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**Food Insecurity and Vulnerability in
Latin America and the Caribbean**

by

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Food Insecurity and Vulnerability in Latin America and the Caribbean

Leonardo Corral, Paul Winters and Gustavo Gordillo**

Abstract

This paper examines how Latin American and Caribbean (LAC) nations have proceeded in addressing the issues of food insecurity and vulnerability in response to the 1996 Rome Declaration on World Food Security. The data suggests that while the food insecurity situation has improved in LAC over the past few years, many nations are worse off in terms of food insecurity than they were at the beginning of the 1990s. Nations that reduced food insecurity tend to be those who have effectively reduced poverty and have increased social spending. While some regional initiatives have occurred to address regional food insecurity issues, additional national and international policy responses are required in the Latin American Region.

Key Words: food insecurity, vulnerability, Latin America and the Caribbean, World Food Summit

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Food Insecurity and Vulnerability in Latin America and the Caribbean

1. Introduction

The 1996 World Food Summit focused world attention on food insecurity and the need for policies to improve food access by the poor. In the Rome Declaration on World Food Security, summit participants agreed to a set of commitments for eradicating food insecurity through national action and complementary international efforts. This paper examines how Latin American and Caribbean (LAC) nations have proceeded in addressing the issues of food insecurity and vulnerability. While the LAC region has not recently experienced widespread hunger on the scale of parts of Africa and Asia, food insecurity is still a problem for millions of people across the region.

Before discussing the state of food insecurity in LAC, a conceptual framework for food insecurity and vulnerability is presented. This is done to highlight the multiple dimensions of food insecurity and the importance of recognizing these dimensions in information gathering and policy making. Following the conceptual framework, in section 3 data from LAC on food insecurity and vulnerability are presented. Food security policy in LAC is examined in section 4. Conclusions and policy implications are presented in section 5.

2. Food insecurity and vulnerability: A conceptual framework

The concept of food security has evolved significantly since the 1974 World Food Conference. At that time, discussions of food security focused on the supply of food at the global and national level and more specifically on the ability of specific countries to obtain – through production, imports or stocks – an adequate supply of food to feed the country's population. The focus on national food self-sufficiency neglected the fact that quite often countries did have adequate food supplies at the national level but still faced widespread hunger. The coexistence of adequate aggregate food supplies and hunger led to a shift in emphasis from national supply to individual access to food. This shift is reflected in the definition of food security used in the 1996 Rome Declaration on World Food Security: "Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (World Food Summit, 1996).

Developing appropriate policies to address food security issues requires considering multiple levels of intervention from the national and sub-national level to the household and individual level. However, nutrition is fundamentally an individual matter and to begin any analysis requires understanding food security at this unit of analysis. To provide a conceptual framework, three dimensions of food security are addressed: 1) entitlements, 2) timing and 3) uncertainty.

2.1 Entitlements

The entitlement approach to food insecurity focuses on the ability of individuals to command food through production, trade, labor power, transfer or other methods (Sen, 1981). A person lacks adequate nutrition if she does not have adequate entitlements to food or does not use those entitlements to avoid undernutrition. Assuming the latter is not the case, then the entitlement approach concentrates on examining an individual's entitlement mapping and the existence of entitlement failure. The approach concentrates on the individual and highlights the fact that she or he may experience hunger even though there is adequate food at the national, sub-national, community or even household level.

Understanding food insecurity then requires examining the various mechanisms that allow individuals to maintain command over food. Since entitlements vary across individuals, it is not necessarily the case that a single event, such as a dramatic rise in the price of food or a reduction in the daily wage, will effect all individuals the same or to the same degree. Even neighbors within a community or members of a household may have different entitlements.¹ Across households, communities, provinces and countries entitlements vary, and therefore the incidence of undernutrition.

While entitlements do vary across individuals, similarities exist particularly among individuals in close geographic or social proximity. Thus, the effects of a change in social or economic conditions can affect individuals in similar ways. Similarities in entitlements are most apparent in the household since food is often produced, obtained and processed collectively. Failure of a food crop or a reduction in real wages of a household wage earner is likely to have an impact on the nutritional intake of all household members. Drought may affect all members of an agricultural community if their entitlements are primarily production-based. As with the household, where intrahousehold relations matter, community interaction and institutions can be important in considering food security. Mutual assistance among community members has been well-documented and although the evidence suggests there is not full pooling of consumption risk within communities (Townsend, 1995), such assistance may be directed at avoiding hunger.

There are a number of circumstances where multiple entitlement failures may occur. Hurricane Mitch, which caused major problems in Central America and particularly in Honduras and Nicaragua, provides one example. Mitch caused widespread crop failure leading to potential food security problems for those with production-based entitlements. But in addition to this, the hurricane-damaged infrastructure affecting trade-based entitlements, had a negative impact on wage-earning opportunities affecting own-labor entitlements, etc. The multiple entitlement failures of natural disasters or economic downturns can lead to widespread problems with hunger and even famine.

Entitlements are based on the assets of the individual and the household (Swift, 1989). The term assets here is defined broadly to include not just physical assets such as land and machinery, but also human capital assets (eg. education, training), institutional assets (eg. credit access, technical assistance), social capital assets (eg. mutual assistance groups, migrant networks) and public assets (eg. infrastructure, government support). For example, two urban dwellers may both live in slums and have similar entitlements but only one may have direct access to government services – that is, the strength of their public assets differ. It is therefore not only necessary to understand the source of entitlement but also the basis, in terms of asset position, of the entitlement.

2.2 *Timing and Uncertainty*

Food insecurity is usually categorized as *chronic*, which implies an individual is consistently unable to obtain sufficient quantities of nutrients, and *transitory*, which is a temporary reduction in sufficient nutrient intake. Even those that are chronically food insecure are likely to experience fluctuations in the degree of insecurity across time due to seasonality and uncertainty. Much of the seasonality of food access is predictable. Previous experience with seasonal fluctuations provides individuals with insights into the trends in food price, real wages, etc. and these individuals, and the households to which they belong, take actions in response to mitigate

¹ Empirical evidence suggests that food allocation within a household varies with certain members (males or females, adults or children, etc.) given priority over other members in food access (Haddad et al, 1997).

negative effects. However, the food insecure may face a tradeoff between saving in this season to avoid later hunger and hunger in the present (Sahn, 1989). Given the irreversible nature of some levels of hunger, this trade-off may lead individuals to choose the present over the future in the hope of some windfall. Additionally, credit and savings mechanisms may not exist or may be imperfect and the ability to smooth consumption across time, even if outcomes are certain, may be limited. These factors create a situation where *periodic* food insecurity – when an individual is consistently unable to maintain nutrition intake during a certain season of the year – may occur.

