acknowledged that it was a long-term challenge not quickly resolved.

One of the ways MOPAWI had responded to repeated rejection of projects promoted in Wawina was to hire a technical assistant who lived there. An individual from Wawina was hired and, while I was conducting my research, began to work as a technical assistant in seven neighboring communities, including Wawina. Considering

the large number of communities throughout the Mosquitia and the variety of projects promoted, resources and labor were often stretched. This made it difficult to address local problems and issues in a timely manner.

## **DEVELOPMENT AND UNDERDEVELOPMENT: VIEWS OF COMMUNITY MEMBERS**

In this section, I discuss community members' views of development in Wawina. I describe ethnic stereotypes and examine them in relation to the discourse surrounding development in the community. I also present the experiences of a women's group I worked with that submitted an application for a development grant. In the last part of this section, I describe how different groups in the community drew on religious justifications to argue for or against development initiatives in the community.

Some community members' descriptions of development in Wawina were similar to those of local public officials and development staff. These community members were more likely to desire outside assistance and to participate in economic development activities. In contrast, other community members explained that Wawina already was developed and suggested little more was needed. Some indicated they did not want development funding from outside the community and feared the interventions. Such conflicting opinions helped me contextualize the position of development organizations and public officials in the development process occurring in the Mosquitia.

I asked community members if they understood what people meant when they referred to the development or underdevelopment of Wawina and the Mosquitia. Most community members said they did. Locals usually explained that Wawina had

undergone some development already and was continuing in the process. The community would be developed when it had certain infrastructure, economic activities, and educational facilities. Others were not sure how they would know when Wawina was developed, but they recognized Wawina was underdeveloped because it lacked specific infrastructure or activities. Other community members stated that Wawina was underdeveloped because of the worldviews of some locals, which they perceived as uneducated and antiquated. An older woman described the changes that had occurred and why it was her conviction that Wawina had developed:

Previously there were no good houses, bicycles, or radios, but now there are, and this represents a development of the town. Now Wawina is developed. Before, when someone was sick they had to walk to Ahuas but now there are motors [for river travel] and you can even pay for an express [river travel contracted with a boat owner]. Divers make good money and have nice houses with double beds. Divers have houses and cows while they are still young men.

Roger, a community leader in his mid-40s, said that Wawina was developing as a result of the increased town expansion, clearing of wilderness, construction of new houses, and planning for the future. Roger expressed his conviction that Wawina had developed more in material terms than in education or people's ideas about the world. Even though more community members spoke Spanish than had when he was young, he said, only in the past 10 years had community members begun to plan for the future. To Roger, development meant long-term planning for the future. Only since the early 1990s had community members begun to purchase more cattle, and reportedly two community members had over 100 head each. Roger described how in the past they would leave the community and spend the summers living on the beach and planting beans, only passing the winters in the community. A few families still traveled upriver to plant and work

agricultural fields for extended periods, but most had stopped the practice and were involved in other economic activities. To Roger, planning for the future included strategizing to accumulate material wealth, both on an individual and community level. This worldview is similar to that of the dominant Ladino culture in the country and of capitalism worldwide.

Roger's vision for Wawina in five to ten years was that it have a big road in the middle of the town, cars, and town planning to control expansion. He wanted the town to grow with order, assuring straight streets and the construction of bigger houses with fences. Traditionally, land was held communally and no one had fences; the use of fences was a relatively new phenomenon and probably the result of interactions with Ladinos. Roger was also concerned, however, that "rich people" would come from the interior and put fences around hundreds of manzanas of land and he was not sure how local people would prevent it. He wanted to enlarge his store and move it out of his house. He also hoped to increase his acreage in crops and his herd of cattle, fencing them in instead of allowing them to roam free. Roger concluded by saying this would probably not happen because the Bible dictated that Armageddon and the end of the world were coming soon.

Another man in his 60s told me that examples of development in Wawina included the schools, a health center, radio communication, and streets. In fact, he was not sure if Wawina really required further "development" because it appeared developed compared to the past. Several community members said the same thing. One of the eldest male community members explained to me that in fact Wawina was not underdeveloped, because it had changed dramatically compared to the past.

Now there are schools, even made of cement. There are good streets, some good houses, there are more people and lots of men are divers. Spiritually, it has developed as well, before only 15 people went to church and now 300 go. Before, no one wanted to go to church and people would work on Sundays, drink and dance. Now everyone respects Sundays and goes to church, and that is development. Now Wawina is very developed. There are lots of good houses and teachers [from Wawina who studied and returned to work in the community] and motors [for cayuco canoes] to travel with [on the river].

A different male community leader in his 50s felt it was not enough to have radio communication and that development meant improved telephone communication and transport. He argued these were the most important aspects of development and that without them things would not change. To make a telephone call, one had to travel to Puerto Lempira at a cost of at least 500 Lps. (about \$45). He said that it was not likely they would develop this infrastructure in Wawina soon. He argued that Ahuas needed to urbanize and acquire a bank, a market, a plaza, and a telephone for the region to become less marginalized. The only way he thought this would happen was if the region produced significant amounts of cacao and increased the cash economy, thus making a bank in Ahuas essential. He stated that changes in the way one lived were usually accompanied by changes in customs. He argued that development would improve the way they lived, the economy, and education. He was convinced that although they would lose some customs as a result of increasing development, the Miskitu culture would remain intact.

A female community member in her 20s explained that Wawina was developing because of the new skills and formal education acquired by some community members, such as seamstresses, educated teachers, and nurses. She explained that for Wawina to develop further they needed to fix the main street and build good houses made of cement

and latrines for each household. Students needed access to more education than at present, and Wawina needed electricity, big stores, and cars. Another female community member in her 30s asserted that Wawina was developed because it had three school buildings and teachers whereas in the past it had had none. She wanted more development so that Wawina would have the resources and infrastructure found in Ahuas. A male community member in his 50s agreed and suggested improving the school buildings and desks; however, he did not think it was necessary to build a junior high or high school in the community.

A visitor to Wawina from a neighboring smaller community downriver described development differently than did people from Wawina. He was in his 30s, married with children, and said that for him, development meant having money to buy the necessities and having enough money to address emergencies when they arose. He said it was important to have enough money to transport a sick child to the hospital and pay for care if necessary; his community was much farther away from Ahuas than Wawina. He explained that because they grew their food, having enough food was not a major problem; the bigger problem for them was lack of cash to buy salt, cooking fat, shoes, and clothes. There were few cash generating activities in his community and men from there did not participate in the seafood diving industry, although a few panned for gold. They were waiting for buyers to come through to purchase their rice but were concerned it would go bad. He said that what his community needed was a market for their agricultural products, technical support, and advice on management of plant disease and pests. An NGO that did not work in Wawina had given his community silos to store seed, but he said lack of information and technical assistance led the product in the silo to



spoil due to pest infestation. He was concerned about the erratic, low level of NGO and GO activity in his community. It was his conviction that development was brought from the outside and, with outside guidance and assistance, members of his community would make more money and improve their standard of living.

Many community members acknowledged how their lives and the community had changed, and they described this as development. Some felt their lives were improved as a result of the changes; however, those not from the community often did not recognize the “development” the community had undergone. One elderly female community member in her 70s commented,

When people from outside come and give courses about cacao, the cacaoteros [men who produce cacao] say Wawina is developing but the instructors of the course don't know what they are referring to because Wawina doesn't look developed.

A woman in her 20s originally from a Miskitu community on the coast moved to Wawina after marrying her husband. She complained that Wawina was underdeveloped compared to her community of origin; it lacked restaurants and there was no hotel. She especially desired an oven to bake bread and sell to other neighboring towns. She mentioned that there had been a few indications of development since she originally moved to Wawina; for example, there were new houses and a school in Barrio Peal, where she lived. Community members had also received training to become teachers and seamstresses, but she thought more was needed. I frequently heard Ladino and Anglo visitors to Wawina say that it was underdeveloped, and they were surprised when I told them that some locals considered Wawina developed compared to the past.

Seven of 23 community members I interviewed about this subject, all women of varying ages, said they were not sure or did not understand what people meant when they

described the underdevelopment or development of Wawina. Some said they had no idea what the people meant, and they could not provide examples of development in Wawina or the region. Others referred to material changes in their lives or population growth but were unsure what development meant or how they would know when Wawina was developed. One woman in her 40s said,

No, I don't know what people mean when they talk about how Wawina is underdeveloped. I guess development is a lot of people. People now have good houses and there are [native] teachers. All of these are examples of development but I'm not sure how I'll know when Wawina is developed.

Several community members appeared to associate population growth with development, saying that more people or an increasing number of children meant development. This may be related to the increasing number of government resources that were available to the community as the population grew. For example, a separate school building was constructed in Barrio Peal because of the large number of school-aged children. When government workers came to the community to discuss the needs and priorities of the community for the proposed FHIS projects, a decision was made to construct the new school to replace a dilapidated one. Many government resources appeared linked to population growth, such as the construction of the health clinic and other school buildings.

Community members often saw development as associated with foreigners. I was told several times, "more foreigners equals more development," because in towns where foreigners live or pass through frequently, such as on the coast or in Ahuas, there were more tangible indicators of development, such as infrastructure and access to cash and material goods. Foreigners often provided, or were associated with, the economic

resources that were essential to community members' understandings about development. Many community members I spoke with described the infrastructure, economy, and access to cash and goods as improvements and positive changes for the community, but not all agreed.

Among those I interviewed, several women said they did not want organizations or individuals from outside the community offering aid to help the community. One woman in her 50s told me she did not understand what people meant when they described Wawina as being underdeveloped or undergoing a process of development. She thought it might have to do with new construction and more children being born, but she was unsure and had no idea how she would know when Wawina was developed. She adamantly insisted however, that she did not want foreigners or people from the government or other organizations<sup>29</sup> coming to the community offering aid because she had heard dangerous and scary things about it. I noticed the irony that she was participating in my study and speaking with me, a white foreigner, when she claimed she did not want to interact with outsiders. I expect this woman's concerns reflected those of many more people in the community who did not speak with me and who protested or refused to participate in external development efforts.

Another woman articulated a similar concern; although she wanted the external assistance, she did not want to supply personal information to people outside the community because it was her conviction they might do something dangerous with it. For example, she said she would not provide personal information about her children or the number of horses she owned. These concerns were probably common throughout Wawina, and based on the statements of visitors from other communities,<sup>30</sup> in the region

as a whole. Other community members described these opinions as ignorant, reflecting a lack of education and an inability to plan for the future.

### *Stereotypes and Outsiders: Community Perspectives*

Throughout the year, I noticed several themes revolve around this discourse of concern voiced by community members. For some, there was a general concern about outsiders coming to the community and providing funding or investments, but this was intermixed with a common stereotype that many Ladinos were dangerous. There was only one Ladino community member in Wawina at the time of the study, a teacher who had come to work in the community, had married a local woman, and was well liked. Many more Ladinos lived in Ahuas, and the most visible Ladinos held powerful positions as successful businessmen, politicians, and policemen.

Throughout the year, I heard community members describe Ladinos as dangerous. This perception of “danger” was associated with a general negative stereotype and reflected cultural differences and different ways of life. Ladino men were described as dangerous and prone to violence, killing, stealing, and rape. They were described as bad men who believed they dominated the land because they came and bought land in the Mosquitia and then fenced in more land than they had purchased. Newspaper articles from the interior were filled with stories about Ladinos killing each other with guns or machetes, and community members who visited the interior told similar stories upon their return.

This negative stereotype was also based on personal experiences with Ladinos who visited the communities to buy grain after the harvests. The Ladino men were not

from the Mosquitia and passed quickly through the community buying crops. They were perceived as unfriendly because they did not say hello or attempt to chat with people. They always had guns attached to their belts, which was unusual in this region, and they usually traveled in factory-made boats with powerful motors. Locals realized that Ladinos paid a low price for the grain, but they needed cash and sold the crops because they had no other option.

I discussed these images and convictions about Ladinos with various community members. Most acknowledged that Ladinos were known to be bad, although some qualified these statements saying it depended on the individual. In contrast, foreigners, such as Anglos from the United States, had a general stereotype of being good people who offered help and gave things away. They were said to be trustworthy and not thieves; however, some qualified this saying they really did not know any foreigners. I heard many women say they wanted to have children by Anglo males so their offspring would be light skinned with light eyes. One male teacher stated that Miskitu people were a totally different race than Ladinos and Spaniards. He explained to me his conviction that when Spaniards had come to the region, they were very corrupt and bad, especially during war and conflict. Miskitu people as a result tended to dramatically distance themselves from the Ladinos.

Aside from generalizations about Ladinos and Anglos, the most common negative stereotype I heard by Miskitus was directed at Miskitu peoples in general. For example, Memo, the son-in-law of the women I lived with, described on several occasions his desire to establish a restaurant in Wawina. During these discussions, he always explained that if he attempted to establish a restaurant, other community members would

purposefully try to make him fail. One way they would do this would be by not patronizing the restaurant. He said that instead of trying to help each other and improve the community, local people were exceedingly jealous and they attempted to “pull down” anyone experiencing success.

Various people explained that when a person was successful, others resented it and would “get back.” For example, if someone slaughtered an animal, he would refuse to sell meat to the successful person. Those who were perceived as wealthy or successful were also more likely to be targets of theft.<sup>31</sup> I heard community members complain several times that MOPAWI did not really help communities either. They explained their conviction that because MOPAWI staff were Miskitu, they did not want to help other Miskitu people. They emphasized that other “races” were more interested in helping Miskitu farmers than were fellow Miskitus. I repeatedly heard these stereotypes of Miskitu peoples throughout the year; they were interesting and to a certain extent conflicted with the statements of NGO and GO workers who claimed that in some communities, locals rejected economic development projects unless they were presented by a Miskitu.

Community members explained another characteristic important among Miskitu peoples. They said that most Miskitu peoples were uncomfortable “speaking.” This usually meant to speak in public community spaces, and it also could involve interacting with outsiders. In Wawina, the skill of speaking was most often present in Miskitu men; although theoretically Miskitu women could develop this skill as well, it was less common. Often the ability to speak was linked to wealthier community members and those perceived as having more resources. When I discussed with community members

what makes a good leader, almost all mentioned the ability to speak. This was viewed as a special skill not held by all. Community members with more formal education, especially junior high or high school, as well as those with specialized, religious, or technical training were more likely to have speaking skills. Community members who could speak often shared increased individual power, held leadership positions, and were more likely to interact with and influence external organizations that visited the community. These individuals were likely to view economic development programs promoted in the community and region as positive forces of change and were likely to participate.

#### *Economic Development Projects: Criticisms and Conditions*

Community members critiqued various dimensions of development projects. Among community members who reported they did want to receive development projects and assistance offered to the community, many indicated a systematic condition. They wanted the assistance to be free. One woman's explanation reflected the attitude of many, "I'm not afraid of foreigners when they come, and I want the help that others offer, but I want it free and donated. I don't have money to pay a part and I don't want to have to [pay]." I found it interesting that some community members suggested that the benefit of development projects, especially those installing or improving infrastructure, was the opportunity to earn income. One elderly female community member said that she "... loved assistance from outsiders and especially liked FHIS projects because they paid women to carry sand" necessary to mix the cement. She said she wanted to thank them for the opportunity to earn the income. To me, she seemed most excited about the cash

earned and less interested in the fact that a new school was constructed for the community.

There were various other critiques of development organizations by community members. They complained that NGOs and GOs had little effect, noting that many community members grew cacao or other products without any technical assistance or support from development organizations. They complained that organizational and institutional representatives repeatedly visited the community but ultimately did not do anything or create a tangible benefit to the community. Their view was that if institutional representative were going to visit the community, the community should benefit in some way each time. Two locals critiqued NGOs and GOs for their appearing to invite participation and control in community projects when they really did not accept such participation and control. They pointed out that when different people had approached MOPAWI or other organizations about an idea for a project and a loan, they had been denied.

Finally, community members from a neighboring town criticized the ethnic make-up of MOPAWI. They pointed out that the same Ladinos had held the executive directorship and other powerful positions for almost the entire existence of the organization. These community members questioned why the positions were not elected and why they were not held by Miskitus. They suggested that the people in these positions were not working in the best interest of Miskitu populations because, as Ladinos, they would never understand the Miskitus' visions of development. These critics also implied that the leaders of MOPAWI benefited inappropriately from their



relationships with external funding agencies, for example, taking scholarships or giving them to Ladinos instead of to Miskitus.

MOPAWI employees discussed with me some of the criticisms they have faced. They pointed out that development and change are slow processes and long-term sustainable development would not happen overnight. Many of the most significant positive changes MOPAWI had influenced were not directly tangible at the community level. For example, MOPAWI had worked to increase attention to indigenous issues at the government, national, and international levels. They lobbied for indigenous rights to land, worked to prevent Ladino colonization of the Mosquitia, and tried to protect the natural resources of the Mosquitia. MOPAWI staff explained that many local people, and sometimes those from the interior or abroad, did not recognize these positive effects. People wanted quick change and did not understand that progress was slow and meant to be long-term. Thus, lack of tangible improvements for many people at the community level resulted in criticism of the organization. Compared to many GO programs that did not focus on these political and social issues, MOPAWI efforts were critically important for long-term sustainable development.

Another MOPAWI employee pointed out that some of the most vocal critics of MOPAWI were disgruntled workers who had been fired because of corruption. When confronted, especially in public forums, few of those who grandstanded against MOPAWI could defend themselves or offer suggestions about how MOPAWI could improve or work better.

In terms of changing the directorship of MOPAWI or other positions in the organization, some local critics did not recognize these individuals as holding particular

skills that qualified them for the positions compared to others. MOPAWI struggled to find individuals with the formal education and desire to work and live in the Mosquitia. Within the structure of international aid, and based on its long worldwide history, MOPAWI was unlikely to have access to external funding unless the executive director and leading staff held higher degrees, had experience with economic development programs, and were perceived by donors as accountable for the resources. The funding agency viewed MOPAWI as successful, with a system that was accountable, responsible, and productive. As a result, it was unlikely to support a change of the directorship and leading staff. While some community members criticized the ethnic make-up and organization of MOPAWI, the external funding agencies and current leadership held the power to make change and did not see it as necessary or practical.

Although international donors, NGOs, and some GOs described their programs as promoting participatory economic development, they did not promote equitable participation and distribution of power at all levels. Because of the limited resources, size and number of projects, and large number of total communities involved in the Mosquitia, it would have been impractical, if not impossible, to fully employ community-based participatory methods.

### *Community Experiences Shaping Development: An Example of a Women's Group*

MOPAWI and INFOP projects emphasized a limited range of activities that for various reasons were often perceived as less accessible to vulnerable groups in the population. In Wawina, participation was gendered in that most women did not see the projects that were promoted as accessible to women. Community members who did not

hold the same ideas as NGOs and GOs regarding development often viewed these programs as not useful. Even community members who did claim they held similar views about development often were not able to express these ideas in writing and employ development concepts and jargon, such as environmentally sustainable development, community participation, or community development, to apply for loans and other resources.

A major problem for women in Wawina was the lack of local and regional markets for goods they produced. In most communities, low population density limited demand for services, such as sewing, or baking bread, cakes, and cacao chocolate bars. Women in Wawina explained to me that they had received training on multiple occasions from MOPAWI and other organizations, which taught them to bake bread, cakes, and cacao chocolate, for example. In their opinion, the problem was that people in Wawina did not purchase these products on a regular basis, and too many people were trying to sell them. Furthermore, they had all received the same training and could make these foods themselves for less money than purchasing them. Women recognized that the high income generating jobs were all male-dominated activities and involved markets and transporting goods outside of the community. For example, some of the activities generating the highest incomes included working in the seafood diving industry on the coast, selling cacao products to the interior, selling wood planks cut with chainsaws or handsaws to people in surrounding communities, and transporting goods and people via river to surrounding communities. Because these were male-dominated activities, and men received the wages and income, women were dependent on men. Women said they

usually had to ask their spouses, fathers, or sons for cash, and wage earning men did not always contribute to or support their households.

During my stay, a group of national and international NGOs was promoting a loan project to community groups in the Platano River Biosphere. The loans were for groups that wanted to engage in innovative business ideas that promoted environmentally sustainable development. To participate, a group was required to write a grant application answering multiple questions regarding the needs for, justification for, contents of, and details of the project. Local community members were aware of this program, but did not see themselves as capable of applying to the program. They did not feel they could write the proposal, convey their ideas, and answer all the questions. In addition, community members had learned that other applications that proposed to open restaurants and hotels had been rejected, and they did not understand why they were not accepted. Although they had heard of concepts such as environmentally sustainable development, it was difficult for them to use these concepts in the grant. I worked with two groups of community members, one male and one female, and wrote down their ideas regarding their proposed projects. I helped them use environmentally sustainable concepts and justifications in the application.

The women's group proposed making cacao chocolate bars and selling them to a market in the interior of Honduras. Many people produced cacao in Wawina and they had regular, low-cost access to this sustainable and organic crop. The women proposed that they receive training in quality control of production of the bars and in financial management in order to learn how to handle the economic aspects and prevent corruption among the group. The women discussed the need to keep all finances transparent in

order for the project to succeed. They had already received training at various times in the production of cacao bars, but in their opinion there was no demand locally or in the Mosquitia in general. This was why no one engaged in this business activity locally. They told me about cacao bars in a store in Puerto Lempira, a highly populated area compared to Wawina, that sat unsold on the shelves for months. They argued that with a regular, external market outside of the Mosquitia, they would have the opportunity to earn incomes that would substantially increase their independence, the resources available in the households, and their quality of life.

In the application, they also proposed going to the interior to develop connections with external markets, such as with supermarkets or candy factories. Although they recognized that they did not have the communication and professional skills required to undertake that task, they knew that a group of cacao producers had gone to the interior and done something similar. MOPAWI had recently facilitated a meeting between a group of cacao producers from various communities, including Wawina, and a factory in the interior that processed cacao. The cacao producers established an accord with this factory to buy their product at a guaranteed price.

The women were excited at the possibilities of the project and both the men's and women's organizations submitted applications. They eventually received letters in the mail from MOPAWI, which made the decisions regarding the applications. (MOPAWI made the decisions alone despite the fact that multiple organizations were listed on the pamphlet.) Although a member of the men's group was a teacher and several members of both groups spoke at least some Spanish, they did not understand the letters. The letters were written in Spanish and used unfamiliar language and vocabulary. The

applicants told me the men's project had been rejected and the women's project had been accepted. When I asked to see the letters, I read that the men's proposal had been accepted conditionally if the group agreed to meet with a member of MOPAWI to change the proposal and eliminate several aspects of the project. The women's group project had also been accepted conditionally. MOPAWI was willing to fund the women's project only if they agreed to sell to markets within the Mosquitia, among other conditions. The women were disappointed and felt the project was pointless if they were not able to sell to external markets. Once they learned the conditions of the loan, some of the women suggested they would agree to the project in order to gain access to the loan, and then they would never pay it back.

There were multiple obstacles involved in these two groups' applying for and receiving these loans. Without my assistance, it was unlikely they would have applied for the loans unless someone else, such as an NGO or GO employee, helped them write the applications. Considering the high rates of illiteracy and marginal literacy and the many marginal speakers of Spanish and monolingual Miskitu speakers in the region, it was inappropriate for this loan program to promote itself only by handing out pamphlets. At the very least, it should have employed staff to make multiple visits to the communities, helping community members develop ideas and write fundable applications. Another significant obstacle was that local people did not understand the concepts of environmentally sustainable development presented in the pamphlet nor what types of activities would be classified in this category. The facts that the program required a written grant submission and that the pamphlet was written in Spanish and used development concepts and jargon meant the program was inaccessible to the

majority of inhabitants of the Mosquitia. To the women's group, it seemed that those who conditionally accepted their application did not appreciate their need for an external market and their need for an independent source of regular income. They felt deflated and powerless, and some thought up ways to manipulate and protest the conditional acceptance by planning to steal the loan.

### *Contested Views: Economic Development Projects*

In the previous section, it was clear that some community members desired economic development programs in the community and others did not. These externally funded changes and influences were feared and resisted by some, while others argued development was unnecessary because the community was developed. Some suggested that Armageddon would happen soon, thus making development unnecessary and a waste of time and resources. Those who wanted the programs and increased infrastructure criticized those who did not by labeling them ignorant, backward, and uncaring about their future.

One cacao grower and community leader explained to me his view that Miskitu people were conformist because they lacked education and were ignorant about the world. It was his conviction that because they were conformist, they did not try to improve themselves or their situations. He said that after earning a small amount of cash, Miskitu people were satisfied. He claimed they did not want to increase their workload or work hard physically in order to earn more money. In this way, they were unlike other "races" that kept striving for more cash. This, he explained, was why Ladinos who came to the Mosquitia became successful quickly. These types of statements were common

among community members who believed in the ability of development organizations to improve their lives, wanted external assistance, and promoted economic development as a positive force in the community. In fact, these community members often perceived changing the worldview of “those ignorant people” as a goal of development.

Some community members drew on religious discourse and the Bible to defend their positions and attack those who held different views. Community members in Wawina, and probably throughout the region, transformed the messages and tools of the one of the most powerful, and originally foreign, institutions in the Mosquitia, the church, and used them against other externally based powerful institutions and processes, namely economic development. I viewed the religious discourse of impending Armageddon and fear of outsiders because of their possible associations with Satan as a way to protest the process of change in the community and the external ownership and control of development in Wawina. Drawing on the symbolic power of Christianity, they reinforced a fear of outsiders and labeled them antichrists as a means to justify the rejection of economic development programs and other powerful external influences in the community. Most community members considered the government, national politics, and international aid as something out of their control and foreign, yet powerful enough to make decisions that impacted their lives in significant ways. Some community members dismissed this religious resistance. Others embraced it temporarily until they were more certain about individuals and institutions involved, and a few took it to the level of continual fear of all people not from the community. This religious discourse of accusation, labeling and protest was repeated, thus continually reinforced, between communities and regions and became a currency of power. I suspect that it existed, at



least at a low level, in most communities in the Mosquitia and, to varying degrees structured people's lives and their convictions about and experiences with economic development and change.

While some criticized community members who did not embrace economic development programs, send their children to school, or seek new innovations in ways of earning a living, they did not reject the validity of Armageddon or the existence of antichrists. Instead, they also drew from the Bible to support their positions. For example, they argued that of course Armageddon was coming, but the Bible did not specify exactly when it would happen. While Armageddon could be soon, such as the year 2000, it was equally possible that it would not happen for another 50 years. Because no one knew when it would happen, they must plan for the future and develop. In contrast to statements that antichrists disguised as foreigners would come to the community offering resources to hurt people, an elderly male community member argued that the Bible said that foreigners would arrive and offer help and they must accept it. Others argued that it was inappropriate and ignorant to make generalizations about all foreigners, such as labeling them antichrists, because just as there were good and bad Miskitus, there were also good and bad people everywhere. They reminded people that only God had the right to judge anyone, and in fact, it was a sin to judge or label anyone an antichrist. If they did, then God would later punish them.

In discussions about the underdevelopment of Wawina and what development meant for the region, most associated it with increased infrastructure, material possessions, and improved transportation and communication. Few community members acknowledged that it could directly influence people's worldviews and knowledge and

how they perceived themselves and approached life. For many, it appeared to involve exclusively and directly material possessions and infrastructure that presumably would ease and improve quality of life. Thus, development appeared neutral or positive and there was little exploration or acknowledgement of possible negative effects associated with it. Some people mentioned possible ecological deterioration or increased Ladino migration as a consequence of development, but there was little discussion or recognition of how development might change their lives in other fundamental ways. Thus, from this point of view, it was illogical and “ignorant” not to want and work for individual and community development. For people who did not think that economic development projects might result in negative changes to communities, it was unnecessary to acknowledge and easy to dismiss most forms of resistance.

## **CONCLUSIONS**

Development initiatives in the Mosquitia worked to improve food security. In Chapter Six, my findings show there was limited participation in development projects in Wawina. Those who participated were likely to live in wealthier households with reduced risk of food insecurity. In order to understand why this was the case and theorize ways development initiatives might improve food security among those at greater risk, I examined the context of development in Wawina from the point of view of community members, local development staff, and public officials.

Promoting development projects was complex. Communities throughout the Mosquitia have differential access to resources, material goods, formal education, ways of making a living, cash generating activities, communication, transport, direct

interaction with foreigners and Ladinos, and tourism. Differences within and between communities were important factors influencing worldviews and convictions about development. In this chapter, I discussed some of these local views and different experiences with and responses to economic development projects.

In Wawina, various factors influenced participation in economic development projects. A history of paternalism in the region and lack of knowledge about and experience of participating in projects limited community participation. Development staff and public officials indicated that Miskitu community members needed to be taught the system, how to request aid and demand accountability. Despite widespread public discourse about development, the majority of community members were unfamiliar with negotiating these processes. Community members explained that those with the ability to “speak” were the most likely to interact with external organizations.

Some community members held different worldviews and did not consider economic development as necessary or positive. In Wawina, a community consensus about the need for and direction of economic development is not likely to happen soon. Community members directly involved in development projects were learning the skills to manage the processes of development in the community. Community members with adequate resources, the perceived ability, the worldview, and the desire to interact with economic development projects benefited most from projects at the community level.

While organizations promoted community participation, the skills of development staff and the objectives of funding agencies influenced the types of projects offered. Some community members expressed interest in potentially working with development organizations but did not consider current projects appropriate or accessible. Ideas of

local staff and community members about appropriate work for men and women influenced who projects were aimed at. For example, participation was gendered in the main projects promoting cacao cash crop production. It was explained that women did not grow cacao because it was too physically demanding and not women's work, but these explanations ignored other possible causes based in women's more limited access to resources compared to men. Women's limited occupational opportunities meant they were less able to invest the cash, labor, time, and risk required to grow cacao. Poorer households at risk of food insecurity had the same problems. These factors help explain why wealthier households with less risk of food insecurity participated at higher rates than do other households in development projects.

Development organizations did not recognize a problem with promoting projects aimed primarily at men. The organizations emphasized the long-term environmental sustainability of their main projects and did not problematize the lack of women's participation, their reduced access to resources, or the distribution of reproductive and productive activities at the household and community levels. They neglected to explore how gender relations and class differences in the community were linked to these issues. Critical analyses of these factors help contextualize the lower participation of those at increased risk of food insecurity in community projects. Women need to benefit from all development initiatives in Wawina, not just those directed specifically at women. Development organizations must begin to challenge the basic operating assumptions of staff and policy makers regarding Miskitu men and women.

MOPAWI staff recognized some of these problems, but recognition had not translated into policy changes. Development policies that are environmentally

sustainable must continue; however, primary importance must be given to institutionalizing gender in development organizations and analyzing how all development policies will affect both men and women. Otherwise, development initiatives will continue to marginalize and neglect important dimensions of social differentiation and the varying influences of development on women and men.

## CHAPTER EIGHT: THE EFFECTS OF ECONOMIC DEVELOPMENT PROGRAMS ON HOUSEHOLD FOOD SECURITY, DISCUSSION AND POLICY IMPLICATIONS

A major goal of this study was to explore how participation in development projects is related to food security. Food insecurity is intimately linked with lack of resources and poverty, even in a place, such as Wawina, that is heavily dependent on subsistence agriculture. Almost all households in Wawina have some risk of food insecurity because of seasonal variability in the diet and periodic dependence on a limited number of foods. Some households and individuals have a higher risk of chronic food insecurity, and their children are malnourished. Economic status, age, gender, and income-generating strategies of household members influence household food security and participation in development projects.

In this study, I examined food security and the factors that influenced it. I collected information through surveys, open-ended interviews, and participant observation. Dietary information and anthropometric measurements were collected from mothers and young children four times during the year. I particularly focused on collecting information on seasonal influences. I ranked households in wealth based on materials used to construct the house and kitchen and whether the household owned a latrine, radio, and gas stove. The most useful measures included the materials used to construct the roof and walls of the house and kitchen and whether there was a kitchen structure separate from the house.

Overall, the study showed high rates of food insecurity in Wawina. On the food security questionnaire, 70% of women reported they experienced at least some food insecurity, but only 4% of mothers said their children did not receive enough to eat (see

Tables 28 and 29). Mothers' responses to questions about their children's diets suggest that many mothers buffered their children from household food insufficiency in times of food scarcity. Previous studies of Miskitu children in Wawina and other parts of the Mosquitia have found widespread stunting, despite mothers' attempts to shield their children (see for example, Roorda and Salina 1992; Dodds 1994a and 1994b).

I also carried out qualitative analysis of perceptions of development among community members, staff of economic development organizations working in Wawina, and local public officials. I explored some of the factors influencing who participated in and benefited from development projects in Wawina.

There were two development projects in the community during the time of the study; an indigenous NGO, MOPAWI, ran one project and INFOP, a GO, ran the other. Both projects focused on the production of cacao as a cash crop. Staff from each of these organizations worked with community members in Wawina during the year and provided technical assistance, training, and supplies, such as high-quality hybrid seeds.