At any given point in time, due to multiple sources of uncertainty, individuals face a probability of becoming food insecure. This is often referred to as the *vulnerability* of the individual. The individual's vulnerability depends on her entitlements (asset position) and forces of nature. When an undesirable outcome, such as low wages or low production, occurs then the individual may become food insecure. This type of food insecurity is also transitory but its source is different from periodic food insecurity in that it is the result of risk. It can be labelled *sporadic*, as opposed to periodic, because it occurs repeatedly but not necessarily at certain intervals and is associated with risk exposure not seasons. Of course, individuals are unlikely to face the same distribution of food outcomes in a given year or even from year to year — timing and uncertainty are closely related.

Given this risky environment, individuals are likely to take actions to avoid or minimize undesirable outcomes. The ability of an individual to cope with and manage risk is referred to as *resilience* (Oshaug, 1985). An individual with substantial assets and/or a diversified asset portfolio is generally more able to manage and cope with risk and is thus more resilient than an individual with limited assets. Figure 1 categorizes the vulnerable in terms of food uncertainty and resilience. In this framework, an individual that faces a consistent, high level of uncertainty, and a low resilience is *permanently vulnerable* because of the degree of risk and the inability to mitigate that risk. At the other extreme, an individual with infrequent, low level of uncertainty and high resilience is only *minimally vulnerable* since she is able to manage or cope with the levels of risk.

Two types of individuals are identified as experiencing temporary vulnerability. The first group includes individuals with a frequent, high level of uncertainty but who are well suited to responding to risk (high resilience). Recognizing they face highly uncertain food outcomes these individuals may have taken actions, such as accumulating assets, to develop resilience. They are likely to become food insecure under very negative or multiple negative outcomes, particularly during lean seasons. Of course, many individuals begin with limited asset endowments and may be unable to take action to sufficiently improve their resilience. A second temporarily vulnerable group does not face substantial uncertainty but are unable to respond even to small shocks due to limited resilience. Not facing substantial uncertainty, they may have lower incentives to develop resilience. However, improving resilience would increase their ability to manage risk and reduce the likelihood of undesirable food outcomes.

3. Food insecurity and vulnerability in Latin America and the Caribbean

The objective of this section is to examine indicators of food insecurity and vulnerability in LAC using currently available data. As noted in the conceptual framework, food insecurity varies across time and space and it is therefore difficult to identify. Ideally, we would want to know not just who is food insecure at a given point in time, but whether it is transitory or chronic.

Additionally, we would want to know the vulnerability of individuals to food insecurity across time and space. Unfortunately, methodological and practical limitations make it impossible to have such detailed information on food insecurity in LAC. Recognizing these limitations, data from a number of different sources and a variety of indicators are presented below to provide a picture of food insecurity and vulnerability in the region.

3.1 *Aggregate picture*

Table 1 presents the latest available information on aggregate undernourishment for LAC countries. The region as a whole has experienced a modest decrease in the overall number of its citizens suffering from undernourishment in recent years (1990/92 to 1995/97), from 58.6 to 53.4 million, after experiencing a substantial rise in the previous decade. The rise in the 1980s corresponds to the debt crisis, which led to a general economic downturn in much of LAC. The regional trend masks important differences between sub-regions and countries. Only South America has experienced a decline in the number of undernourished in recent years. Central America has seen its number of undernourished increase while its proportion has remained constant, and the Caribbean has seen a marked increase in the number and proportion of undernourished.

Table 2 summarizes the changes in the number and proportion of the population affected by undernourishment in LAC from 1990-92 to 1995-97. With the exception of Bolivia and Venezuela, all South American countries have been successful in reducing the absolute number of undernourished people in recent years. Impressive achievements have been made by Peru, which has almost halved the number of its undernourished, from 8.9 to 4.6 million; by Colombia, which has reduced the number of undernourished from 6.1 to 4.9 million; and by Brazil, which has reduced the number of undernourished from 19.4 to 16.2 million. South America's achievements in reducing its absolute number of undernourished in the current decade are just sufficient to make up for lost ground in the previous decade, where the sub-region saw the number of undernourished climb from 33.8 million in 1980 to 42.1 million in 1990. South America's future aggregate improvements are largely dependent on Brazil's situation, where nearly half of the sub-continent's undernourished live.

Central America witnessed a moderate reduction of the proportion of undernourished in the previous decade, however from the 1990/92 period to 1995/97 there has been no change. In fact, the absolute number of undernourished has increased by over 15% in the current decade. No Central American country has seen its absolute number of undernourished decrease, and except for Honduras and El Salvador, they have all had the proportion of undernourished go up. The lack of improvement in the sub-region can largely be attributed to the marked increase in Guatemala, where about one third of the Central American undernourished still live. Guatemala is just emerging from decades of civil conflict, which undoubtedly was a contributing factor in the lack of progress. Although Honduras has made remarkable progress since 1980, the proportion of undernourished people is still quite large, at 21 percent. Nicaragua is by far the Central American country with the largest proportion of undernourished, almost one third of its population, and the situation continues to worsen.

The Caribbean has experienced an alarming increase in the number and proportion of undernourished people. In recent years, the number of undernourished in the Caribbean has increased by 2 million, while the proportion has gone from 25 to 31 percent. This is in addition to a 2.7 million (6 percent) increase in the undernourished population in the previous decade. With nearly two thirds of its population undernourished, Haiti's food insecurity situation is

comparable to some African countries. However, the large increase in the number of undernourished in the Caribbean can mainly be attributed to the sharp deterioration of the food security situation of Cuba. Cuba's loss of its most important trading partner, the former USSR, and the continued trade embargo imposed by the United States are the primary factors behind a steep decline in food imports and the corresponding sharp increase in its number of undernourished. Other Caribbean countries have managed to make modest improvements in the proportion of the affected population, but none has seen its absolute numbers decrease.

3.2 Screening and identification: Aggregate measures

One important reason for obtaining information on food insecurity is to identify vulnerable units for intervention and examine some of the causes of food insecurity. In this section, the characteristics of the food insecure in LAC are examined using aggregate data.

It is estimated that by the year 2000, three quarters of the population of LAC will be living in urban areas (UN 1998). Many analysts believe that globally the locus of poverty and undernutrition is gradually shifting from rural to urban areas (Haddad, et al. 1999). The latest available regional figures corroborate this insight as far as poverty is concerned. The number of urban poor far outweigh the rural poor, 126 million to 78 million (ECALC 1999b), and while the number of rural poor has remained relatively constant since 1990, the number of urban poor has increased by over 4 million from 1990 to 1997. This rise in urban poverty will undoubtedly be related to an increase in food insecurity in urban areas. To further investigate the food insecurity situation of urban vis-à-vis rural dwellers, Table 3 presents the prevalence of children suffering from undernutrition in rural and urban areas for several countries of the region.