As outlined in earlier chapters, I identified social and economic household indicators that I thought would predict differences in household food security, socioeconomic status, and participation in local development projects (see Table 3). The indicators multigenerational household, nuclear family household, and single mother of target child, and participation in development projects were significantly related to the second and third adult-level questions on the food security questionnaire (see Tables 32 and 37). Households participating in cacao farming and seafood diving, as well as those participating in development projects were also ranked significantly higher on wealth

rankings, specifically materials used to construct the roof and walls of the house and kitchen and whether the kitchen was separate from the house (see Tables 31 and 36).

My findings show that few households actually participated in development projects in Wawina and that most of these were nuclear family households. Those that directly benefited were well off. Households that participated had significantly higher wealth rankings and were more food secure. Children in these households were significantly taller and heavier than others during the hungry season (see Table 38). In contrast, women who reported food insecurity had children who were significantly shorter and lighter when weighed and measured in the hungry season (see Table 34). Multigenerational households and single mothers of target children had more food insecurity and were poorer, yet they participated in projects at lower rates.

Some may argue that households that participated in development projects became food secure and wealthy as a result of their participation. I argue that these households were wealthier before they participated and that their relative affluence helps explain why they were able to participate. Development organizations had been promoting cacao projects since the early 1990s and most plantations were young or not at full maturity and, thus, were not fully productive. Growing cacao requires a long-term vision, the means to invest cash and labor over multiple years, and the ability to take on risk. Growing cacao was one of multiple economic activities and households with more resources were likely to participate in cacao projects as an additional, long-term, investment strategy. Based on these factors, I argue most of these households had reduced risk of food insecurity regardless of their participation in cacao projects.



Food security and wealth were unevenly distributed in Wawina. Income earning activities were stratified by gender, age, and class, and access to these opportunities differentiated risk of food insecurity in the community. Most adults and some children worked in subsistence agriculture. Women had few opportunities to earn a living wage, and high-income jobs were only available to men. As a result, women had limited means to be independent and food secure. Most single mothers lived with their parents because the fathers of their children gave them no support (nor were they pressured by the community to do so), and this left single mothers and their children at particular risk of food insecurity.

The most common high-income work was in the seafood diving industry. Most of the community members who worked in this industry were adolescent males and young men. Other high-income earning strategies included renting boats and boat motors, operating small stores in homes, and running chainsaws for lumbering. These activities all required cash investments; thus older men who were financially secure were more likely to invest in these businesses. The wealthiest households often participated in multiple high-income strategies.

Households engaged in various activities to meet their basic needs. Most households reported they planted subsistence crops and fruit trees and fished on a regular basis. Many households also owned livestock. Chickens and eggs were consumed or sold depending on need, but larger animals, such as pigs, cows, and horses, were considered an investment. Agricultural and livestock practices were associated with socioeconomic status. Those with fewer resources tended to plant less acreage and to own and consume fewer livestock. The one exception was some members of younger households with

steady cash incomes who explained that it was too much work to care for livestock or crops. They did not own livestock or plant crops but purchased agricultural products from others.

These findings relate to theoretical questions in anthropology about the relationships among economic development policies, environmental and social change, and quality of life (see for example Stonich 1993). Within a critical medical anthropology framework, I examined larger political-economic and social structures and linked them to local level realities in Wawina. I analyzed how historically and culturally constructed means of social differentiation, such as gender, class, and worldview, were used to naturalize inequality. I particularly examined the social relations within which peoples' lives were embedded and situated them in the larger political, economic, and social context (c.f. Singer 1990: 182). Gender was a focal point of analysis in this study (Whiteford 1996; Razari and Miller 1995; Goetz 1998) and was crucial for understanding access to jobs, development initiatives, and other resources in the community. This study also relates to theoretical questions about promoting community participation in development initiatives, as well as critical analyses of development.

On the basis of these findings, anthropologists must carry out additional investigations on the relationships of gender and socioeconomic status to development initiatives promoted throughout the Mosquitia and the effects on household food security. The role of MOPAWI and indigenous federations, such as MASTA, in the development process are interesting examples to further theorize the role of indigenous organizations in indigenous communities. The growth of the ecotourism industry in the Mosquitia and the shaping of this industry by local communities, MOPAWI, and other organizations

merits particular study. Attention should also be given to the potential economic, environmental, social, and health consequences of continued Ladino migration to the Mosquitia. Scholars should also continue to investigate the promotion of government policies that threaten local ecosystems and the ability of local inhabitants to make a living. For example, in 1998, many people in the Mosquitia opposed plans to build a large dam on the Patuca River and sell the energy (see, for example, the Declaración de Ahuas 1998; for more information on the proposed hydroelectric dam Patuca II, see endnote 1 in Chapter One).

### **Managing Food Security**

In the Mosquitia, the diet is based on a limited number of seasonal subsistence crops and purchased foods. The food security questionnaire showed that some individuals had significant food shortage and altered food intake because of a lack of resources. When considering risk of food insecurity, analysis must consider not only absolute food shortage, but also any involuntary limitations to the diet, such as lack of variety.

Based on their research, Radimer et al. (1992) describe an order, which corresponds to increasing severity, through which hunger is normally experienced. Hunger is usually first experienced at the household level, then at the individual (adult) level, and finally at the child level. Each level may have different dimensions and intensities, and people experience food insecurity in multiple ways (1992: 39S). In my study, many women (70%) reported individual level hunger and food insecurity. Few (4%) reported that hunger and food insecurity affected their children. Some wealthy

households reported only household level food insecurity, and others reported no food insecurity at all.

I defined risk factors for food insecurity in Wawina to include anything that limited consumption of adequate quantity and quality of foods (see Anderson 1990: 1560). The definition stipulated access to food in socially acceptable ways. Socially unacceptable ways to acquire food or other resources included stealing, prostitution, or asking for food from people not part of the normal household food network. Food anxiety (Radimer et al. 1992: 39S) emerged when there was not enough food or when people were forced to eat the same foods for several days or weeks because they were unable to acquire other foods. People specifically referred to meat hunger, lack of meat in the diet, and growing tired of eating banana-based meals. Some women, including the wealthiest in the community, reported they grew disgusted with eating the same foods in times of scarcity and preferred to skip a meal or drink coffee or Kool-Aid (prized beverages) instead of eating. In Wawina, seasonal variation gave all households at least some degree of reduction in the variety of foods available.

Women were responsible for preparing and distributing food in the household and, thus, had control over individual diets. Food security was a process that men and women shaped, and individuals in the household experienced food insecurity differently (see also Radimer 1992: 36S). In the household in which I lived, I saw that food was preferentially distributed to certain members based on age, gender, education, economic and physical contributions to the household, and other factors that influenced a given person's status in the household. For example, children less than five years of age received practically all food they requested. This included portions of all foods cooked in

the household as well as prized foods such as candy, cake, and Kool Aid.<sup>32</sup> In contrast, older dependent children did not receive portions of all foods. They might have been served only rice, banana, and broth, and not a portion of beans or meat.<sup>33</sup> They were also less likely to receive prized foods. Many times I watched adults in the household drink Kool Aid or eat candy and not offer any to nearby adolescent children and dependent adults in the household. Food gifts given to individuals, such as an adult son's gift of fish to his mother in a different household, were the property of and distributed by the recipients. Young couples reported having free or occasional access to fruit trees or other household resources of their parents or grandparents. I suspect that a much wider variety of food gathering, distribution strategies, and coping tactics existed than I was able to document in data collection.

### **Economic Strategies for Women**

Households employed multiple food and economic strategies to meet their basic needs. Women lacked employment opportunities in general, and those that were available paid low wages. Women worked in the home and in agriculture, but their contributions were undervalued compared to those of men. Maintaining a household required many hours of labor, and a few women were employed as domestic servants. Those who worked as cooks or in childcare received an extremely low wage of approximately 200 Lps./month (\$18/month) and were treated badly. Women worked as partners with their spouses in agriculture, and a few women ran stores in their homes. A store, however, required cash up front to establish the business, and women did not usually have the opportunity to earn a sufficient quantity of money to establish this or any

other business independently. The expectation that women should only do domestic work or work as day laborers in farming severely limited their occupational distribution. Women from all types of households told me they wanted the opportunity to earn substantial incomes of their own, comparable to those of men.

Cultural norms expected women to carry out all of the domestic housework and childcare. The gendered division of household labor meant that women had a double burden of work; most often they worked in farming and also performed all housekeeping activities. Women were responsible for cooking, cleaning, washing and ironing clothes, hauling water, gathering fire wood, and childcare. Adolescent daughters were expected to help with housekeeping, and I occasionally saw an adolescent boy haul drinking water.

I discussed the household division of labor with Marjory, the daughter of the woman I lived with. Marjory and her husband both worked as teachers. Despite the fact that she had a full-time job, she adamantly insisted that it would feminize her husband to wash clothes or cook. She stated, "I am not going to turn my husband into a woman." She insisted that men performed other important tasks, such as fishing and hunting that contributed to the household; however, her husband only fished a handful of times during the year and did not hunt. Marjory's female relatives cared for their children while she worked, and they frequently paid another female relative to wash and iron the family's clothes. Although her female relatives helped her and loved her children, there was tension over the added burden of caring for them.

Only a few women in Wawina had become teachers or acquired other specialized higher education and the gendered division of labor in the community had not changed for these women. Women who worked extensively outside the home had to rely on other

female relatives to care for their children and help maintain their households. If they lacked sufficient family support, they had to pay another woman to help. As more women complete high school and receive specialized education that broadens their occupational opportunities and increases the number of hours spent away from home, the relationships among female relatives will also change. Unless the gendered division of household labor is contested, the women working outside of the agricultural and domestic spheres will call upon female relatives who engage in traditional employment to carry out the additional housework and childcare. In at least some cases, this extra work will be uncompensated.

All households relied to some extent on familial and other socially acceptable networks to collaborate in agriculture, health, religious activities, and subsistence and economic strategies. One economic strategy for some adolescent and adult women was to accept cash and gifts from men. I observed during the year that in poorer households, a woman would date a man, often someone who worked in seafood diving, and he would give the woman and her family money. Usually, he did not marry the woman and when she became pregnant, he broke off the relationship; societal norms did not require him to support the child or the mother. Single mothers said that when they were desperate, they would have sex with men for money or goods, such as soap. Some complained that men usually determined the amount paid, and some men barely provided anything for the service (sometimes as little as 5 Lps.). The single mother also ran the risk of becoming pregnant from the encounter. While some men may have provided occasional support to their children born out of wedlock, rarely was it consistent and reliable.

Women also became single mothers when they separated from their spouses, and some husbands did not provide for the households once they left. I never witnessed a woman leave her children with her husband when her union ended, and most single mothers lived with one or both of their parents in order to survive. Only the wealthiest families could afford to send their daughters to school to become teachers or nurses or gain other skills to support themselves independently.

In Wawina, women's work was undervalued and they had limited employment options. For these reasons, as a group, women and their children were at greater risk of food insecurity than were men. All women were also involved in social relationships with family, spouses, and friends that offered them differential access to resources and opportunities. The experiences of women were not uniform, and food insecurity was manifest in different ways.

### **Development Discourse and Participation: the Example of Cacao Production**

A goal of economic development programs at national and local levels is to improve quality of life and food security. Development policies are often designed to improve the economy with the assumption that they will raise the general standard of living of the population. Some assume a trickle-down effect will improve the situation of those not directly benefiting from the projects.

Development language and culture were transformed to suit the historical and cultural context of the Mosquitia and intersected with some community members' worldviews. Some welcomed development projects in Wawina. Not surprisingly, they were the people who benefited from them. While projects in Wawina invited community



participation, not all community members saw a need for projects and some held worldviews differing from those promoted by the development organizations. The existence of conflicting views about development among community members was at odds with the development organizations' need for a unified regional program for development. Despite inviting community participation, development and funding organizations held authoritative power to determine policy and programs for the region.

Based on my preliminary investigation, I thought development organizations would have a large effect at the community level. My experiences in Wawina revealed a more complicated reality. Household subsistence strategies were multifaceted, and the ways in which people used development organizations were complex. My findings show that the wealthy and food secure participated in development projects at higher rates. Although many households grew cacao in Wawina, not all of those who grew the crop participated in development projects promoting cacao; often it was the largest producers who worked with the programs. Among the largest cacao producers, this crop was only one of several high-income-generating strategies the households employed to make a living. One of the effects of projects in Wawina may be that households were not benefiting in the ways expected.

While development organizations invited community participation, they depended on the beneficiaries who invested in their projects. Development organizations and international donors attempted to make community members accountable for external resources by requiring sweat equity and partial repayment of loans. Some community members, particularly women, disliked these expectations, and some refused to participate if they were required to return a portion of the resources, especially in a

specific time frame. Part of the resistance stemmed from the knowledge that those who offered these resources were well off economically and held powerful positions. There was also a continuing history of visiting missionaries, foreigners, and other wealthy individuals freely distributing resources. Community members did not pay taxes, and the government provided infrastructure, such as the health center, schools, and wells. In this context, there was resistance to the expectation of repayment, which was an obstacle to increased participation.<sup>34</sup>

Development staff said they wanted community members to shape the development process in Wawina. Community members had little power in determining the types of projects sponsored, however. Projects had to meet specific criteria, such as environmental sustainability or promotion of community development, regardless of residents' views. An unexpected way some community members shaped the development process was by refusing to participate and labeling the projects dangerous to arouse suspicions about their purpose.

There was an inherent assumption by development organizations that all community members wanted projects, but the findings of this study show the situation was more complex. Some community members did not want external aid offered to the community. Development language and planning structured every aspect of projects, but community input was called upon only in certain contexts. It appeared that organizations assumed that those who participated would automatically shape development initiatives to locally appropriate forms. Community participation existed in order to link international and national development agendas with local circumstances and ease assimilation of development initiatives into local realities. Development projects directly

and indirectly affected all community members in Wawina, but resistance to projects was largely disregarded. Because development projects were primarily understood as having positive or neutral effects for the community, there was little discussion of possible negative effects or the emotional and social significance of development initiatives for community members.

Many community members who wanted aid did not have clear ideas about what development projects in Wawina should be, and they welcomed the guidance of external organizations. Most community members were unfamiliar with the bureaucracy of international donors, national and local organizations, and local projects. Development employees and public officials stated that community members needed to be taught the development system, how to ask for services and projects, and to demand accountability. Development employees, however, came to Wawina only a few days every month or every few months. This left little time to help strengthen community organizations or develop local peoples' professional skills. Development staff viewed the lack of understanding about economic development schemes as an obstacle that prevented many community members from actively engaging in projects and exerting control over the development of sustainable economies based in the natural resources of the Mosquitia.

An important step was taken when, with the help of MOPAWI staff, a group of cacao producers from the Patuca River region went to the interior of Honduras and negotiated an accord with a cacao processing factory to sell their product at a higher price. This accord was significant because cacao producers acted as a group and were successful in improving their incomes.

Development projects in Wawina were aimed at men. Local development staff, public officials, and community members knew this and stated that cacao production was not women's work. Some acknowledged that women's limited participation in most projects was the result of machismo and cultural expectations for women. Although women regularly worked in agriculture, they were not perceived as capable of carrying out the physical labor to grow cacao. Because of their limited employment opportunities, women did not have the economic resources to make the long-term investment in cacao, including cash to pay men to do the heavy labor. Among those interested in development projects in Wawina, women and many of the most food insecure men were systematically excluded as a consequence of the types of projects promoted. These types of exclusions must be taken into consideration before development initiatives are funded.

Development initiatives must be analyzed to understand how they will affect men and women, and social relations in communities. Women must be mainstreamed into development policies in the Mosquitia and recognized as primary clients in all development projects, not just those targeted at women.

In summary, improving food security was a goal of economic development projects. Projects in Wawina, however, did not include women or the poor. The existing development bureaucracy was not prepared to address differences in the community, or target high-risk populations in meaningful ways. Promoting community participation was more complex than appeared at the surface. Ethnicity, language, gender, socioeconomic status, and worldview influenced community member participation. The worldwide experience of development and funding organizations shaped the development projects sponsored in the Mosquitia. Efforts to have community members invest

themselves, feel ownership over projects, and train them to have the skills to continue projects once development organizations withdraw were often resisted.

Though community members sometimes criticized them, development organizations were not held accountable for the gendered nature of their projects and the lack of widespread tangible benefits in the community. Few households actually participated in projects, and development initiatives in Wawina did not appear to improve the food security of many in the community.

### **Economic Development Policies in the Mosquitia: the Example of the Seafood Diving Industry and Education**

The Honduran government supported the seafood diving industry that harvested marine species for export. This industry has dramatically affected Wawina by providing well-paying jobs to adolescent and young men, but the lack of occupational health standards has resulted in many men dying, becoming paralyzed, and having other serious health problems. Furthermore, this means of livelihood is not ecologically sustainable. The government has instituted annual moratoriums because of the overharvesting of these marine export products, but the seafood diving industry is still not considered sustainable in the long term.

Development organizations also taught community members in Wawina that the seafood diving industry was not sustainable. Despite the health hazards and the possibility that the industry would collapse, many young men quit school and worked as divers for the opportunity to earn a high income. Of concern to short- and long-term household food security was the tendency of some nuclear family households dependent

on the seafood diving industry to reduce or eliminate their subsistence farming efforts. Although the government promoted sustainable economic development projects, these projects could not compete economically in the short term with the income earned in diving. As a result, young men were more likely to choose work in the seafood diving industry rather than with economic development projects promoting cacao production or other sustainable cash crops.

Most men employed in the industry were less than 40 years old and had six years or less of formal schooling. It was not necessary to complete school in order to succeed as a seafood diver. Community members wanted the opportunity to earn incomes comparable to those in the seafood diving industry, but few options were available that were environmentally sustainable or legal, and none required high school diplomas.

Teachers complained that they had spent many years and considerable money to earn their high school degrees, but their incomes were many times less than those of divers and often less than those of farmers. The number of hours worked by teachers limited their ability to grow their own food, generate income with cash crops, or engage in other income-generating activities. This was especially the case if they were stationed in distant communities and lacked access to family land. Although government policies promoted formal education and money was invested in buildings, paying teachers, and establishing a bilingual education program, there were few employment opportunities in the Mosquitia for those who completed high school other than becoming teachers.

It is impossible to know what will happen when the seafood diving industry finally collapses, but I expect many men will continue to work in the industry in other countries. I also expect the expansion of two emerging economic strategies. A growing

business venture in Wawina was using gasoline-powered chainsaws to cut wood planks for the construction of houses and other buildings in local communities. Previously large, human-powered saws were used for lumbering. Chainsaws have made the business much more profitable. One of the wealthiest men in Wawina planned to shut down his store in order to focus on this business because it generated so much more cash income. It was against Honduran law to cut down any tree, even on your own property, without approval from the national forestry agencies, but there was no enforcement of these regulations from anyone in Ahuas or Wawina. In addition, the cutting occurred outside of the community, which was an obstacle to enforcement and made it difficult to determine the extent of wood extraction. I expect more men will invest in chainsaws and exploit this abundant natural resource.

I also expect an increase in cattle production, a growing activity in Wawina at the time of the study. Currently, community members do not sell cattle to the interior or for export but this may change, especially because the abundant land available in the region invites this activity. Unless measures are taken to teach locals about profitable, environmentally sustainable cattle production, this economic strategy may cause widespread ecological damage in the Mosquitia, similar to that in the interior.

If policy makers truly want to improve household food security, they need to reconsider short- and long-term economic development strategies. Policies should be environmentally sustainable, but must increase household food security and income generation in the short term for those most in need. Otherwise, current and emerging unsustainable practices will continue to out-compete environmentally sustainable ones, and vulnerable populations will continue to be marginalized by development policies.

## **CONCLUSIONS AND POLICY CONSIDERATIONS**

In summary, this study shows that households that participated in economic development projects in Wawina tended to be wealthier and food secure. Most were nuclear family households. Compared to other children, during the hungry season, children in these households were significantly taller and heavier. Multigenerational households and single mothers of target children had more food insecurity and were poorer, yet they participated less in development projects. Women who were food insecure had children who were significantly shorter and lighter throughout the hungry season.

The government promoted both environmentally sustainable and unsustainable economic development policies in the Mosquitia, and the seafood diving industry drew more participation than environmentally sustainable development projects, such as cacao production. The actions of development organizations also contradicted their policies in that one of their goals was to increase food security, but the projects offered in Wawina systematically excluded women and other vulnerable populations at risk of food insecurity. Although development organizations invited community participation, in practice only those men who had worldviews similar to those of development planners and the means for long-term planning were likely to participate. They had little food insecurity because they generally employed multiple income-generating activities and enjoyed more access to cash and other resources than did most community members.

MOPAWI has been successful at bringing awareness to indigenous issues at the national and international levels. This effort may positively affect all inhabitants of the Mosquitia in the long-term. In the short term, more efforts must be meaningfully directed



toward engaging women and vulnerable populations with interest in development projects.

The worldwide experience of development and funding organizations shaped the current development policies and projects sponsored in the Mosquitia. Worldwide, there have been many models of economic development projects that include both men and women as primary clients. Wider participation of women and other vulnerable people in development projects is challenging for various reasons. Programs that substantially benefit women have been difficult to establish in the Mosquitia; thus it has been easy to forestall further efforts to include them.

Gender must be mainstreamed into development policies in the Mosquitia, and women must benefit from all initiatives. Development policies should be evaluated to examine how they will affect both men and women and social relations in communities before they are initiated. The current focus on cacao has not increased food security or cash generating opportunities for a wide segment of the community. Development organizations should support women in their efforts to earn independent, regular incomes comparable to those of men and, thus, positively influence household food security on a broader scale. Development organizations need to improve their ability to address the variations found within and between communities in the Mosquitia, and they should reevaluate their basic operating assumptions regarding gender roles and critically consider who benefits from their projects.

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## Notes

<sup>1</sup> For example, in 1998, there were plans to build a large dam on the Patuca River involving two phases. The first phase would develop electricity for Honduras to sell to the Honduran Energy Company and cost a proposed six hundred million dollars. The second phase would be bigger and sell electricity to the rest of Central America, specifically to large industries, and cost 1.2 billion. The proposed dam would be built in a United Nations designated heritage site. While many organizations took neutral positions claiming to be waiting for the results of environmental impact studies, MOPAWI, MASTA and other indigenous federations were against the project and they made this clear in the Declaración de Ahuas (1998).

Local communities and political leaders were concerned about the environmental and structural changes the dam would cause. The dam would reportedly lower water levels on the river. This would affect people's ability to farm and cause other negative environmental effects. There was great concern about the sedimentation of the dam and the threat that it might fill up the watershed. Also, there were reports that some communities would be relocated. Land was held communally, few people had legal titles and relocation would be problematic. Many families traditionally occupied land for farming that was not close to the community where they lived. They feared that if relocated, they would no longer have access to sufficient quality farming land. Also, once the dam was built, river travel would no longer be possible past the dam. Local community members and political leaders had many concerns but felt they were powerless to stop the process.

In early July 1998, a MOPAWI employee discussed some of the national and international politicking among organizations for and against the proposed dam. He claimed there were indicators that the dam would be a liability to the nation. If sedimentation filled the watershed then the dam would not be a practical option and it would cease to function. The proposed dam would be funded entirely with international sources, and as a result, politicians in Tegucigalpa were pushing for the project. (Many politicians were businessmen who owned or were associated with large industries that would benefit from the electricity). The companies investing in the dam expected to get their investment back in approximately ten years. He feared they would no longer have an incentive to take conservation measures of the watershed to prevent it from filling with sedimentation.

The proposed second phase of the project would enlarge the dam and allow Honduras to sell the electricity to the rest of Central America. The MOPAWI employee said the environmental impact studies underway were focused on the effects of the first phase. They reportedly would not assess the impact for the second phase because it would affect thousands of more people and thus be politically dangerous for the project. As a result, he was concerned that those proposing the construction of the dam were not being honest about their intentions because economically it did not make sense to stop at the first phase. However, if they were not assured of their ability to put through the second phase then they did not seem to have a long-term view of their investment in the river and thus would lack the motivation to follow through with conservation measures. He recognized that once the first phase was built, it would be difficult to stop the second phase regardless of environmental impact studies and protests.

The employee told me various organizations were interested in protecting the Mesoamerican Corridor and working to stop the dam including Tear Fund, World Wildlife Foundation, and the Nature Conservatory. He said the German Government had already invested twelve million dollars to evaluate and prevent the construction of the dam. Unfortunately, these sums could not compete with the money available to invest in the construction of the dam.

<sup>2</sup> For example, an NGO employee described how one program started several years ago was meant to increase year-round food security by the promotion of silos to store seed for the following season. He described that up and down the Patuca River, most communities that participated in the program stored the seed and the silos were full, except in Wawina. It was unclear to him why those in Wawina did not save the beans they received and use their silos as expected. He described his conviction that community members in Wawina tended to be individualistic and they were not interested in receiving technical support. As a result there had been several failures working with people in the community.

Based on my findings, most reported they sold their seeds due to lack of cash and the need to purchase other necessities. Storing the product was less of an issue compared to the need for cash. A man from another community explained he saved his seeds but the product spoiled in the silo. As a result, he preferred to store the seeds using other methods.

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<sup>3</sup> All names have been changed to protect confidentiality.

<sup>4</sup> In fact, the executive director of MOPAWI specifically recommended I work in Wawina.

<sup>5</sup> This term is used by many Miskitu to refer to Ladinos.

<sup>6</sup> From the information I gathered, people who came to the community documenting personal information included NGO and GO representatives or researchers sponsored by these groups. I also saw a group of university students from the United States studying for a master's in international public health walk through the community on their way up river. They were on an international program learning about health issues in rural, marginalized communities and stopped at the health clinic in Wawina.

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<sup>7</sup> The index cards were numbered sequentially and after the piles were sorted, I noted which numbers were in each pile. I later added the identification number of each individual who participated in the study to the index cards. After entering the information into the database I double-checked the identification number, name of the participant, and the number of the index cards to ensure accuracy. Nine participants in the study were not included in the wealth ranking activity because they had moved from the area or they joined the study after the activity was completed. When I collected household census information I did not collect names of non-participating persons. As a result, I was unable to associate some individuals with the households identified on the index cards. In most cases, when I was unable to associate the participant with the household, it was because they were not the owner of the home and lived in multigenerational households.

<sup>8</sup> For most families, the accuracy of date of birth was not relevant to their lives. I only knew of one situation where a person experienced a problem. Rosa's husband was a retired schoolteacher and she and her husband kept track of the birth dates of all of their children. Despite the fact that her husband was literate and knew the birth dates of his children, he registered his two oldest children as if they were twins, having the same birth date as that of the second eldest child who is two years younger. The eldest child graduated from high school with a degree as a primary school teacher and works in Wawina. She complained to me that because of her father's error she will have to work an additional two years before she can retire because age and not number of years worked determine retirement of schoolteachers. She claims it would be very difficult at this point to change the birth date on her national identity card.

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<sup>9</sup> This was especially useful in the rainy season when the ground became muddy and pooled with water. However, if steps up the buildings were not carefully constructed of wood planks then they were dangerous. Steps made of round branches became slippery and many people fell on them in the rainy season.

<sup>10</sup> They were involved with both local and regional concerns, such as the Declaración de Ahuas against the proposal to build a dam on the Patuca River in order to produce and sell energy.

<sup>11</sup> Two buildings held classes for kindergarten; one was located in Barrio Centro and the other was located in Barrio Peal. The building in El Centro had two large rooms with walls made from wood planks and a roof made of corrugated metal, referred to as zinc locally. It looked old and needed maintenance. The roof and walls of the building in Barrio Peal were made with corrugated metal. This was the only time I saw corrugated metal used as walls in Wawina. Although it was newer than the building in El Centro, it was in worse condition. It had one small room and the metal sheets were rusted with holes in the walls and roof. During downpours of rain, the students and teachers had to huddle on one side of the building or leave the building entirely to avoid getting drenched. The school building for first through sixth grades was also located in El Centro. This was the newest building, held six classrooms, and was made of cement. There was a closed mechanical water pump in front of the school that did not work and a line of latrines in back, which I never saw anyone use. All the schools had desks and chairs made in Wawina.

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<sup>12</sup> *Sukias* were also known for other abilities, especially regarding love relationships. For example, community members teased me throughout the research year that a Miskitu man would use a perfume on me. This perfume would make me love him and stay in Wawina forever. Reportedly, perfume could be sent across countries and oceans. I was told that if someone used a perfume on me, it would call me back to Wawina from Michigan. When I first heard about perfumes, I asked Marjory about them. She responded in a very serious voice that she did not know anything about perfumes and it was not Christian. Afterward, however, she laughed every time I told her someone else said a man would use a perfume on me.

*Sukias* were also visited in order to make a person fall in love or to prevent a person from being unfaithful. These were serious actions and unexpected couplings, infidelities, or separations were often explained as the result of black magic. Spirits and dead ghosts often worked with *sukias*, but they were also reported to enter the bodies of people who were not *sukias* in order to communicate directly with the living. I heard various accounts of how the dead entered the bodies of the living and sent a message. For example, one message was to thank a living person who was caring for the dead person's children. In another message, the ghost informed his family of his killers. He did this by revealing the names of the people who paid a *sukia* to send the sickness that killed him. In another message, a ghost sent a message saying he was upset about how his relatives were living their lives since he had died. In these accounts, when the spirit entered the living person's body, the living person spoke but did not remember what was said, and in some cases the person was feverish at the time. If the living person became ill from the encounter, it was necessary to call on a *sukia* to make the spirit leave the living person's body.

<sup>13</sup> Yuca is manioc in English. I use the word yuca throughout the dissertation.

<sup>14</sup> *Wawul* is a Miskitu name for a traditional food. *Wawul* is made by mashing bananas, either ripe or unripe, and adding water or coconut milk, and the thick liquid consistency was consumed. While this food could be made any time of the year because bananas were available year round, it was a food eaten in times of scarcity and was a staple of the poor. In my opinion, *wawul* made of ripe sweet bananas tasted good but with unripe bananas was bland. Those who disliked or were unaccustomed to eating unripe bananas joked that it was like eating trees and only produced large bowel movements.

<sup>15</sup> One leader in Wawina told me that people did not usually talk about problems with hunger or lack of resources. Several people told me the only way to know if your neighbor was suffering from food scarcity would be if they did not have a fire in their kitchen all day, while others might seek resources through relatives. Occasionally, people in the town decided that money or food should be collected for a poor family, for example if a death occurred. The leader explained that people come to him pointing out the need and he goes around the community collecting money or food and delivers it to the family. The wealthier community members were reported to help individuals and families on a personal basis as well.

<sup>16</sup> In Miskitu, *ahuas* means pine.

<sup>17</sup> I use the term target children or target child to refer to children who actively participated in this study and to distinguish them from other children living in the same household.

<sup>18</sup> In 1997, the health clinic was closed for the last two weeks of August and the month of December. The report was divided into three age groups, under 5 years of age, 5 to 14 years, and over 15 years of age (see Table). In 1998 they also began tracking the incidence of malaria. I anticipated copying the complete information for 1998 in December 1998, at the end of the data collection period, but Hurricane Mitch prevented me from completing this task.

<sup>19</sup> I did not collect this information during the first set of measurements. In October there were only 19 children in the sample because of Hurricane Mitch.

<sup>20</sup> I find it difficult to believe that all of the women weighed their babies and that they all remembered the weight correctly. I do not think they are using the biomedical standard for defining low weight birth, instead, I suspect they are basing these statements on local expectations of the appropriate size of babies at

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birth. The reported weights are: one baby each at 2 and 2.5 pounds, 12 babies at 3 pounds, three babies at 4 pounds, one at 4.5 pounds and one at 7.8 pounds. Clearly the last is not low weight by biomedical and most other definitions.

<sup>21</sup> I was told that women no longer adhered to menstrual taboos. Traditionally, a menstruating woman was considered polluting and dirty. One elderly woman said that women stayed in menstrual huts and did not participate in daily activities. Their female relatives would bring them food. She reported that during menstruation they were not to lift anything heavy or be active out of concern that it would damage their reproductive organs. When their menstruation stopped, they would leave the hut and take a rock out of the fire to burn their hands so they would not pollute the men's food. At that time she explained, they thought that if a child saw the blood of a menstruating woman, then the child would die. Young women told me they never participated in these activities and laughed at the idea. Some young women were unfamiliar with these practices and this suggested that these practices were stopped several decades ago. One community member said that the Moravian Church was influential in changing menstrual taboos.

<sup>22</sup> In the first sample, in six cases a mother and daughter both lived in the same household with their children who participated in the study. In these cases I entered data on the household head from the perspective of the eldest woman. Also, in another five cases, a woman from the first sample lived in a household with a woman from the second sample. Those in the first sample, women with children, were considered the primary participants and the head of household characteristics were determined from her perspective.

<sup>23</sup> For example, Godoy et al. measured wealth by counting the number of plastic buckets owned by the household (2000).