For nearly all countries presented, the prevalence of underweight, stunted and wasting children is greater in rural areas (as noted by a rural to urban ratio of greater than 1). However, for many countries the difference between urban and rural prevalence of undernutrition is not large. For the countries for which data availability allows comparison over time, all have managed to reduce the prevalence of urban undernutrition except for Nicaragua. The prevalence of undernutrition in rural children has increased in Nicaragua, Honduras and El Salvador. By looking at the ratios of rural to urban prevalence over time, there seems to be a clear bias in favor of the urban undernourished. In other words, the prevalence of undernourished children in urban areas is decreasing faster than the prevalence in rural children.

The available information shows that undernutrition in children is more widespread in rural areas. However, the problem is also present, and importantly so for many countries, in urban zones. For some countries, due to the demographic distribution of the population, the percentage of underweight children in urban areas may actually be greater than the percentage in rural areas. Table 4 shows estimates of the absolute number of stunted (low height-for-age) children, as well as the percentage of stunted children, in urban and rural areas for selected countries. For Bolivia, Peru, Venezuela, Colombia and Brazil the percentage of stunted children living in urban areas is greater than 40%. For Colombia, Venezuela and Brazil, the majority of stunted children live in urban areas.

Using information from Table 4, the changes over time in the urban prevalence of stunted children for some countries (for which data allows it) in the region are summarized in Table 5. Except for Guatemala and Peru, the share of undernourished children living in urban areas is on the increase, which points to a shift in the locus of undernourishment from the rural to the urban for these countries. However, the Dominican Republic and Colombia have been successful in combating this shift as evidenced by the decrease in the absolute number of urban

undernourished children. Given the rapid increase in the urban population, particularly the urban poor, the food security situation in urban areas merits special attention. Particularly since food security and undernutrition have not appeared as major items on the urban research or policy agenda (Ruel and Garrett, 1999).

National aggregate information and even rural-urban differentials can mask important differences at the sub-national (particular departments, municipalities, etc.) level. Table 6 presents stunting prevalence at departmental level for Bolivia. While at national level 27% of children are undernourished, at the departmental level the range goes from less than 2 children in 10 in Santa Cruz, perhaps the most prosperous and dynamic department of Bolivia, to almost 5 out of 10 children in Potosi. Table 7 makes a similar case for the Dominican Republic, where it's three times more likely to find an undernourished child in El Valle region than in the Distrito Central. These tables emphasize the need for individual countries in LAC to maintain information on the incidence of undernourishment and undernutrition at the sub-national level and to have a system for responding to such needs.

Considerable attention has been given to the possible existence of a nutritional gender gap, particularly in the African continent. In Table 8, this issue is addressed using national anthropometric measures for girls and boys to detect any significant differences in nutritional status. As evidenced by the female to male ratios of prevalence of the different measures, there appears to be little or no nutritional gender bias among children in the region as a whole. However, as with aggregate nutritional status, caution should be exercised since the aggregate information presented here might mask some important differences in gender nutritional status at a more micro level, or even at the rural versus urban level. The data does suggest that in some cases girls are more likely to suffer from undernutrition than boys are and in other cases the opposite is found.

In general, poverty has been considered the key cause of food insecurity. Table 9 presents changes in poverty estimates for several LAC countries. Given the different sources of the data, inter-country comparisons are not reliable. However, poverty trends within each country are, and these can be used for comparison with trends in undernourishment prevalence from Table 3. Table 10 presents a summary of this comparison for countries with sufficient data. The table makes a strong case for the correlation between poverty and undernourishment at the aggregate national level. Countries, such as Brazil, Chile, Colombia, Peru, Panama, have achieved a significant decrease in the prevalence of poverty and undernourishment. On the other hand, Mexico, Nicaragua and Venezuela have witnessed an increase in the prevalence of both poverty and undernourishment.

Another possible link worth exploring is between the evolution of public social expenditure and the prevalence of undernourishment. Table 11 presents the evolution of social public expenditure as a percentage of GDP and as a percentage of total public expenditure for 12 countries in the region between 1990-91 and 1994-96. Except for Ecuador and El Salvador, all countries show an increase in public social expenditure as a percentage of GDP. Colombia particularly shows an impressive increase, nearly doubling social expenditure as percentage of GDP. Except for Costa Rica and Nicaragua, all countries that show an increase in public social expenditure as percentage of GDP also show an increase in social expenditure as percentage of total public expenditure. Table 12 summarizes the evolution of prevalence of undernourishment (from Table 3) and social expenditure as percentage of public expenditure. Countries such as Colombia and Brazil, who show significant increases in social expenditure, also experienced strong gains in reducing undernourishment. Countries such as Costa Rica and especially

Nicaragua, who show a decrease in the importance of social expenditure compared to other public expenditure, show a marked increase in the prevalence of undernourishment.

3.3 Screening and identification: Case studies

Aggregate measures provide broad insights into food insecurity but do not examine important individual and household level factors that influence food insecurity in LAC. To do this, case studies conducted throughout the region are examined. The case studies explore the relationship between measures of food insecurity, such as undernourishment (food intake) and undernutrition as measured by anthropometric indicators, and household or individual characteristics.

A result that comes through in numerous studies is the strong positive relationship between income level and food security. For example, studies from Mexico (Winter et al, 1993), Nicaragua (Behrman and Wolfe, 1987), Jamaica (Handa, 1999) and Brazil (Thomas and Straus, 1992) all highlight the importance of household income on food security. Correspondingly, some studies note the importance of household wealth, such as animal ownership, home value and land ownership, on food security (eg, Pelto et al, 1991; Berti and Leonard, 1998). Poverty is therefore strongly related to food insecurity and relieving food insecurity requires poverty alleviation. An important path out of poverty is improving the asset position, or entitlement, of poor households (de Janvry and Sadoulet, 1999). In addition to the amount of income earned, some evidence suggests that how households generate incomes also influences nutrition (Kaiser and Dewey, 1991).