<sup>24</sup> In the future, I would also consider other wealth indicators. For example, was the house painted? Were there any room divisions in the house, internal wood walls or divisions made by hanging cloth, or was the house one open room? In Wawina, a painted house was uncommon and distinguished the wealthiest of the community. Many people had some sort of division of rooms inside the house. Keeping track of how many rooms were inside the living structure, and the materials used to divide the rooms may be useful. Those houses with divisions, and divisions made of wood, would probably be identified as higher socioeconomic status.

<sup>25</sup> Socorro, my assistant, was a single mother who lived with her mother and her two children in a house. Memo was the son-in-law of the woman I lived with, Rosa. He and his wife were teachers and had two small children.

<sup>26</sup> Men fathered children out of wedlock. Generally, unless the men were married or living with the mother of the children, they rarely helped support and raise the children. I repeatedly heard single mothers complain that the fathers of their children did not provide clothing or any food for their children. Also, when men separated or divorced their wives and left their families, many times they also stopped providing any support. Some men provided food, clothing, and basic necessities occasionally but the community did not hold them accountable for the children, especially if they never had a public relationship with the mother. I was surprised that men who were leaders in the community and the church allowed their children born out of wedlock to go hungry and felt no responsibility whatsoever to the children. Furthermore, as might be expected, wives supported this position and did not want their husbands providing resources to other women and his other children.

Traditionally, the women's family would provide for her and her children. The woman's family almost always still helps single mothers and their children. However, now there were more perceived material necessities that must be purchased, such as soap, salt, cooking fat, clothes, buckets or plates, for example. The use of cash was much more widespread at the time of the study compared to previous generations, and women who were left to support their families alone were in a more perilous situation as traditional means of survival and resources have changed.

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<sup>27</sup> As stated in previous chapters, children who participated in this study are referred to throughout the dissertation as target children. This is done to distinguish children who participated from other children who lived in the household.

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<sup>28</sup> During the visit to Wampusirpi in 1996, I witnessed 10-20 women working furiously for two days completing folder covers to be used in a conference in Tegucigalpa. They were distributed to all conference participants who had pre-registered for the conference, and the cover had multiple colorful designs and writing. I helped the women by cutting out letters and shapes of birds and continents that they later glued to the cover. Women were working until the last minute and ran to the airstrip to submit last minute covers as a small plane landed and quickly left to transport the product to the interior. Later I learned that many of the covers could not be used because the women, the majority of them illiterate Miskitu speakers, spelled the words incorrectly. Although they reportedly received training, quality control was problematic with the craft project.

<sup>29</sup> One Christian-based NGO known by the acronym CCD worked in the Mosquitia but not in Wawina. Many times I heard people comment that CCD really meant 666 and was a sign of the devil. For those who did not speak Spanish, CCD and 666, said in Spanish, sound similar and various people told me this had caused a problem for this organization throughout the Mosquitia and many individuals in communities refused to accept their programs.

<sup>30</sup> In August an elderly women died and relatives from communities upriver came to Wawina for the viewing and funeral. I had worked with this woman, her daughter-in-law, and two grandchildren, and I attended the viewing and funeral. The relatives from upriver criticized the daughter-in-law for working with me and told her I was going to give the information she told me to the devil.

<sup>31</sup> I was surprised to learn that powerful and esteemed community members had been robbed. Memo and Marjory, both young teachers, had one of their five 100-pound bags of beans stolen from their home when Ladinos were purchasing crops in the community. The eldest community member, a retired pastor who walked with canes because his legs were crippled with what I suspect was arthritis, was robbed of most of his bean harvest in the field. He had left the 100-pound bags of beans in the agricultural field upriver from the community and hidden inland from the river because the work crew had finished working late in the day. When he returned the next day to bring the product back to the community, the beans were gone.

<sup>32</sup> Occasionally I was told that young children should not eat meat because then they would want to eat it all the time, even when there was none available. Despite these statements, I saw children eat small portions of chicken and meat they had requested throughout the year. Contrary to what I was told, I never saw young children cry for meat, but I did see them cry for powdered milk and other foods that they saw in the kitchen.

<sup>33</sup> In the house where I lived, this happened most frequently with the 13-year-old son. This treatment may be associated with other "negative" behaviors on his part. For example, if he earned money, he was expected to give it to the household. Instead, he would often spend it on food for himself, such as candy, fruit juice, or other storebought foods. As a result, his meal servings may have reflected punishment for not contributing to the household and not attending school. Rosa's adolescent daughters and her sister and mother lived in the house, but often they consumed less desirable foods than other family members who contributed economically to the household through their teaching positions.

<sup>34</sup> During the research year, MOPAWI facilitated an interchange among Miskitu cacao growers from Nicaragua with growers along the Patuca River. They held a meeting in Wawina and several of the biggest cacao growers described to the Nicaraguan men their experiences growing cacao and the positive benefits to their lives and households. Some female community members and children watched the meeting from a distance but did not participate. Later, I learned that during the meeting, several of the women who were observing were saying that MOPAWI was there to finally take back the cacao they had distributed to start the program. The implication of their talk was that MOPAWI could not be trusted and they would demand

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a return of the entire cacao product as payment for assistance. They suggested that MOPAWI would do this in a way that would negatively affect the economic situation of even the wealthiest households. This was not, of course, the purpose of the meeting that day and did not happen.

## APPENDIX A

### TABLES

**Table 1. Overview of Participants and Methods**

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**I. First Prong: Food Security**

Anthropometry of children and mothers-four rounds to reflect seasonality

Dietary data from children and mothers-four rounds to reflect seasonality

Surveys-for example, Food security survey; Familial household census;  
Agricultural and livestock holdings; Reproductive history and weaning;  
Physical characteristics of household

Open-ended interviews with community members and organizational staff-for  
example, Hunger and food security interview; Food focused life histories with  
elderly; Meal planning; Child following

Participant Observation

**II. Second Prong: Views and Experiences with  
Development**

Open-ended interviews with community members and organizational staff

Participant Observation

**III. 10 months of data collection (ended early by Hurricane Mitch). 330 people  
participated in interviews.**

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**Table 2. Demographics of Five Samples**

<b><u>Samples</u></b>	<b><u>Demographics</u></b>	<b><u>Data collection</u></b>
Sample 1	120 mothers with 147 children	January-October
Sample 2	19 women without children 2-5 years	March-October
Sample 3	43 women from Samples 1 & 2	September-October
Sample 4	7 older community members	April-May
Sample 5	23 adult community members	August-September

**Table 3. Household Composition and Key Economic Activities**

<u>Household Composition (N, households)</u>	<u>Key Economic Activity</u>		
	<u>Cacao Farmer</u>	<u>Diver</u>	<u>Neither</u>
Multigenerational (N=53) <sup>a</sup>	10 <sup>a</sup>	12 <sup>a</sup>	32
Nuclear family (N=62) <sup>b</sup>	16 <sup>b</sup>	37 <sup>b</sup>	18
Single mother (N=4)	0	0	4
Total (N=119) <sup>c</sup>	26 <sup>c</sup>	49 <sup>c</sup>	54

<sup>a</sup> One multigenerational household participated in both cacao farming and diving, yielding a total of 54 responses from 53 households.

<sup>b</sup> Nine nuclear family households participated in both cacao farming and diving, yielding a total of 71 responses from 62 households.

<sup>c</sup> Ten households participated in both diving and cacao farming, yielding a total of 129 responses from 119 households.

**Table 4. Data Collection on Children in Sample 1**

<u>Type of Assessment</u>	<u>Number of children</u>	<u>Months, 1998</u>
Child Following	4	January-February
Clinical Assessment	127	June-July
Height, weight, food recall #1	124	February-March
Height, weight, food recall #2	120	May-June
Height, weight, food recall #3	116	August-September
Height, weight, food recall #4 <sup>a</sup>	19	October

<sup>a</sup>Data collection cut short due to Hurricane Mitch.

Table 5. Data Collection on Women in Samples 1, 2, & 3

<u>Type of assessment or Interview</u>	<u>Number of Women</u>	<u>Months, 1998</u>
Height, weight #1 <sup>b</sup>	86	February-March
Height, weight #2 <sup>b</sup>	33	May-June
Height, weight #3 <sup>b</sup>	87	August-September
Height, weight #4 <sup>ab</sup>	13	October
Interviews on basic household services <sup>c</sup>	132	March-April
Reproductive history <sup>c</sup>	132	March-April
Food frequency for last week <sup>c</sup>	123	March-April
Food Security Questionnaire <sup>c</sup>	124	June-July
Familial Household Questionnaire #1 <sup>c</sup>	117	July-August
Food Recall #1, #2 <sup>d</sup>	41	October
Familial Household Questionnaire #2 <sup>d</sup>	41	October

<sup>a</sup>Data collection cut short due to Hurricane Mitch.

<sup>b</sup>Sample 1

<sup>c</sup>Samples 1 & 2

<sup>d</sup>Sample 3

Table 6. Total Number of Household Members by Household Characteristics

Household Characteristics <sup>a</sup>	N	Mean	Std. Dev	Median	Mode	Minimum	Maximum
Multigenerational	38	8.79	2.94	9	7	4	16
Nuclear family	50	6.46	2.20	6	5	2	14
Single mother of target child	24	7.67	2.50	7	7	4	12
Seafood diver	37	6.49	1.84	6	5	3	11
Cacao farmer	20	7.75	2.24	8	8	2	11
Total, Samples 1 & 2	105	7.25	2.69	7	6	2	16

<sup>a</sup>Household characteristics are not mutually exclusive. Totals are higher than 105.

Table 7. Number of Adult<sup>a</sup> Household Members by

Household Characteristic	N	1-4 members over 12 YOA	5-9 members over 12 YOA	p Value <sup>c</sup>
Multigenerational	38	15 (39%)	23 (61%)	0.000
Nuclear family	50	46 (92%)	4 (8%)	0.000
Single mother of target child	24	12 (50%)	12 (50%)	0.011
Seafood diver	37	33 (89%)	4 (11%)	0.001
Cacao farmer	20	13 (65%)	7 (35%)	0.555
Grandfather of target child <sup>b</sup>	24	8 (33%)	16 (67%)	0.000
Total Sample	105	73 (70%)	32 (30%)	

<sup>a</sup> An adult is defined as an individual over 12 years of age.

<sup>b</sup> Grandfather of target child lives in household.

<sup>c</sup> Chi-Square

**Table 8. Characteristics of Target Children (N=147) and their Households**

<b>Characteristic</b>		<b>Total</b>	<b>Percentage</b>
Sex of child	Male	78	53%
	Female	69	47%
Target child is a twin		6	4%
Target child is adopted		4	3%
Number of young children under 5 years in household	One	31	21%
	Two	63	43%
	Three	47	32%
	Four	6	4%
Multigenerational household		58	39%
Nuclear family household		86	59%
Single mother of target child		36	24%
Seafood diver household		63	43%
Cacao farmer household		34	23%
Grandfather of child lives in household	Yes	38	26%
	Next door	55	37%
Grandmother of child lives in household	Yes	49	33%
	Next door	57	39%
Birth order of child	1st	38	26%
	2nd	23	16%
	3rd	25	17%
	4th	16	11%
	5th	18	12%
	6th	11	8%
	7th	3	2%
	8th	4	3%
9th-14th		9	6%
Where was child born	House-alone	16	11%
	House w/relative	3	2%
	House w/ midwife	105	71%
	Health clinic w/nurse	7	5%
	Hospital in Ahuas	14	10%
	Other	2	1%

**Table 9. Frequency of Vitamin Intake of Children as Reported by Mothers for each Round**

Round	Vitamin Intake	N	Percentage
1	No	107	94%
	Yes	7	6%
	Total	114	100%
2	No	115	96%
	Yes	5	4%
	Total	120	100%
3	No	105	90.5%
	Yes	11	9.5%
	Total	116	100%
4	No	18	95%
	Yes	1	5%
	Total	19	100%



Table 10. Health Indicators for Children and their Z Scores for Height and Weight

Health Indicator	Measure	N	Yes	Mean	No	Mean	t-test p value
Vitamin <sup>a</sup>	Weight round 1	110	7	0.44	103	-0.02	0.235
	round 2	119	4	-1.06	115	0.03	<b>0.029</b>
	round 3	116	11	-0.45	105	0.05	0.114
	round 4	18	1	1.8	17	-0.1	0.04
	Height round 1-4						n.s.
Water <sup>b</sup>	Weight round 1	86	9	0.05	77	0.002	.901
	round 2	117	29	-0.26	88	0.07	0.121
	round 3	116	25	-0.55	91	0.15	<b>.000<sup>d</sup></b>
	round 4	18	8	-0.33	10	0.26	.177
	Height round 1	76	7	0.34	69	-0.04	0.328
	round 2	101	28	-0.22	73	0.1	0.143
	round 3	103	24	-0.43	79	0.13	<b>.001<sup>d</sup></b>
	round 4	18	8	-0.34	10	0.27	0.16
Sickness <sup>c</sup>	Weight round 1 <sup>e</sup>						n.s.
	round 2	110	52	-0.03	58	9E-04	0.886
	round 3	116	89	0.004	27	-0.01	0.944
	round 4	18	12	0.37	6	-0.74	<b>.003<sup>d</sup></b>
	Height round 1 <sup>e</sup>						
	round 2	95	44	-0.01	51	-0.04	0.867
	round 3	103	79	-0	24	0.007	0.967
	round 4	18	12	0.39	6	-0.78	<b>0.005</b>

<sup>a</sup>Did the child consume a vitamin the day of data collection?

<sup>b</sup>Did the household report they purify their drinking water?

<sup>c</sup>Was the child sick during the two weeks prior to data collection?

<sup>d</sup>Equal variance not assumed in the samples.

<sup>e</sup>Data on sickness were not collected at first round

Table 11. Health Clinic monthly epidemiological report for Wawina and Waxma Jan-Nov 1997

	Jan	Feb	March	April	May	June	July	Aug <sup>a</sup>	Sep	Oct	Nov	Total
<b>Pneumonia</b>												
Under 5 YOA	15	0	3	0	0	0	7	1	1	1	6	2
5-14 YOA	0	0	0	0	0	0	0	0	0	0	0	0
15+ YOA	0	0	0	0	0	0	0	0	0	0	0	0
No. per month	15	0	3	0	0	0	7	1	1	1	6	2
<b>Diarrhea</b>												
under 5 YOA	14	4	4	4	0	15	18	13	4	10	28	11
5-14 YOA	3	2	1	0	3	0	0	1	0	0	0	2
15+ YOA	3	2	1	0	1	4	0	0	1	0	2	4
No. per month	20	8	6	0	19	22	14	5	10	30	17	151
<b>Upper respiratory infection (URI)</b>												
under 5 YOA	38	7	48	10	11	32	33	33	16	16	31	20
5-14 YOA	0	0	0	0	0	0	0	0	0	0	0	2
15+ YOA	0	0	0	0	0	0	0	0	0	0	4	1
No. per month	38	7	48	10	11	32	33	33	16	16	35	23
												262
												2
												5
												269

<sup>a</sup>The health clinic was only open the first two weeks of the month of August.

Source:

Comportamiento Epidemiological Semanal Comunidad de Wawina y Waxma  
CESAR Wawina 1997

**Table 12. Sickness among Children from June to October**

	<b>June</b>	<b>August</b>	<b>October</b>
<b>N</b>	<b>111</b>	<b>116</b>	<b>19</b>
<b>Child was sick during previous 2 weeks</b>	<b>52 (47%)</b>	<b>89 (77%)</b>	<b>13 (68%)</b>
<b><u>Type of illness/symptom<sup>a</sup></u></b>			
<b>cough</b>	<b>23 (44%)</b>	<b>70 (79%)</b>	<b>10 (53%)</b>
<b>fever</b>	<b>16 (31%)</b>	<b>39 (44%)</b>	<b>9 (47%)</b>
<b>stomachache</b>	<b>6 (12%)</b>	<b>34 (65%)</b>	<b>2 (11%)</b>
<b>diarrhea</b>	<b>8 (15%)</b>	<b>34 (65%)</b>	<b>1 (5%)</b>
<b>skin infection</b>	<b>2 (4%)</b>	<b>2 (2%)</b>	<b>1 (5%)</b>
<b>toothache</b>	<b>2 (4%)</b>	<b>0</b>	<b>0</b>
<b>excessive mucus</b>	<b>6 (12%)</b>	<b>70 (79%)</b>	<b>9 (47%)</b>
<b>congestion/phlegm</b>	<b>10 (19%)</b>	<b>0</b>	<b>3 (16%)</b>
<b>conjunctivitis</b>	<b>0</b>	<b>6 (7%)</b>	<b>0</b>
<b>other</b>	<b>14 (27%)</b>	<b>9 (10%)</b>	<b>0</b>

**<sup>a</sup>Many children had more than one symptom/illness**



Table 13. Reproductive History and Information about Young Children

	N	Mean	Median	Mode	Std.Dev.	Minimum	Maximum
<b>Pregnancy and birth</b>							
Age of woman at first pregnancy	132	17	16	15	2.9	12	27
No. of pregnancies	132	5.1	5	4	3.12	1	14
No. of miscarriages	132	0.14	0	0	0.41	0	2
No. of newborn deaths	132	0.17	0	0	0.49	0	3
No. of children born in hospital in Ahuas	132	0.55	0	0	1.29	0	10
No. of low weight babies at birth	131	0.16	0	0	0.43	0	2
No. of premature births	131	0.07	0	0	0.25	0	1
<b>Prenatal Visits last pregnancy</b>							
No. of visits to midwife last pregnancy	131	3.9	3	NA	4	0	25
No. of visits to hospital in Ahuas	131	2.2	1	0	2.5	0	15
No. of visits to health clinic in Wawina	131	1.9	1	0	2.9	0	20
No. months pregnant started vitamin	132	4.4	4	3	2	1	9
<b>Children</b>							
At how many months stop breastfeeding	128	14.6	12	12	5.8	1	48
No. months liquid other than breastmilk	101	2.5	2	1	1.5	1	8
No. months old start solid food	129	7.1	7	6	2.8	1	24
No. of older children deaths	132					0	5

### Table 14. Number of Young Children in relation to Other Households Characteristics

Household Indicators (households, N = 147) <sup>a</sup>		Yes	Mean	No	Mean	p value	t-test
Number of children under five years of age living in the household	Multigenerational household	57	2.02	90	2.3	0.04	0.04
	Nuclear family household	86	2.33	61	2	0.016	0.016
	Single mother of target child	36	1.92	111	2.28	0.02	0.02
	Seafood diver household	63	2.3	84	2.11	n.s.	n.s.
	Cacao household	34	2.12	113	2.21	n.s.	n.s.
Total number of children born to the mother of the target child	Multigenerational household	57	3.67	90	4.81	.011	.011
	Nuclear family household	86	4.8	61	3.75	0.019	0.019
	Single mother of target child	36	3.11	111	4.77	0.001	0.001
	Seafood diver household	63	4.16	84	4.52	n.s.	n.s.
	Cacao household	34	4.56	113	4.31	n.s.	n.s.

<sup>a</sup>Household indicators are not mutually exclusive.

Table 15. Formal education of heads of household

Age	Sex	N	Last grade entered											
			None	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th 12th
20-39 YOA	Female	3				1		1	1					
40-59 YOA	Female	7	5	1	1									
60-69 YOA	Female	3	2			1								
	Total	13	7	1	1	2		1	1					
20-39 YOA	Male	49	2	1	1	7	10	3	19		3			3
40-59 YOA	Male	27	5		1	1	5	4	9	1				1
60-90 YOA	Male	14	11	1			1				1			
	Total	90	18	2	2	8	16	7	28	1	4			4
All	Both	103	25	3	3	10	16	8	29	1	0	4	0	4

**Table 16. Two Main types of Work Performed by Heads of Household**

Type of work <sup>a</sup>	Age	Sex	N	Total	Percentage
<b>Farming</b>					
	20-39 YOA	Female	3	3	100%
	40-59 YOA		7	7	100%
	60-69 YOA		3	2	67%
	20-39 YOA	Male	48	42	88%
	40-59 YOA		27	25	93%
	60-90 YOA		15	15	100%
		Total	103	94	91%
<b>Seafood diver</b>					
	20-39 YOA	Male	48	26	54%
	40-59 YOA		27	3	11%
	60-90 YOA		15	0	0%
		Total	90	29	32%
Steer canoe	All	Male	90	5	6%
Store owner	All	Male	90	7	8%
Teacher	All	Male	90	3	3%
Pastor	All	Male	90	3	3%
Carpenter	All	Male	90	3	3%
Diver Manager	All	Male	90	2	2%

<sup>a</sup>Eleven other types of work were mentioned once each.



**Table 17. Human Capital Characteristics of Heads of Household**

Characteristic	Age	Sex	N	Yes	A little	No
Speaks Spanish	20-39 YOA	Female	3	0	3	0
	40-59 YOA		7	0	2	5
	60-69 YOA		3	0	1	2
	20-39 YOA	Male	50	41	8	1
	40-59 YOA		27	18	8	1
	60-90 YOA		15	10	1	4
	All	Both	105	69 (66%)	23 (22%)	13 (12%)
Read	20-39 YOA	Female	3	2	1	0
	40-59 YOA		7	0	1	6
	60-69 YOA		3	1	0	2
	20-39 YOA	Male	49	41	4	4
	40-59 YOA		27	21	2	4
	60-90 YOA		15	7	0	8
	All	Both	104	72 (69%)	8 (8%)	24 (23%)
Write	20-39 YOA	Female	3	2	1	0
	40-59 YOA	Female	7	0	1	6
	60-69 YOA	Female	3	1	0	2
	20-39 YOA	Male	49	41	4	4
	40-59 YOA	Male	27	2	2	4
	60-90 YOA	Male	15	6	0	9
	All	Both	104	71 (68%)	8 (8%)	25 (24%)



**Table 18. Characteristics of the House and Kitchen**  
(N=105 households)

		House	Kitchen
Roof			
	Zinc	47	7
	Leaf	58	65
Floor			
	Wood plank	102	66
	Dirt	3	6
Walls			
	Wood plank	56	32
	Sugarcane poles	46	36
	Other poles	3	2
Kitchen			
	Part of main quarters		33
	Front porch of house		3
	Separate building		69

**Table 19. Wealth Ranking Activity**

	<u>Socorro</u>	<u>Memo</u>	<u>Andres</u>
N, households	141	135	15
<u>Score<sup>a</sup></u>			
Mean	2.45	2.62	2.93
Std.Dev	1.09	1.04	1.1
Median	3	3	3
Mode	3	3	3
<u>Frequency</u>			
Poorest of the poor	38 (27%)	29 (21%)	3 (20%)
Middle low, a little better off than poorest	29 (21%)	20 (15%)	0
Middle high	47 (33%)	59 (44%)	7 (47%)
Rich	27 (19%)	27 (20%)	5 (33%)

<sup>a</sup>Poorest of the poor = 1 point; Middle low a little better off than poorest = 2 points; Middle high = 3 points; Rich = 4 points.



**Table 20. Food consumption at the household level, 3rd Sample**

**Amount cooked at a time for the household:**

	N	Mean	Std.Dev.	Median	Minimum	Maximum
Rice <sup>a</sup>	40	2.3	1.11	2	1	5.5

Beans <sup>a</sup>	40	2.3	0.8	2	1	4.5
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Yuca/bananas <sup>b</sup>	39	8.7	4.6	8	3	20
---------------------------	----	-----	-----	---	---	----

**Number of meals amount cooked lasts:**

Rice	40	1.03	0.16	1	1	2
------	----	------	------	---	---	---

Beans	40	6.5	4.7	5	1	15
-------	----	-----	-----	---	---	----

Yuca/bananas	39	1	0	1	1	1
--------------	----	---	---	---	---	---

**Households with chickens (N=32)**

Do you:

Eat them	27	5
Sell them	6	26
Eat the eggs	30	2
Sell the eggs	11	21

**Eggs on the market (N=13)**

Do you buy  
eggs to eat:

6	7
---	---

**Households with cows (N=15)**

Do you:

Eat them	9	6
Sell them	4	11

Do you:

Consume milk	9	2
Sell milk	2	9

**Households with horses (N=9)**

Do you:

Sell them	0	9
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<sup>a</sup>pounds

<sup>b</sup>pieces

Table 21. Agriculture and Livestock, 3rd Sample

Product				Quantity				
	N	Yes	No	Mean	Std.Dev.	Median	Min.	Max.
Did you plant:								
Rice	39	31	8	1.2 <sup>a</sup>	1.6	1	0	6.5
Beans	40	35	5	1.17	1.4	1	0	6
Yuca	40	17	23	0.36	0.6	0	0	3
Maiz	40	9	31	0.22	0.4	0	0	1.25
Cacao	39	8	31	0.37	1.1	0	0	4
Mahogany	40	2	38	1.7 <sup>b</sup>	7.4	0	0	40
Banana varieties								
Pilipita	40	35	5	64	42	80	0	100+ <sup>c</sup>
Guineo	40	28	12	32	40	10	0	100+
Platano	40	26	14	32	42	10	0	100+
Ikik	39	30	9	46	42	35	0	100+
Do you own:								
Chickens	40	31	9	4.45	4.6	3.5	0	20
Ducks	40	2	38	0.2	0.91	0	0	5
Pigs	40	4	36	0.43	1.53	0	0	8
Cows	40	15	25	1.02	1.54	0	0	5
Horses	40	9	31	0.5	1.13	0	0	5

<sup>a</sup>Number of tareas planted in rice, beans, yuca, maiz, and cacao

<sup>b</sup>Number of trees planted in mahogany, pilipita, guineo, platano, and ikik

<sup>c</sup>100+ means more than 100 total trees planted

**Table 22. Types of Edible Plants and Fruits, 3rd Sample**

**Does your household plant:**

	<b>N</b>	<b>Yes</b>	<b>No</b>
cashew	40	17	23
cilantro	40	13	27
coconut	40	20	20
grapefruit	40	9	31
limes	40	15	25
mango	40	25	15
oranges	40	24	16
palma	40	8	32
papaya	40	1	39
pejiballe	40	25	15
pineapple	40	3	37
squash	40	3	37
sugarcane	40	10	30
sweet pepper	39	11	28
sweet potato	40	4	36
water apples	40	3	37



Table 23. Key Subsistence Activities and Resources by Month<sup>a</sup> in Wawina

	<u>Planting (months)</u>	<u>Harvesting (months)</u>
I. Subsistence Crops		
Beans <sup>b</sup>	January-March	March-May
Maiz	January-March <sup>c</sup>	April-May
Yuca	January	First available in February-March <sup>d</sup>
Rice	May-July	October-December
Banana varieties		January-December
II. Vegetables		
Squash	January-February	March-June
III. Fruits	<u>Months fruits are available</u>	
Lime/lemon	March-April	
Pineapple	Mid-April-July	
Oranges and grapefruits	October-March	
III. Animal Eggs	<u>Months eggs are available</u>	
Chicken and duck eggs	January-December	
Turtle eggs	January-March	
Iguana eggs	March-April	

<sup>a</sup>The general months these activities took place from year to year according to community members.

<sup>b</sup>Many people planted two bean varieties. One type grew faster and would be ready for harvest several weeks before the second.

<sup>c</sup>Generally, a small amount of maize was intercropped with beans.

<sup>d</sup>Yuca can be harvested throughout the year.

Table 24. Frequency of Consuming and Selling Livestock, 3rd Sample

Frequency or explanation	How often do you:			
	consume chicken/duck (N=40)	consume/sell pig (N=8)	consume/sell cow (N=17)	sell horse (N=10)
One time a month	15			
One time a week	3			
Two to three times a week	3			
Two to three times a month	3			
Once every two or three months	5			
Once every four or five months	3			
Once every six months	4			
Once a year		5	6	1
Once or twice a year			3	
Two-three times a year		1	2	
Once every two years			1	
Once every few years			3	1
Never sold or killed animal owned		1	2	8
First owned, not ready to kill or eat		1		
Other	4			

**Table 25. Decision-making regarding livestock, 3rd Sample**

<b>Why do you kill or sell a chicken or duck?</b>	
(N=32)	<b>Total<sup>a</sup></b>
Lack of meat so kill to consume	38
Sell because need cash	8
In order to feed the family	1

<b>Why do you sell chicken or duck eggs?</b>	
(N=33)	<b>Total</b>
Never sells, always consume	20
Need cash	12
Does not eat because would have to purchase	1

<b>Why do you kill a pig?</b>	
(N=8)	<b>Total</b>
To eat the meat, not likely to sell the meat	4
Eat the meat and earn cash	2
Causing damage to others' fields	1
Emergency, need to raise cash	1

<b>Why do you kill or sell a cow?</b>	
(N=17)	<b>Total<sup>a</sup></b>
Emergency, need to raise money quickly	6
No money, need to raise cash	4
Build a house or do specific job	4
Pay agricultural workers	4
For a wedding	2
In order for family to eat meat	2
Send a child to school	1

<b>Why do you sell a horse?</b>	
(N=4)	<b>Total</b>
Emergency, need to raise money quickly	4

<sup>a</sup>The participant could provide up to two reasons.

Table 26. Household Subsistence Strategies: Hunting and Fishing

Number of people reported to fish:	N (households)	How often:
1	28	1X/week
2	11	
3	2	
1	20	2X/week
2	2	
3	1	
1	6	1X/2weeks
2	1	
1	4	3X/mo
3	1	
1	8	1X/mo
1	3	3X/week
1	2	4X/week
1	2	6X/week
1	2	other
<u>Number of people reported to hunt:</u>		
1	7	1X/mo
1	7	1X/week
2	2	
1	2	2X/week
3	1	
1	4	1X/2weeks
2	1	
1	1	3X/week

**Table 27. Types of Work Reported for All Household Members**

Type of work reported <sup>a</sup>	Number of Persons
Farming	295
House work	44
Seafood diver	37
Steer canoe for seafood diver	22
Pulperia owner	12
Teacher (includes retired)	6
Chainsaw operator	5
Pastor	5
Carpenter	3
Carpenter assistant	2
Motor boat driver	2
Seamstress	2
Seafood diver manager (sacabuzo)	2
Transporter of goods via horse	2
Cook	1
Washing and ironing clothes	1
Midwife	1
Fishing	1
Hunter	1
Factories in Bay Islands	1
Mailman	1
Policeman	1
Cement/Mason	1
Owner of a boat engine	1
Musician	1

<sup>a</sup>Participant provided up to two jobs for each household member

**Table 28. Food security scores for women, children and both**

Food Security Score for:		Score <sup>a</sup>	Frequency	Percent
Women <sup>b</sup> (N=124)	No food insecurity	4	37	30
		5	13	10
		6	31	25
		7	12	10
		8	22	18
		9	3	2
		10	3	2
		11	2	2
		12	1	1
	Total		124	100
Children <sup>c</sup> (N=124)	No food insecurity	2	119	96
		3	3	2
		4	1	1
		6	1	1
	Total		124	100
Total score for women and children <sup>d</sup> (N=124)	No food insecurity	6	37	30
		7	12	10
		8	32	26
		9	12	10
		10	21	17
		11	3	2
		12	1	1
		13	3	2
		14	2	2
	Total		124	100

<sup>a</sup>Five of the six questions had three possible scale responses: no or never equaled one point, sometimes equaled two points, and many times equaled three points. For the fourth adult level question which was a yes/no response, no equaled one point and yes equaled three points.

<sup>b</sup>The lowest possible score is 4, indicating no reported food insecurity.

<sup>c</sup>The lowest possible score is 2.

<sup>d</sup>The lowest possible score is 6.

Table 29. Frequency of Responses to the Food Security Questionnaire

Level	Question	Frequency	Percent
<b>I. Adult</b>			
	<b>#1: My diet is not very good</b>		
	Never/It's not true	110	89%
	Sometimes it's true	10	8%
	Many times it's true	4	3%
	Total	124	100%
	<b>#2: Sometimes I'm hungry but I don't eat more because there is not enough food</b>		
	Never/It's not true	50	40%
	Sometimes it's true	62	50%
	Many times it's true	12	10%
	Total	124	100%
	<b>#3: I eat less than I should because there is not enough food</b>		
	Never/It's not true	56	45%
	Sometimes it's true	58	47%
	Many times it's true	10	8%
	Total	124	100%
	<b>#4: During the last month, I missed a meal because there was not enough food</b>		
	No	88	71%
	Yes	36	29%
	Total	124	100%
<b>II. Child</b>			
	<b>#1: I cannot give my children the foods I think they should eat</b>		
	Never/It's not true	120	97%
	Sometimes it's true	2	2%
	Many times it's true	1	1%
	Total	123	100%
	<b>#2: My children do not eat enough because I cannot give them more</b>		
	Never/It's not true	119	97%
	Sometimes it's true	3	2%
	Many times it's true	1	1%
	Total	123	100%

**Table 30. Breakdown of Household Composition**

<b>Household Composition</b>	<b>N</b>
I. Multigenerational Household	53 (45%)
a. mother of target child is single mother (29/53, 55%)	
II. Nuclear Family Household	62 (52%)
III. Single Mother Household	<u>4 (3%)</u>
<b>Total Households</b>	<b><u>119 (100%)</u></b>



**Table 31. Analyses of Household Indicators<sup>a</sup> and Wealth**

<b>Economic Activity and Wealth Variable</b>	<b>N</b>	<b>Mean Rank</b>	<b>p Value</b>
<b>I. Cacao Farmer Household</b>			
<u>Separate Kitchen<sup>b</sup></u>			
No	32	43.05	
Front porch of house	5	38.5	
Yes	60	53.05	
Total	97		.036
 <u>Walls of Kitchen<sup>b</sup></u>			
Sugarcane	36	27.93	
Wood planks	23	36.59	
Other <sup>d</sup>	2	22	
Total	61		.045
 <u>Roof of house<sup>c</sup></u>			
Leaf	60	45.78	
Zinc	37	54.23	
Total	97		.044
 <b>II. Seafood Diver Household<sup>e</sup></b>			
<u>Roof of house<sup>c</sup></u>			
Leaf	60	44.24	
Zinc	37	56.72	
Total	97		.012

<sup>a</sup>Wealth had no significant relationship with the following household indicators, multigenerational household, nuclear family household, or single mother of target child.