Within the household, allocation of resources is partly dependent on the percent of household income earned by the adult female in the household. In Guatemala (Engle, 1993), Nicaragua (Lamontagne et al, 1998), and the Dominican Republic (Johnson and Rogers, 1993) an increasing share of female earnings out of total household income increased the nutritional status of the children in the household. Furthermore, in Brazil, women's non-labor income was found to help daughters health but not the son's health (Thomas, 1994) suggesting some bias in the allocation of resources by gender. Other factors such as the mother's schooling are consistently shown to be positively related to child nutrition even when controlling for income and other considerations (eg, Brazil – Thomas, 1994; Nicaragua – Behrman and Wolfe, 1987; Jamaica – Handa, 1999). A study in Bolivia finds that the children of urban women of rural origin are more likely to suffer from undernutrition than the children of urban women born in an urban area (Bender et al, 1993). This is partially related to the lower schooling levels of women of rural origin. Finally, some studies note a negative relationship between the age of the mother and child nutrition (Winter et al, 1993). Overall, this evidence suggests that intrahousehold allocation of resources in LAC and thus individual nutrition levels are largely dependent on household dynamics and the characteristics of the adult female in the household.

A number of characteristics of the children themselves may make them more or less vulnerable to undernutrition. While some studies show there is gender bias in food allocation to children (Larme, 1997), most find that there is no gender bias or that the evidence is inconclusive (Graham, 1997; Leonard, 1991; Backstrand et al, 1997). This evidence corresponds to the aggregate measures on gender presented previously. However, there is evidence that the number of children in the household and the position in the household in terms of birth order are important factors with children in larger households and the youngest children being more likely to experience undernutrition (Winter et al, 1993; Johnson and Rogers, 1993). Finally, one study reports that the adequacy of care a child receives is related to nutrition, with inadequate care (eg,

being left with another child or brought to work with the mother) associated with lower nutrition (Lamontagne et al, 1998).

The health and nutrition of children is also found to be influenced indirectly and directly by community and other external factors. A study in Brazil notes that community factors such as availability of modern sewage, piped water and electricity are positively related to child height, that higher prices for dairy products and sugar are negatively associated with child height, and that urban children tend to be taller than rural children, particularly if their mothers have minimal education (Thomas and Strauss, 1992). This latter finding on the complementarity of mother's education and infrastructure is found elsewhere (eg, Jamaica – Handa, 1999; Bolivia – Bender et al, 1993).

4 Food security policy in Latin America and the Caribbean

The conceptual framework presented in section 2 focuses food insecurity on the individual, highlighting the importance of entitlements (assets), timing and uncertainty. Although the focus has been on the individual, this does not imply that government intervention should only occur at the individual level. On the contrary, there are numerous avenues for intervening to improve the food security situation in LAC from the regional, national, and the sub-national levels to the community, household and individual level. In this section, we discuss some of these options and briefly discuss recent policy initiatives in LAC.

4.1 Food security policy matrix

Table 13 presents a Food Security Policy Matrix, which highlights, for each unit of intervention, the issues to consider, the information necessary to inform policy and possible policies. The table emphasizes the importance of considering a number of levels of intervention in developing policies to address food insecurity and vulnerability.

Most *individuals* are members of households and the household unit is organized to obtain, process and distribute food among its members. Entitlements are often household-based and the distribution of food depends on intrahousehold relations. Evidence suggests that intrahousehold allocation of resources depends on individual asset position and labor activities as well as other factors such as gender (Haddad et al, 1997). Information gathering on intrahousehold relations and individual assets is essential for developing policies. If intrahousehold relations are such that individuals are able to maintain a degree of nutritional equality within the household then it is not necessary to focus policies on the individual. However, if there is inequity in household allocation then focusing on key members of the household is crucial. This can be done through improving the position of individual household members through programs that, for example, empower women by improving their asset holdings and their legal title to such holdings. Alternatively, policies can be targeted directly at individual nutritional status through supplemental feeding programs, such as school meal programs that target children.

Household physical, human capital, institutional, social capital and public assets determine the capacity of the household to generate income, obtain food and manage risk. Along with asset position, the timing of entitlements and the sources of uncertainty determine the vulnerability of the household as a whole. Identifying the household's asset position, understanding the dynamics of food access and examining household strategies for coping and managing risk are therefore key to understanding food security. Household-level interventions must focus on facilitating asset accumulation, promoting alternative income-generating activities

and facilitating risk management. Ultimately, the objective of interventions at this level is to combat both income and asset poverty in order to reduce household food insecurity and vulnerability.²

Addressing food security issues at the *community* level requires understanding how community characteristics affect the food security of individual community members. For example, social institutions such as informal insurance arrangements may differ by community and the presence or absence of such institutions affects the ability of community members to cope with risk. Community resource access and management of common property may assist or hinder members' food security. Market integration and access to public services, which is dependent on how remote a community is or its political connections, also influence members' food security.³ Intervention at the community level requires understanding community characteristics and requires obtaining information about community assets, heterogeneity and members' economic activities. Policies must be based on specific community needs. This requires facilitating channels of communication between the community and public sector and adopting a participatory approach to intervention. One likely and important direction for intervention is in the investment in infrastructure such as roads, schools, health facilities, and water and sewage systems.

At the *sub-national* level, the relationship and differences between the urban and rural sectors need to be considered. There are number of distinct characteristics of urban life that have implications for food security including: 1) greater dependence on cash income; 2) weaker informal safety nets; 3) greater female labor force participation; 4) lifestyle differences; 5) greater availability of social services but questionable access by the poor; 6) greater exposure to environmental contamination; 7) governance by a different, and possibly non-existent, set of property rights (Ruel et al, 1999). Some policies, such as food price policies, may affect vulnerable rural and urban dwellers differently and certain policies may even have opposite effects on each group (hurting one and helping another). A second consideration is aggregate risk. Determining the sources of risk for parts of a country is important in preparing for possible problems.⁴ Vulnerability maps may be employed to highlight where national disasters and other risks, isolation and areas of low entitlement may lead to food security problems. A third sub-national consideration is the food distribution network. Even if national supplies are adequate to provide food for all people at all times, it may be the case that certain parts of the country do not receive adequate supplies or the cost of transportation are such that the price of food is high. Resolving such problems may require investing in transportation networks that allow adequate food distribution to remote regions.

Historically, policy interventions for food security have focused on maintaining food supplies at the *national* level. While this is not sufficient to ensure food security for all people at

² One policy that can assist in achieving these objectives is the promotion of microfinance which may promote investment in assets, facilitate self-employment and provide a risk coping mechanism (Zeller et al, 1997). Actions by both the private and public sector in a number of Latin American countries have led to the establishment and continuing expansion of microfinance programs in the region including BancoSol and PRODEM in Bolivia, Fenape in Brazil, FUNDAP and Genesis in Guatemala, Actuar in Colombia and Compartamos in Mexico.

³ The importance of the community in food security can be seen in the Mexican ejido. In the recent agrarian reform process, ejido members have organized to support agricultural production and improve competitiveness under the new market and institutional rules thus promoting community development (de Janvry, Gordillo and Sadoulet, 1997).