<sup>b</sup>Kruskal-Wallis

<sup>c</sup>Mann-Whitney U-Test

<sup>d</sup>Some households used a combination of materials to construct the walls. For example, a few wood planks, sugarcane poles, and other types of poles.

<sup>e</sup>Kitchen and walls, not significant.

Table 32. Food Security Survey, Questions Two and Three, Adult Level  
by Household Indicators: Mann-Whitney U test

Food Security Question and Household Indicator <sup>c</sup>	N	Mean Rank	p Value
<u>I. Multigenerational Household</u>			
<i>Question Two</i> <sup>a</sup>			n.s.
<i>Question Three</i> <sup>b</sup>			
No	57	46.49	
Yes	48	60.73	
Total	105		0.007
<u>II. Nuclear family household</u>			
<i>Question Two</i> <sup>a</sup>			
No	52	58.58	
Yes	53	47.53	
Total	105		0.039
<i>Question Three</i> <sup>b</sup>			
No	52	58.88	
Yes	53	47.23	
Total	105		0.028
<u>III. Single mother of target child</u>			
<i>Question Two</i> <sup>a</sup>			
No	74	48.13	
Yes	31	64.63	
Total	105		0.005
<i>Question Three</i> <sup>b</sup>			
No	74	49.49	
Yes	31	61.37	
Total	105		0.041

<sup>a</sup>Sometimes I'm hungry but do not eat more because there is not enough food.

<sup>b</sup>I eat less than I should because there is not enough food.

<sup>c</sup>Responses to questions two and three had no significant relationship with the economic activities, seafood diver and cacao farmer households.

Table 33. Analyses of Household Indicators<sup>a</sup> and Mean BMI Values for Non-Pregnant Women

Round	Measure	Household Indicators	N	Yes	Mean	No	Mean	t-test p value
1	BMI	Single mother of target child	76	18	24	58	26	0.023
3	BMI	Single mother of target child	74	21	23.2	53	25.7	0.01
4	BMI	Nuclear family household	13	6	28.9	7	23.3	0.037
4	BMI	Multigenerational household	13	7	23.3	6	28.9	0.037

<sup>a</sup>Mean BMI had no significant relationship with the economic activities, seafood diver and cacao farmer households.

**Table 34. Mothers' Responses to Food Security Questionnaire, #2, Adult Level in relation to Height and Weight of Children**  
**Mother responded to: Sometimes I'm hungry but do not eat more because there is not enough food**

Measure	Round	Response	N	Mean	Std.Dev	Bonferroni p value
Mean Z score for weight <sup>c</sup>	2	Never/No it's not true	42	0.38	1.07	
		Sometimes it's true	43	-0.24	0.78	
		Many times it's true	9	-0.12	0.91	
	Total		94	0.05	0.97	0.008 <sup>a</sup>
	3	Never/No it's not true	37	0.33	1.06	
Mean Z score for height <sup>d</sup>	2	Sometimes it's true	49	-0.28	0.76	
		Many times it's true	9	0.34	1.25	
		Total	95	0.02	0.97	.012 <sup>a</sup>
	2	Never/No it's not true	36	0.33	0.95	
		Sometimes it's true	38	-0.18	0.94	
		Many times it's true	7	-0.23	0.95	
	Total		81	0.04	0.97	0.066 <sup>a</sup>
	4	Never/No it's not true	5	0.76	0.65	
		Sometimes it's true	5	-0.72	0.45	
		Many times it's true	2	1.12	0.59	0.008 <sup>a</sup>
	Total		12	0.21	0.97	0.011 <sup>b</sup>

<sup>a</sup>Never/it's not true and Sometimes it's true

<sup>b</sup>Sometimes it's true and Many times it's true

<sup>c</sup>The food security question had no significant relationship with round 4 mean Z score for weight of children.

<sup>d</sup>The food security question had no significant relationship with round 3 mean Z score for height of children.

Table 35. Mann-Whitney U Analyses: Participation in Development Projects by Household Indicators

Participation in Development Projects and Household Indicators <sup>a</sup>	N	Mean Rank	p Value
<b>I. INFOP Participation</b>			
<u>Multigenerational Household</u>			
No	88	50.7	
Yes	9	32.39	
Total	97		0.031
<u>Nuclear Family Household</u>			
No	88	47.15	
Yes	9	67.11	
Total	97		0.019
<u>Single Mother of Target Child</u>			
No	88	50.43	
Yes	9	35	
Total	97		0.046
<u>Cacao Farmer Household</u>			
No	88	45.66	
Yes	9	81.61	
Total	97		.000
<b>II. MOPAWI Participation<sup>b</sup></b>			
<u>Cacao Farmer Household</u>			
No	82	46.19	
Yes	15	64.37	
Total	97		0.001

<sup>a</sup>Participation in development projects had no significant relationship with seafood diver household.

<sup>b</sup>Multigenerational household, nuclear family household, and single mother of target child, not significant.

**Table 36. Analyses of Participation in Development Projects and Wealth**

Participation in Projects and Wealth Variables		N	Mean Rank	p Value
I. MOPAWI Participation				
	<u>Roof of House<sup>a</sup></u>			
	Leaf	64	49.3	
	Zinc	46	64.13	
	Total	110		.000
	<u>Walls of House<sup>b</sup></u>			
	Other	3	45	
	Sugarcane	50	50.5	
	Wood Planks	57	60.44	
	Total	110		0.043
	<u>Separate Kitchen<sup>b</sup></u>			
	No	34	48.24	
	Front Porch of House	5	45	
	Yes	71	59.72	
	Total	110		0.022
II. INFOP Participation <sup>c</sup>				
	<u>Roof of House<sup>a</sup></u>			
	Leaf	64	52.58	
	Zinc	46	59.57	
	Total	110		.029

<sup>a</sup>Mann Whitney U Test

<sup>b</sup>Kruskal-Wallis Test

<sup>c</sup>Kitchen and walls, not significant.

Table 37. Food Security Questionnaire, Question Three, Adult Level by Participation in Development Projects: Kruskal-Wallis Test

Food Security Question and Development Project Participation <sup>a</sup>	N	Mean Rank	p Value
I. INFOP Participation			
<i>Question Three</i> <sup>b</sup>			
No	99	57.86	
Yes	11	34.27	
Total	110		0.009

<sup>a</sup>Response to question three had no significant relationship with participation in MOPAWI projects.

<sup>b</sup>I eat less than I should because there is not enough food.

**Table 38. Participation in Economic Development Projects by Height and Weight of Children**

Round	Mean Z score for:	Participation in Projects	N	Yes	Mean	No	Mean	t-test p value
3	Height	MOPAWI	85	11	0.67	74	-0.1	0.015
	Weight							n.s.
	Height	INFOP						n.s.
	Weight		95	9	0.71	86	-0.06	0.023



## APPENDIX B

### Appendix B.1: Height and Weight of Children 2-4 years of age

A) Name of child \_\_\_\_\_ B) ID Number \_\_\_\_\_  
C) Mother's name \_\_\_\_\_ D) DOB of child \_\_\_\_\_  
E) DOB of child confirmed \_\_\_\_\_ F) Current age \_\_\_\_\_  
G) Birth weight \_\_\_\_\_ H) Birth place \_\_\_\_\_  
I) Birth order \_\_\_\_\_ J) Number of children less than 5 years in hhld \_\_\_\_\_  
K) Father of child in the house? Yes/No L) Single mother? Yes/No  
M) Cacao? Yes/No (circle one) N) Diver? Yes/No  
O) Grandfather of child lives in the house? Yes/No/No, lives next door  
P) Grandmother of child lives in the house? Yes/No/No, lives next door  
Q) Name of caretaker if not mother \_\_\_\_\_

#### FIRST MEASUREMENT

Date of measurement \_\_\_\_\_ Current age in months \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

#### SECOND MEASUREMENT

Date of measurement \_\_\_\_\_ Current age in months \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

#### THIRD MEASUREMENT

Date of measurement \_\_\_\_\_ Current age in months \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

#### FOURTH MEASUREMENT

Date of measurement \_\_\_\_\_ Current age in months \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

## Appendix B.2: Height and Weight of Mothers

Mother's name \_\_\_\_\_ ID # woman \_\_\_\_\_  
Name of child \_\_\_\_\_ ID # child(ren) \_\_\_\_\_  
DOB of mother \_\_\_\_\_ Current age \_\_\_\_\_

### FIRST MEASUREMENT

Date of measurement \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

Pregnant? Yes/No \_\_\_\_\_ if yes, # of mo pregnant \_\_\_\_\_  
Gave birth in the last month? Yes/No \_\_\_\_\_ Breastfeeding? Yes/no \_\_\_\_\_

### SECOND MEASUREMENT

Date of measurement \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

Pregnant? Yes/No \_\_\_\_\_ if yes, # of mo pregnant \_\_\_\_\_  
Gave birth in the last month? Yes/No \_\_\_\_\_ Breastfeeding? Yes/no \_\_\_\_\_

### THIRD MEASUREMENT

Date of measurement \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

Pregnant? Yes/No \_\_\_\_\_ if yes, # of mo pregnant \_\_\_\_\_  
Gave birth in the last month? Yes/No \_\_\_\_\_ Breastfeeding? Yes/no \_\_\_\_\_

### FOURTH MEASUREMENT

Date of measurement \_\_\_\_\_

Height \_\_\_\_\_ height \_\_\_\_\_

Weight \_\_\_\_\_ weight \_\_\_\_\_

Pregnant? Yes/No \_\_\_\_\_ if yes, # of mo pregnant \_\_\_\_\_  
Gave birth in the last month? Yes/No \_\_\_\_\_ Breastfeeding? Yes/no \_\_\_\_\_

### Appendix B.3: Twenty-Four-Hour Food Recall

Mother's Name _____		Barrio _____		
Name _____		Date _____	Day of Week _____	Vitamin intake today?
Yes/No (circle one)				
Purifies water? Yes/No	Cloro/Boil	Sickness within last week:		
Time/meal over	Food	Ingredients	Quantity	Ate all/left

## **Appendix B.4: Physical Characteristics of the Household**

Name \_\_\_\_\_ IDNumber \_\_\_\_\_

Date \_\_\_\_\_ Barrio \_\_\_\_\_

1. Where do you get your drinking water?

- a. Closed well away from the property
- b. Closed well on the property
- c. Open well away from the property
- d. Open well on the property

2. How do you dispose of your trash?

- a. Throw it in the yard
- b. Burn it
- c. Bury it
- d. Other

3. Does the household have a latrine?

- a. No
- b. Yes

If yes, how many months or years since it was built?

4. Does the household have a radio?

- a. Yes, functioning
- b. Yes, not functioning
- c. No

5. Does the household have a gas stove?

- a. Yes, functioning
- b. Yes, not functioning
- c. No

6. Does the household have a refrigerator?

- a. Yes, functioning
- b. Yes, not functioning
- c. No

## **Appendix B.5 Reproductive History**

Name \_\_\_\_\_

ID \_\_\_\_\_

### **I. Pregnancy history**

1. Age of first pregnancy
2. Number of pregnancies
3. Number of miscarriages
4. DOB of youngest child
5. When you were pregnant, did you drink alcohol (beer, etc.)?  
Amount?
6. Did you smoke?  
Amount?
7. Did you receive prenatal care during your last pregnancy?
8. What type of care did you receive?  
Midwife?  
Health center nurse?  
Hospital in Ahuas?
9. Of all your children, how many were born in the hospital in Ahuas?
10. Did you take iron or vitamins during your last pregnancy?  
Starting at what month?
11. During your pregnancies, what changes have you made in your diet?  
Why?
12. Have you delivered a low-weight baby?  
How many pounds at birth?
13. Have you delivered a premature baby?  
How many months old?
14. Have you had any babies die soon after birth (newborn, # months)?

### **II. Lactation and child feeding**

1. At how many months did you stop breastfeeding your last child?
2. When did you start breastfeeding your last baby?
3. Did you give your child the colostrum?
4. At what age did you start giving your child tastes of solid food?
5. What were the first foods?
6. When did you start giving your child liquids besides breastmilk?
7. What were the first liquids?

## **Appendix B.6: Maternal Weekly Food Frequency**

Name \_\_\_\_\_ ID \_\_\_\_\_ Date \_\_\_\_\_

**I. Granos:** Times per week

Banana varieties

Arroz

Tortillas

Maiz

Spaghetti

Sopa Magi

Pan

Papas

Frijoles

Yuca

**II. Frutas and Vegetables:** Times per week

Salsa de tomate

Marañon

Caña

Pihtu

Coco

Sandia

Lima

Naranja

Limon

Toronja

Tomate

Chiles

Mango

Cebolla

Ajo

Ayote

Platano

III. Animales: Times per week

Pez  
Carne de res  
Pollo  
Higado  
Venado  
Leche  
Huevo (gallina, pato, iguana, tortuga)  
Iguana  
Cerdo  
Otro carne

IV. Aceites y Azucar Times per week

Refrescos  
Aceite  
Manteca  
Dulce  
Azucar  
Café

Did you take prenatal vitamins?

Has your child had diarrhea during the last two weeks?

Has your child had a cough during the last two weeks?

## **Appendix B.7: Food-Focused Life History Questions**

- 1) Do you remember the past, how life was etc.
- 2) Differences between now and 10 years ago, 20 years ago, 30 years ago in terms of food available to eat, crops grown.
- 3) When you were about 10 years old (a child) do you remember the crops (food ) grown?
- 4) Did you have manteca, salt, sugar, flour?
- 5) Did you eat meat more or less often?
- 6) Did people keep cows/horses/pigs/chickens?
- 7) How did people get foods?
- 8) Did people gather in the bush, if so what types of foods?
- 9) River/lake food available-camaron, crayfish, fish, lobster, sea turtle, turtle
- 10) Do you remember times of extreme hunger? Seasonal hunger? More or less than now?
- 11) Did people migrate to work? Much cash?
- 12) What employment opportunities were available when you were young?
- 13) Any other major changes?
- 14) In the past, did people drink chicha or alcoholic beverages?



## **Appendix B.8: Food Security Questionnaire**

Nombre \_\_\_\_\_ ID \_\_\_\_\_ Fecha \_\_\_\_\_

### **Ideas Generales Sobre La Alimentacion**

1) Como describe Ud. una alimentacion buena? Que tiene que comer para tener una buena alimentacion?

2) Cada cuanto tiene uno que comer a) arroz, yuca, abastimiento, b) frijoles, c) carne or pescado, d) fruta, e) vegetales, f) frescos, h) leche?

### **Nivel de Hogar**

Cual frase MEJOR describe la alimentacion y comida consumida en su hogar?

1-Tenemos suficiente comida para comer

2-A veces no tenemos suficiente comida

3-Con frecuencia no tenemos suficiente comida

Constesta entre: 1) nunca/no es cierto, 2) a veces es cierto, 3) muchas veces es cierto

1-Comemos la misma comida por varios dias seguidos por que tenemos muy pocos tipos de comida y no podemos conseguir mas.

2-Yo preocupo mucho si voy a tener comida a dar a mi familia mañana.

3-Yo preocupo si la comida va a alcanzar a dar a mi familia antes de que podemos conseguir mas.

4-Termino la comida que teniamos y no tenemos dinero ni otras maneras de conseguir mas comida.