⁴ For example, if a region is particularly susceptible to hurricanes then the potential consequences of such an event should be determined as well as strategies for coping with such events.

all times, maintaining a stable and secure supply of food through production, imports and storage can avoid widespread problems. This can be done through identifying and responding to bottlenecks in supply and distribution including employing policies that facilitate food imports when required. In order to maintain domestic supplies, agricultural policies should ensure that agricultural productivity is consistently increasing. A second consideration is the overall macroeconomic environment and state of the economy. A growing economy is much more likely to lead to poverty reduction and certain growth paths are more conducive to poverty reduction than others (World Bank, 1990). Policies that promote such growth create an environment conducive to food security and limits vulnerability. Finally, a major cause of food insecurity is social instability. Civil war and crime can cause regional isolation and divert important resources causing entitlement failure.

While national governments have the primary responsibility in addressing food security in an increasingly integrated region, such as LAC, *regional* initiatives can make an important contribution. In particular, the international donor community, the United Nations system, particularly FAO, as well as other agencies and regional bodies have an important role to play in supporting the follow-up to the commitments of the World Food Summit Plan of Action. There exists a number of regional issues and concerns that can have direct or indirect effects on the evolution of food security and poverty in the region, and for which it might prove advantageous for governments and the international community to cooperate. Among others, the following issues are especially relevant:

- Natural disaster preparedness and relief coordination efforts.
- Normalization of procedures to collect information relevant for food security monitoring.
- Facilitate the collection and transmission of information and country experiences in their fight to overcome food insecurity and poverty.

4.2 Policy response

Participants in the World Food Summit agreed to a set of commitments for addressing food insecurity and vulnerability in their countries. Evaluating the impact of specific policies on food insecurity across LAC is beyond the scope of this paper. Undertaking such an exercise would require looking at policies for each country at each level of intervention. However, some general comments on the policy response of LAC summit participants can be noted.

The first two commitments of the Rome Declaration note the importance of creating an environment conducive to poverty reduction (Commitment One) and to directly act to reduce poverty (Commitment Two). The evidence presented in Table 10 suggests that poverty alleviation is strongly correlated with the reduction of undernutrition. The table shows that there has been mixed success in LAC at meeting these commitments with a number of countries unable to reduce poverty in recent years. The data also suggests that there is still a long way to go before poverty is no longer a major problem in LAC. Increases in social spending in a number of countries (see Tables 11 and 12) have occurred in a number of countries and if these trends continue across the region, this may lead to significant reductions in food insecurity.

Commitment five of the Rome declaration states that countries will endeavor to prevent and to be prepared for natural disasters and man-made emergencies. A number of sub-regional policy responses have occurred recently to deal with natural phenomena and the potential negative effects they could have on food security. The Central American community is perhaps the most organized, but important efforts also exist in the Andean countries (particularly Ecuador and Peru) to monitor the El Niño phenomenon and between Argentina, Bolivia and Paraguay to

face the problems of desertification and drought in the Great American Chaco. The Central American sub-region has organized to deal with El Niño through the creation of the “Action Plan to mitigate and face the effects of El Niño in Central America”.⁵

As a further testament to Central America’s sub-regional efforts to mitigate the impact of natural disasters, the presidents of the Central American countries in their ordinary session held in Guatemala City during the 18 and 19 of October of 1999, declared the next five years as the “Central American Quinquennium for the Reduction of Vulnerabilities and the Impact of Disasters” (author translation). The Central American governments adopted a framework that will be an integral component of the transformation process and sustainable development of the region and will include preventive and damage mitigating policies, as well as policies and actions for emergency management.

Governments also committed to develop a national food insecurity and vulnerability information and mapping system. To assist governments in this task an inter-agency working group (IAWG), with FAO as its secretariat, has established the Food Insecurity and Vulnerability Information and Mapping System (FIVIMS) initiative to gather, analyze and share knowledge that can guide policies to increase food access for all. FIVIMS can go a long way in improving monitoring of food security in the region. In addition to support provided by the FAO regional, subregional and country offices, other UN agencies and IAWG partners were also supporting the FIVIMS program: focal points had been designated in 63 countries and all developing countries had received a questionnaire on the status of national food information systems. So far in the region, nutritional profiles have been developed for a number of countries (Argentina, Bolivia, Chile, Colombia, Ecuador, Jamaica, Paraguay, Peru, and Venezuela⁶) contributing to the overall goal of FIVIMS.

5. Conclusions and policy implications

In examining food insecurity and vulnerability in the Latin American and Caribbean region, it is important to understand the basic causes of the problem. The entitlements, or asset position, of the individual and the ability to command access to food are key to understanding and developing policies to mitigate food insecurity and vulnerability. Additionally, the uncertainty faced by an individual and the ability to cope and manage risk is another important consideration. Given these considerations, food insecurity and vulnerability can be addressed at multiple levels, from the individual and household level to the national and regional levels, and policies can be directed to deal with constraints at each level.

While LAC has made important gains in recent years in improving food insecurity and vulnerability, over 50 million people are still estimated to be food insecure and substantially more than this number are likely to be vulnerable to food insecurity at a given point in time. Certain sub-regions, countries and sectors within countries are continuing to experience problems with food insecurity and are not meeting World Food Summit goals. Gains will only continue to be made in LAC if these countries develop policies to address food insecurity and vulnerability and other countries continue to reduce the numbers of food insecure individuals. Poverty reduction through direct interventions, such as social investment, and through

⁵ The plan forms part of the Regional Plan for Disaster Reduction. The responsible bodies for the general coordination of the plan are the SG-SICA and the CEPREDENAC (Coordination Center for the Prevention of Natural Disasters in Central America).

⁶ These profiles are available at FAO’s Latin America and Caribbean Regional Office web page at: <http://www.rlc.fao.org/prior/segalim/accalim/10040.htm>.

appropriate economic growth are key in this endeavor. Additionally, actions must be taken to avoid widespread problems such as those that associated with natural disasters. While a number of initiatives have been promoted in the wake of Hurricane Mitch, these activities need to be continued and expanded to other parts of the region.

To ensure the effectiveness of policies, monitoring of the food insecurity situation in LAC at the national and sub-national level must continue. This allows appropriate targeting of interventions as well as a mechanism for evaluating policies. Efforts must also be made to improve the measurement and understanding of food insecurity. Micro-level studies in LAC are limited, particularly broad-based studies, and this prevents much analysis of the causes of food insecurity. Studies should be stratified in a manner that allows the examination of the number of different situation that exist in LAC. That is, studies should focus on the urban versus rural population, different sectors of the country, different potentially vulnerable groups, etc. Furthermore, more effort should be made to improve aggregate measure of food insecurity and vulnerability. When household or individual level data is available this may be used to develop more accurate measures of food insecurity.

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Figure 1: Vulnerability framework

		Resilience	
		High	Low
Uncertainty	Frequent/ High	Temporary Vulnerability	Permanent Vulnerability
	Infrequent/ Low	Minimal Vulnerability	Temporary Vulnerability

Table 1: Prevalence of undernourishment - Latin American and the Caribbean

Country	Number of undernourished (million)			Proportion of undernourished (%)		
	1979-81	1990-92	1995-97	1979-81	1990-92	1995-97
LATIN AMERICA AND THE CARIBBEAN	46.0	58.6	53.4	13	13	11
<i>NORTH AMERICA</i>	<i>3.1</i>	<i>4.4</i>	<i>5.1</i>	<i>5</i>	<i>5</i>	<i>6</i>
Mexico	3.1	4.4	5.1	5	5	6
<i>CARIBBEAN</i>	<i>4.6</i>	<i>7.3</i>	<i>9.3</i>	<i>19</i>	<i>25</i>	<i>31</i>
Cuba	0.3	0.3	2.1	3	3	19
Dominican Rp	1.4	2.0	2.1	25	28	26
Haiti	2.6	4.5	4.7	47	63	61
Jamaica	0.2	0.3	0.3	8	12	11
Trinidad Tob	0.1	0.1	0.1	5	12	11
<i>CENTRAL AMERICA</i>	<i>4.5</i>	<i>4.8</i>	<i>5.6</i>	<i>20</i>	<i>17</i>	<i>17</i>
Costa Rica	0.2	0.2	0.2	8	6	7
El Salvador	0.8	0.6	0.6	17	12	10
Guatemala	1.2	1.3	1.7	18	14	17
Honduras	1.1	1.1	1.2	31	23	21
Nicaragua	0.8	1.1	1.4	26	29	31
Panama	0.4	0.4	0.5	22	18	17
<i>SOUTH AMERICA</i>	<i>33.8</i>	<i>42.1</i>	<i>33.3</i>	<i>14</i>	<i>14</i>	<i>10</i>
Argentina	0.2	0.7	0.5	*	*	*
Bolivia	1.4	1.7	1.8	26	25	23
Brazil	18.2	19.4	16.2	15	13	10
Chile	0.7	1.1	0.7	7	8	5
Colombia	6.2	6.1	4.9	22	17	12
Ecuador	0.9	0.8	0.6	12	8	5
Guyana	0.1	0.2	0.1	13	24	16
Paraguay	0.4	0.8	0.6	13	18	13
Peru	4.9	8.9	4.6	28	40	19
Suriname	0.1	0.0	0.0	17	11	9
Uruguay	0.1	0.2	0.1	3	7	4
Venezuela	0.6	2.2	3.3	4	11	15

Source : FAO Statistics Division

Table 2: Changes over time in undernourishment, LAC countries 1990-92 to 1995-97

	Absolute number of undernourished increased	Absolute number did not change	Absolute number of undernourished decreased
Proportion of undernourished increased	Mexico Caribbean Cuba Guatemala Nicaragua Costa Rica Venezuela		
Proportion did not change	Central America		
Proportion of undernourished decreased	Dominican Rep. Haiti Honduras Panama Bolivia	Jamaica Trinidad Tob. El Salvador	LAC South America Argentina Brazil Chile Colombia Ecuador Guyana Paraguay Peru Surinam Uruguay

Table 3: Urban and Rural prevalence of underweight, stunted and wasted children

Country	Survey Year	Area	Age Range (years)	Wasting		Stunting		Underweight	
				<-2SD	Rural/Urban ratio	<-2SD	Rural/Urban ratio	<-2SD	Rural/Urban ratio
Haiti	1994-95	Urban	0-4.99	7.8	1.0	24.2	1.5	22.1	1.3
		Rural	0-4.99	7.9		35.1		29.8	
Nicaragua	1993	Urban	0-4.99	1.8	1.1	15.5	1.9	7.7	1.9
		Rural	0-4.99	2.0		29.5		14.3	
Dom. Republic	1997-98	Urban	0-4.99	1.8	1.4	19.0	1.7	9.9	1.5
		Rural	0-4.99	2.6		31.5		14.7	
	1991	Urban	0-4.99	1.3	1.2	12.0	1.9	7.6	1.9
		Rural	0-4.99	1.5		22.8		14.1	
Bolivia	1996	Urban	0-4.99	1.3	0.9	7.3	2.1	3.9	2.2
		Rural	0-4.99	1.2		15.2		8.5	
	1996	Urban	0-4.99	1.2	1.2	21.1	1.8	5.9	1.9
		Rural	0-4.99	1.4		37.7		11.1	
Honduras	1998	Urban	0-4.99	1.1	1.5	18.9	2.0	5.1	2.2
		Rural	0-4.99	1.6		37.8		11.0	
	1991-92	Urban	0-4.99	1.3	1.3	23.7	1.8	11.5	1.9
		Rural	0-4.99	1.7		43.7		21.8	
Peru	1996	Urban ^a	0-4.99	1.2	1.2	20.9	2.2	10.1	3.0
		Urban ^b	0-4.99	2.0	0.7	34.0	1.3	23.2	1.3
		Rural	0-4.99	1.4		45.0		30.0	
	1991-92	Urban	0-4.99	1.5	1.3	21.6	2.2	6.4	2.8
		Rural	0-4.99	1.9		48.1		17.6	
	1996	Urban	0-4.99	0.8	2.1	16.2	2.5	3.9	3.5
Guatemala	1987	Urban	0-4.99	1.7		40.4		13.7	
		Rural	0-4.99	1.3	1.0	47.0	1.3	25.2	1.4
	1995	Urban	0.25-2.99	1.3		62.0		36.2	
		Rural	0.25-2.99	1.3		62.0		36.2	
Venezuela	1987	Urban	0-4.99	2.7	1.3	35.3	1.6	18.2	1.7
		Rural	0-4.99	3.5		56.6		30.6	
	1987	Urban	0-4.99	1.4	1.4	3.6	2.1	3.4	2.3
		Rural	0-4.99	2.0		7.7		7.8	
Paraguay	1990	Urban	0-4.99	0.2	2.5	8.9	2.0	2.8	1.5
		Rural	0-4.99	0.5		17.9		4.3	
Colombia	1986	Urban	0.25-2.99	1.5	0.7	25.1	1.3	10.0	1.5
		Rural	0.25-2.99	1.0		31.4		14.9	
	1995	Urban	0-4.99	1.0	2.1	12.5	1.5	6.6	1.7
		Rural	0-4.99	2.1		19.1		11.4	
Jamaica	1989	Urban	0-4.99	3.4	1.0	6.8	1.5	5.9	1.4
		Rural	0-4.99	3.4		10.1		8.1	
Trin. and Tob.	1987	Urban	0.0-2.99	2.4	1.9	5.0	0.9	4.4	1.9
		Rural	0.0-2.99	4.6		4.6		8.2	
El Salvador	1993	Urban ^c	0-4.99	0.3	6.0	13.6	2.1	7.2	1.9
		Urban ^a	0-4.99	1.2	1.5	20.1	1.4	9.1	1.5
		Rural	0-4.99	1.8		28.1		14.0	
	1994	Urban ^c	0-4.99	0.0		7.7	4.5	1.8	11.2
		Urban ^a	0-4.99	5.7	0.4	21.0	1.6	12.6	1.6
		Rural	0-4.99	2.4		34.4		20.1	
Brazil	1996	Urban	0-4.99	2.3	1.1	7.8	2.4	4.6	2.0
		Rural	0-4.99	2.6		19.0		9.2	
Costa Rica	1996	Urban ^c	1-6.99	2.2	1.4	6.6	1.0	4.0	1.7
		Urban ^a	1-6.99	1.5	2.1	5.1	1.3	4.2	1.6
		Rural	1-6.99	3.1		6.5		6.7	
Ecuador	1986	Urban ^d	0-4.99			41.8	1.1	31.7	1.3
		Urban ^c	0-4.99			50.2	1.4	35.1	1.5
		Rural ^d	0-4.99			47.1		41.1	
		Rural ^c	0-4.99			69.8		51.9	