### **Nivel de Adulto**

Constesta entre: 1) nunca/no es cierto, 2) a veces es cierto, 3) muchas veces es cierto

1-Mi alimentacion no es muy buena.

2-A veces tengo hambre pero no como mas porque no hay suficiente comida.

3-Yo como menos que debo por que no hay suficiente comida.

4-Durante el ultimo mes yo perdi un tiempo de comida por que no habia suficiente comida.

### **Nivel de Niño**

Constesta entre: 1) nunca/no es cierto, 2) a veces es cierto, 3) muchas veces es cierto

1-Yo no puedo dar de comer a mis hijos como yo creo ellos deben comer. (los tipos de comida, calidad.)

2-Mis hijos no comen suficiente por que yo no puedo darles mas.

## Appendix B.9: Clinical Assessment

Name of child \_\_\_\_\_ ID \_\_\_\_\_  
Mother's Name \_\_\_\_\_ ID \_\_\_\_\_  
Date \_\_\_\_\_

### I. Physical Findings

#### Acceptable findings

#### Malnutrition Findings

Hair: shiny, firm in the scalp      dull, brittle, dry, loose, abnormal color  
Normal color

Observations: \_\_\_\_\_

Eyes: bright, clear pink membranes      pale membranes, spots, redness, adj  
adj easily to light      slowly to light, palpebral fissures,  
infections on roots of eyelashes

Observations: \_\_\_\_\_

Teeth and Gums: no pain or carries, gums firm,      missing, discolored or decayed teeth  
teeth bright      gums bleed easily, swollen/spongy  
Bad misalignment

Observations: \_\_\_\_\_

Face: clear complexion wo/dryness or      off-color, scaly, flaky, cracked skin  
Scaliness, normal looking features      long, flat filtrum, underdeveloped  
mid-face, thin upper lip

Observations: \_\_\_\_\_

Tongue: red, bumpy, rough      sore, smooth, purplish, swollen

Observations: \_\_\_\_\_

Skin: smooth, firm, good color      dry, rough, spotty, "sandpaper" feel  
sores, lack of fat under skin, edema

Observations: \_\_\_\_\_

**Nails:**            **firm, pink**

**spoon-shaped, brittle, rigid**

**Observations:** \_\_\_\_\_

**Muscles, bones**

**muscle tone, posture, long  
bone development approp  
For age**

**wasted appearance of muscles,  
swollen bumps on skull or end bones  
bowed legs or knock-knees, stiff or  
underdeveloped joints**

**Observations:** \_\_\_\_\_

## Appendix B.10: Familial Household Questionnaire #1 & #2

### Familial Household Questionnaire #1

#### I. Family Census

Name (or relationship to target woman)                      Sex      Age

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Etc. for additional household members

#### II. Physical Characteristics of the Home

<u>Floor:</u>	House	Kitchen	<u>Walls:</u>	House	Kitchen
Dirt	_____	_____	Sugarcane	_____	_____
Cement	_____	_____	Wood plank	_____	_____
Wood plank	_____	_____	Other	_____	_____

<u>Roof:</u>		<u>Kitchen Separate:</u>	
Leaf	_____	Yes	_____
Zinc	_____	No	_____
Other	_____	Front porch of house	_____

#### III. Vaccination History of Target Children

First Target Child: Name \_\_\_\_\_ ChildID \_\_\_\_\_

	Date of First (a/d)	Second (a/d)	Third (a/d)	Fourth (a/d)
Polio:	_____/_____/_____	_____/_____/_____	_____/_____/_____	_____/_____/_____
DPT:	_____/_____/_____	_____/_____/_____	_____/_____/_____	_____/_____/_____

	Date of First	Date of Second
Measles:	_____/_____/_____	_____/_____/_____
TB:	_____/_____/_____	_____/_____/_____
Vit. A.:	_____/_____/_____	_____/_____/_____

Second Target Child: Name \_\_\_\_\_ ChildID \_\_\_\_\_  
 Date of First (a/d) \_\_\_\_\_ Second (a/d) \_\_\_\_\_ Third (a/d) \_\_\_\_\_ Fourth (a/d) \_\_\_\_\_  
 Polio: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
 DPT: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Measles: Date of First \_\_\_\_\_ Date of Second \_\_\_\_\_  
 TB: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
 Vit. A.: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Etc. for other target children

#### IV. Sickness over previous two weeks

First Target Child:

Second Target Child:

Etc. for other target children

#### V. Who hunts and fishes for your family?

1. Relationship to target woman _____	How often? _____	Seasonally? _____
2. Relationship to target woman _____	How often? _____	Seasonally? _____
3. Relationship to target woman _____	How often? _____	Seasonally? _____
4. Relationship to target woman _____	How often? _____	Seasonally? _____

Etc. for others...

#### VI. Education, Literacy and Work of household Members over 6 years of age

<u>Member</u>	<u>age</u>	<u>Last grade entered</u>	<u>Reads?</u>	<u>Writes?</u>	<u>Spanish?</u>	<u>1<sup>st</sup> Work</u>	<u>2<sup>nd</sup> Work</u>
1.							
2.							
3.							
etc.							

VII. Have you or a member of your household ever received training, technical assistance, advice, seeds or other assistance from MOPAWI, INFOP or other organizations?      Yes      No

## Familial Household Questionnaire #2

### Questions Asked:

- 1a) When you are going to cook rice for your household, how many pounds do you cook to make sure there is enough for everyone? How long does it last?  
(Documented on the back of the copy or on separate page.)
- 1b) Same for beans (Documented on the back of the copy or on separate page.)
- 1c) Same for tama (banana varieties) (5-8 individual fruits = 1 mano) (Documented on the back of the copy or on separate page.)
- 2) How much rice did you plant, harvest, get ruined, consume, sell, give to animals, save for the next years as seed, give away. Did it last the whole year?  
(Documented on instrument).
- 3) Same for beans. (Documented on instrument).
- 4) Same for yuca. (Documented on instrument).
- 5) Same for cacao. (Documented on instrument).
- 5a) Same for maiz. (Documented on instrument).
- 6) Same for vegetables. (Documented on instrument). Probed for squash, garlic, tobacco, pineapple, sugar cane, coffee, sweet potato, malanga, sweet pepper, onion, cilantro, tomato, cucumber, other.
- 7) Are you the owner or have free access to fruit trees? Probe for orange (sweet and bitter), grapefruit, coconut, lime, mango, pilipita banana, plato banana (plantain), guineo banana, ikyk banana, cashew fruit, water apple, pejiballe, palma.  
(Documented on instrument).
- 7a) Do you have plans to plant more, less or the same next year of rice, beans, yuca, cacao, vegetables, banana varieties, maiz, coffee, tobacco? (Documented on instrument).
- 8) How many chickens do you have, how did you get them, what will you do with them-eat, sell, give away. Do you eat or sell chicken eggs? (Documented on instrument).
- 9) Same with ducks. Do you eat or sell duck eggs? (Documented on instrument).
- 10) Same with pigs. (Documented on instrument).

- 11) Same with cows. Do you consume, sell the milk, make and sell or consume butter or quajada/cheese? (Documented on instrument).
- 12) Same with horses. (Documented on instrument).
- 13) How often do you eat a chicken or duck? How often do you eat the eggs? How do you decide to eat or sell a chicken or duck? (Document on back or separate page.)
- 14) How often do you eat a pig? How do you decide to eat or sell a pig? (Document on back or separate page.)
- 15) How do you decide to eat or sell a cow? Make, eat or sell milk and quajada/cheese? How often do you eat or sell a cow? How do you decide? (Document on back or separate page.)
- 16) How often do you sell a horse? How do you decide. (Document on back or separate page.)

## **Appendix B.11: Development, Health, Hunger, Politics Interview**

- 1) En general, que partes del año son mas dificiles para conseguir suficiente comida? Porque?
- 2) En general, que hacen gente cuando no tiene suficiente comida para comer? Hay una forma de saber cuando un hogar no tiene suficiente? (Todo es secreto?)
- 3) En general, quien decide como gasta el dinero del hogar y como consigue el dinero?
- 4) En general, quien decide cuales plantas siembran y cosechan y si son vendidos o consumidos en la casa?
- 5) En general, las personas en Wawina usan mas hierbas o medicinas comprados y del Centro de Salud? Por que? Cuales son mejores?
- 6) En general, cuales son los trabajos de hombre para ganar dinero que mujeres no pueden hacer? Visa Versa?
- 7) Ud. va a reuniones del puebls? Por ejemplo: eligiendo auxiliarees, o para discutir y examinar un problema del pueblo o otro reunion? Por que?
- 8) En general, quien va a este tipo de reunion? Quien habla mas?
- 9) Para Ud., que son calidades de un buen lider del pueblo? Como debe ser un buen lider?
- 10) Para Ud., cuando gente habla de desarrollo o subdesarrollo de Wawina, La Mosquitia, Honduras etc., Ud. siente que entiende lo que habla?
- 11) Para Ud., que significa desarrollar Wawina? Ejemplos?
- 12) Como va a saber cuando esta desarrollado?
- 13) Cuando viene gente de afeura (por ejemplo: el gobierno-FHIS, NGOs, gringos medicos), Ud. le gusta y quieren la ayuda que brindan?
- 14) Ud. cree que tiene un control o poder en terminos de las decisciones que hacen el gobierno en referencia a Wawina o La Mosquitia? Pueden influir o cambiar las decisiones?
- 15) Ud. le gustaria conocer el interior de Honduras? Como crees que es?
- 16) Que piensa de gringos extranjeros? Ladinos?



## **APPENDIX C**

### **Hypotheses from Chapter Six**

#### **1) Analyses of Household and Wealth Indicators**

- 1a) Multigenerational households will have lower wealth rankings.**
- 1b) Nuclear family households will have higher wealth rankings.**
- 1c) Single mothers of target children will have lower wealth rankings.**
- 1d) Seafood diving households will have higher wealth rankings.**
- 1e) Cacao farmer households will have higher wealth rankings.**

#### **2) Analyses of Household Indicators and the Food Security Questionnaire**

- 2a) Women in multigenerational households will report more food insecurity.**
- 2b) Women in nuclear family households will report less food insecurity.**
- 2c) Single mothers of target children will report more food insecurity.**
- 2d) Women in seafood diver households will report less food insecurity.**
- 2e) Women in cacao farmer households will report less food insecurity.**

#### **3) Analyses of Household Indicators and Height and Weight Values of Children and Mothers**

- 3a) Children in multigenerational households will have lower Z scores for height and weight at each round.**
- 3b) Children in nuclear family households will have higher Z scores for height and weight at each round.**
- 3c) Children of single mothers will have lower Z scores for height and weight at each round.**
- 3d) Children in seafood diver households will have higher Z scores for height and weight at each round.**

- 3e) Children in cacao grower households will have higher Z scores for height and weight at each round.
- 3f) Mothers in multigenerational households will have lower BMI values at each round.
- 3g) Mothers in nuclear family households will have higher BMI values at each round.
- 3h) Single mothers of target children will have lower BMI values at each round.
- 3I) Mothers in seafood diver households will have higher BMI values at each round.
- 3J) Mothers in cacao grower households will have higher BMI values at each round.

**4) Analyses of Food Security Questionnaire and Anthropometric Measurements of Children and their Mothers**

- 4a) The children of mothers who report food insecurity will have lower Z scores for height and weight at each round.
- 4b) The children of mothers who report food security will have higher Z scores for height and weight at each round.
- 4c) Women who report food insecurity will have lower BMI values at each round.
- 4d) Women who report food security will have higher BMI values at each round.

**5) Analyses of Participation in Economic Development Projects and Household Indicators**

- 5a) Multigenerational households will participate in economic development projects at lower rates.
- 5b) Nuclear family households will participate in economic development projects at higher rates.
- 5c) Single mothers of target children will participate in economic development projects at lower rates.
- 5d) Seafood diver households will participate in economic development projects at lower rates.
- 5e) Cacao farmer households will participate in economic development projects at higher rates.



**6) Analyses of Participation in Economic Development Projects and Wealth Indicators**

**6a) Households that participated in MOPAWI projects will have higher wealth rankings.**

**6b) Households that participated in INFOP projects will have higher wealth rankings.**

**7) Analyses of Participation in Economic Development Projects and Food Security Questionnaire**

**7a) Households that participated in MOPAWI projects will report less food insecurity.**

**7b) Households that participated in INFOP projects will report less food insecurity.**

**8) Analyses of Participation in Economic Development Projects and Height and Weight Values for Women and Children**

**8a) Children in households that participated in MOPAWI projects will have higher Z scores for height and weight at each round.**

**8b) Children in households that participated in INFOP projects will have higher Z scores for height and weight at each round.**

**8c) Mothers in households that participated in MOPAWI projects will have higher BMI values at each round.**

**8d) Mothers in households that participated in INFOP projects will have higher BMI values at each round.**

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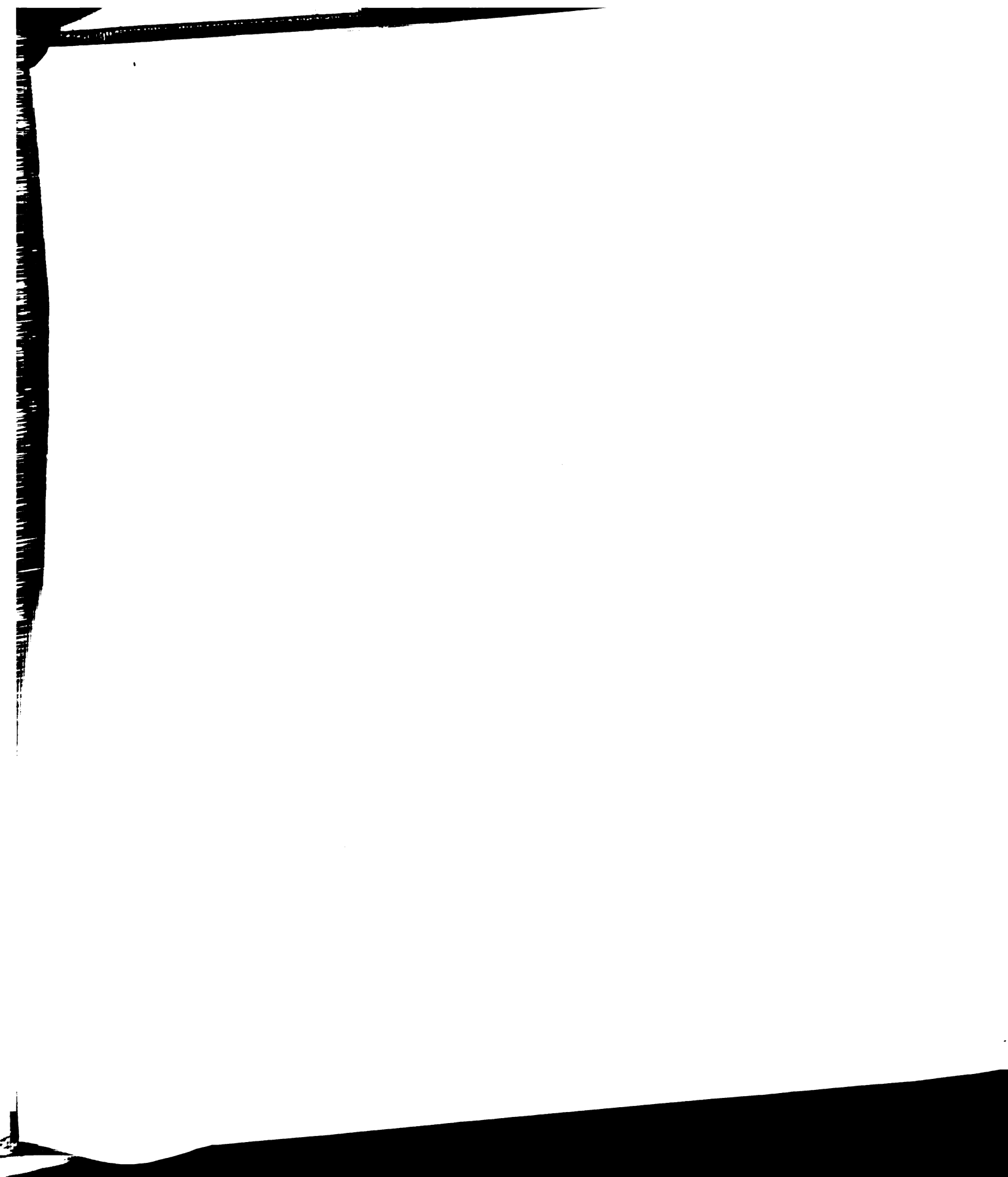
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