Source: WHO Global Database on Child Growth and Malnutrition.

^aOther urban areas

^bTegucigalpa

^cMetropolitan Area

^dCoast Region

^eSierra Region

Table 4: Stunted children in urban and rural areas, selected countries

Country	Survey year	Age Range (yrs)	Urban ^a Stunting prevalence	Number ^b Stunted in urban areas (000s)	Rural ^a Stunting prevalence	Number ^b Stunted in rural areas (000s)	Percentage of all stunted children in urban areas	Percentage of all stunted children in rural areas
Haiti	1994-95	0-4.99	24.2	77.7	35.1	275.2	22	78
Nicaragua	1993	0-4.99	15.5	46.0	29.5	103.3	30.8	69.2
	1997-98	0-4.99	19	67.9	31.5	126.0	35	65
Dom. Rep.	1991	0-4.99	12	58.3	22.8	105.5	35.6	64.4
	1996	0-4.99	7.3	38.0	15.2	66.0	36.6	63.4
Bolivia	1996	0-4.99	21.1	135.0	37.7	188.9	41.7	58.3
	1998	0-4.99	18.9	138.4	37.8	180.9	43.3	56.7
Honduras	1991-92	0-4.99	23.7	70.3	43.7	235.7	23	77
	1996	0-4.99	25.3	91.1	45	254.8	26.3	73.7
Peru	1991-92	0-4.99	21.6	385.8	48.1	533.4	42	58
	1996	0-4.99	16.2	297.6	40.4	430.3	40.9	59.1
Guatemala	1987	0.25-2.99	47	212.6	62	590.1	26.5	73.5
	1995	0-4.99	35.3	198.0	56.6	640.7	23.6	76.4
Venezuela	1987	0-4.99	3.6	70.4	7.7	40.7	63.4	36.6
Paraguay	1990	0-4.99	8.9	25.8	17.9	69.8	27	73
Colombia	1986	0.25-2.99	25.1	675.6	31.4	485.1	58.2	41.8
	1995	0-4.99	12.5	404.3	19.1	289.7	58.3	41.7
El Salvador	1993	0-4.99	17.2	52.7	28.1	111.5	32.1	67.9
Brazil	1996	0-4.99	7.8	917.5	19	847.6	52	48
Costa Rica	1996	1-6.99	5.8	10.9	6.5	14.9	42.3	57.7

^aSource is the WHO Global Database on Child Growth and Malnutrition WWW.WHO.ORG

Stunting is defined as height-for-age <-2SD compared to reference standards.

^bThe number of stunted children in urban (rural) areas is calculated as the number of urban (rural) children less than 5 years old (from ECLAC, 1999b) X the prevalence of stunting in urban (rural) areas. The population year was matched as closely as possible to the survey year.

Table 5: Summary of stunted urban children results

	Absolute number of urban stunted children increasing	Absolute number of urban stunted children decreasing
Share of urban stunted children increasing	Nicaragua (1993-98) Bolivia (1996-98) Honduras (1991-96)	Dom. Republic (1991-96) Colombia (1986-95)
Share of urban stunted children decreasing	Guatemala (1987-95)	Peru (1991-96)

**Table 6: Departamental differences in
child stunting prevalence in Bolivia, 1998**

Level	Stunting^a prevalence
National	26.8
Departamento	
Beni	24.6
Chuquisaca	33.8
Cochabamba	25.5
La Paz	25.7
Oruro	31.3
Pando	25.6
Potosi	47.4
Santa Cruz	18.8
Tarija	21.8

^aSource is the WHO Global Database on Child Growth and Malnutrition WWW.WHO.ORG. Stunting is defined as height-for-age <-2SD compared to reference standards.

Table 7: District differences in child stunting prevalence in the Dominican Republic, 1996

Level	Stunting^a prevalence
National	10.7
District or Region	
Cibao Central	6.8
Cibao Occidental	11.8
Cibao Oriental	14.7
Distrito Nacional	6.4
El Valle	20.4
Enriquillo	18
Valdesia	14.4
Yuma	11.4

^aSource is the WHO Global Database on Child Growth and Malnutrition WWW.WHO.ORG. Stunting is defined as height-for-age <-2SD compared to reference standards.

Table 8: Prevalence of underweight, stunted and wasted girls and boys

Country	Survey Year	Area	Age Range (years)	Wasting		Stunting		Underweight	
				<-2SD	F/M ratio	<-2SD	F/M ratio	<-2SD	F/M ratio
Haiti	1994-95	Male	0-4.99	8.4	0.9	31.8	1.0	26.9	1.0
		Female	0-4.99	7.2		32.0		28.0	
Nicaragua	1997-98	Male	0-4.99	2.2	1.0	26.5	0.9	13.1	0.9
		Female	0-4.99	2.1		23.4		11.3	
Dom. Republic	1996	Male	0-4.99	1.6	0.6	12.0	0.8	6.4	0.8
		Female	0-4.99	0.9		9.4		5.3	
Bolivia	1998	Male	0-4.99	1.5	0.7	27.3	1.0	7.6	1.0
		Female	0-4.99	1.1		26.3		7.6	
Honduras	1996	Male	1-4.99	1.9	0.4	39.3	1.0	24.0	1.1
		Female	1-4.99	0.8		38.5		26.8	
Peru	1996	Male	0-4.99	1.2	0.9	26.4	1.0	8.1	0.9
		Female	0-4.99	1.1		25.1		7.4	
Guatemala	1995	Male	0-4.99	3.6	0.8	50.4	1.0	25.9	1.1
		Female	0-4.99	2.9		49.1		27.3	
Venezuela	1997	Male	0-4.99	2.9	1.0	16.3	0.8	5.2	0.9
		Female	0-4.99	3.0		13.5		4.9	
Paraguay	1990	Male	0-4.99	0.2	2.0	14.3	0.9	3.2	1.3
		Female	0-4.99	0.4		13.5		4.1	
Colombia	1995	Male	0-4.99	1.4	0.9	16.2	0.8	9.1	0.8
		Female	0-4.99	1.3		13.7		7.6	
Jamaica	1989	Male	0-4.99	3.3	1.1	12.4	0.4	8.9	0.6
		Female	0-4.99	3.5		5.1		5.6	
Trin. and Tob.	1987	Male	0.0-2.99	3.7	1.0	4.9	0.9	5.9	1.3
		Female	0.0-2.99	3.7		4.6		7.4	
El Salvador	1994	Male	0-4.99	5.1	0.5	27.5	0.8	15.7	0.9
		Female	0-4.99	2.6		23.1		13.8	
Brazil	1996	Male	0-4.99	2.3	1.0	11.5	0.8	5.9	0.9
		Female	0-4.99	2.4		9.4		5.4	
Costa Rica	1996	Male	1-6.99	3.7	0.3	5.8	1.1	6.2	0.6
		Female	1-6.99	1.0		6.5		4.0	
Argentina	1994	Male	0-4.99	1.8	0.2	7.4	0.3	3.4	0.1
		Female	0-4.99	0.3		2.2		0.5	

Source: WHO Global Database on Child Growth and Malnutrition.

Table 9: Changes in poverty prevalence in the 1990's

Country	Years	Earliest (%)	Latest (%)
Argentina (B. Aires)	90-97	16	13
Bolivia	90-97	47	44
Brazil	90-96	41	29
Chile	90-96	39	20
Colombia ^a	88-95	23	15
Costa Rica	90-97	24	20
Dom. Rep. ^a	86-92	33	34
Ecuador	90-97	56	50
El Salvador ^a	91-96	60	52
Honduras	90-97	75	74
Jamaica ^a	89-95	25	22
Mexico	89-96	39	43
Nicaragua	85-93	73	76
Panama	91-97	36	27
Paraguay (Asuncion)	90-96	37	40
Paraguay (rural) ^a	92-95	53	60
Peru ^b	91-96	55	46
Uruguay	90-97	12	6
Venezuela	90-97	34	42

Source: ECLAC, 1999a

^aMorlev (1998)

^bEscobal et al (1998)

Table 10: Summary of changes in undernourishment and poverty in the 1990's

	Prevalence of undernourishment increased	Prevalence of undernourishment decreased
Prevalence of poverty increased	Mexico Nicaragua Venezuela	Paraguay
Prevalence of poverty decreased	Costa Rica	LAC Argentina Bolivia Brazil Chile Colombia Ecuador El Salvador Honduras Jamaica Panama Peru Uruguay

Table 11: Change in Social Public Expenditure in the 1990's

	Social expenditure as % of GDP		Social expenditure as % of public expenditure	
	1990-91	1994-96	1990-91	1994-96
Bolivia	6	9.8	30.5	37.1
Brazil	9.4	11.2	27.2	33.9
Chile	13.8	14.4	58.1	61.8
Colombia	7.9	13.3	28.7	39.3
Costa Rica	17.7	19.6	63.6	61.9
Dom. Rep.	3.7	5.4	35	32.4
Ecuador	8.3	7.8	38.7	32.4
El Salvador	4.1	3.6	29.9	23.8
Guatemala	3.3	3.9	29.9	37.9
Jamaica	11.6	11.7	26.8	31.9
Nicaragua	11.5	13.4	33.7	29.8
Peru	2.2	3.3	13.8	18.6

Source: ECLAC, 1999c

Table 12: Summary of changes in undernourishment and social expenditure in the 1990's

	Prevalence of undernourishment increased	Prevalence of undernourishment decreased
Social expenditure as percentage of public expenditure increased	Guatemala	Bolivia Brazil Chile Colombia Jamaica Peru
Social expenditure as percentage of public expenditure decreased	Costa Rica Nicaragua	Ecuador El Salvador

Table 13: Food Security Policy Matrix

Unit of Intervention	Issues: Important factors to consider	Information: Identify vulnerable units for intervention	Policies: Targeting vulnerable units
<i>Individual</i>	<ul style="list-style-type: none"> individual entitlements intrahousehold relations household labor and food allocation 	<ul style="list-style-type: none"> objective indicators subjective indicators household assets, labor allocation and resource distribution 	<ul style="list-style-type: none"> empowering women through improved asset holdings considering intrahousehold implications of policies targeting through supplemental feeding programs
<i>Household</i>	<ul style="list-style-type: none"> household entitlements (assets) timing of entitlements sources of uncertainty 	<ul style="list-style-type: none"> household consumption and expenditure household asset position coping and management strategies 	<ul style="list-style-type: none"> facilitate asset accumulation promote income generating activities promote microfinance schemes
<i>Community</i>	<ul style="list-style-type: none"> market integration social institutions resources and management 	<ul style="list-style-type: none"> community assets heterogeneity portfolio of economic activities 	<ul style="list-style-type: none"> facilitate channels of communication participatory infrastructure development promote sustainability
<i>Sub-national</i>	<ul style="list-style-type: none"> rural vs. urban food distribution channels aggregate risk 	<ul style="list-style-type: none"> rural vs. urban entitlements vulnerability maps food market structure 	<ul style="list-style-type: none"> appropriate food price policy national disaster preparedness and relief networks improve food transport systems
<i>National</i>	<ul style="list-style-type: none"> food supply (national production and imports) enabling macro environment social stability and security 	<ul style="list-style-type: none"> sources of supply national statistics sources of foreign exchange food aid programs 	<ul style="list-style-type: none"> promote equitable growth and poverty reduction increase agricultural productivity establish adequate supply channels
<i>Regional</i>	<ul style="list-style-type: none"> regional risks regional food commerce role of international organizations WFS activities 	<ul style="list-style-type: none"> sources of regional risk comparable national data regional trade links degree of regional cooperation 	<ul style="list-style-type: none"> regional disaster preparedness normalization of information collection promote trade and cooperation facilitate regional information flow