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GUIDELINES FOR SECTORAL NUTRITION POLICIES IN A.I.D.-ASSISTED COUNTRIES OF THE LAC REGION

A Concept Paper

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August 1994

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I. INTRODUCTION

Malnutrition, including both energy-protein and micronutrient deficiencies, has been known for a long time to affect large proportions of the population in a number of countries of Latin America and the Caribbean, particularly in A.I.D. child survival emphasis countries. Deficient individual dietary intake and poor biological utilization, a consequence of food insecurity and frequent infections, are the two proximate causes of malnutrition, of which growth failure in children is a non-specific result. Chronic or transitory **food insecurity** and a high incidence and poor management of **infectious morbidity** are key expressions of a complex syndrome of nutritional, biological and social deprivation associated with poverty and leading to retarded physical growth and developmental impairment in disadvantaged populations. Nutrition is recognized both as a key input and as a critical outcome of the development process. The demonstrated long-lasting functional consequences of poor nutrition on a child's health, physical activity, cognitive ability and learning capacity and on adult's labor productivity represent serious obstacles to social and economic development and provide a strong rationale for investing in nutrition improvement policies and interventions (Behrman, 1992; Sanghvi, 1993). This is in addition to equity and humanitarian arguments for nutrition is one of the basic human needs and an essential component of people's well-being which is the ultimate goal of socio-economic development (Johnson, 1992).

To address the problems of malnutrition and food insecurity, LAC countries have at some point prepared **food and nutrition plans**, and some have implemented them at least partially. Mixed results of such efforts and emerging new priorities have in some cases led to declining interest in nutrition and growing concern among decision makers about the feasibility of achieving significant nutritional improvement through specific nutrition/food security related measures. Hence, there has been some tendency to rely almost exclusively on economic growth for long-term nutrition improvement. However, the wealth of experience gained from successes and failures of efforts to foster broad-based economic growth and to improve nutrition and food security in the region and elsewhere, is large enough to allow drawing critical lessons that are of immediate practical relevance to countries still confronting significant nutrition problems. The World Declaration and Plan of Action for Nutrition, endorsed by 159 nations at the International Conference on Nutrition (ICN) in Rome (FAO/WHO, 1992), set the stage for immediate action to meet the goals of eliminating vitamin A and iodine deficiencies and substantially reducing starvation and widespread chronic hunger and undernutrition, especially among children, women and the aged, and other important micronutrient deficiencies, including iron, before the end of this decade.

The purpose of this paper is to summarize information currently available on critical issues for nutrition-related decisions in countries of the LAC region:

- extent and trends in malnutrition and food insecurity, and their economic and developmental implications;
- economic and other rationale for investing in nutrition and food security; and

- cost-effective policy and intervention options available to development planners willing to address key nutrition and food security problems precluding more rapid social and economic development.

This paper is intended to be an introduction to **Sectoral Nutrition and Food Security Policy and Program Guidelines** that LAC HNS is preparing as an instrument to foster policy dialogue with USAID missions and national decision makers. The Guidelines will integrate a series of policy instruments developed in house and elsewhere, with the purpose of facilitating informed decision-making on nutrition investments. They will provide documentation on proven effective policy and program options which allow national planners to select the most appropriate mix of policies and programs for their particular country situation, needs and resources. The Concept Paper and Guidelines are intended to be used by AID Missions and local counterparts at the National Planning Offices and Ministries of Health, Agriculture and Education in policy dialogue about the rationale and means to foster nutritional improvement in LAC countries. Although the emphasis will be on A.I.D.-assisted countries, the Guidelines are expected to be widely applicable in other countries of the region.

II. OVERVIEW OF FOOD AND NUTRITION TRENDS AND CURRENT STATUS IN THE LAC REGION

Energy-protein malnutrition, specific micronutrient deficiencies and chronic food insecurity have for decades been extensively documented in the LAC region, whose total population in 1993 amounts to about 450 million (roughly 150 million in Central America and Mexico, and 300 million in South America). Although significant improvement in overall nutritional indicators was observed in most countries up to the early 1980s, little change, if any, occurred during the last decade.

The first national nutrition surveys carried out in the 1960s revealed that **energy-protein** malnutrition and micro-nutrient deficiencies of **iodine, vitamin A** and **iron** represented significant public health problems affecting large proportions of the LAC population, especially young children and pregnant women. In the 1960s, the mean prevalence of malnutrition among children younger than 5 years in 10 countries was about 21.6 percent, and the mean regional per-capita energy supply was nearly 2400 calories per day. Throughout the 1960s and 1970s, a period of sustained economic growth, considerable improvement was observed in the food and nutrition conditions of the population in the region as a whole, generally paralleling improvements in health and social indicators such as infant and child mortality, life expectancy and the coverage of basic education. However, as a result of diverse trends in economic growth and development policies, improvement did not occur in all countries and the benefits of the relatively fast economic growth and improvement in social conditions were unevenly distributed across countries and among income groups and regions within countries (United Nations, 1992; UNICEF, 1993).

A. FOOD SUPPLY

The overall LAC regional food availability, expressed as per capita dietary energy supplies, has shown some improvement over time. Per capita energy supply rose from about 2370 calories in 1961/63 to 2620 in 1979/81 (FAO, 1990), and to about 2710 by 1989/90. According to World Bank estimates, by 1980 about 37 percent of the LAC population had deficient food intake, as compared with 50 percent in 1960 (Reutlinger and Alderman, 1989).

In Central America and the Caribbean (including Mexico), local per capita food production increased significantly in the 1960s and 1970s, and the proportion of the population with inadequate access to food was estimated to fall from around 20 percent in 1969/71 to 15 percent in 1979/81. Per capita energy supply also increased from about 2600 calories per day per capita in the 1960s to 2900 in 1982/83, and then declined to 2800 by the late 1980s. The upward trend in local food production slowed in the 1980s, most likely due to the economic recession and political instability. Per capita energy supply expanded with increases in food imports up to about 2900 calories per day in 1982, and then dropped to about 2800 in the late 1980s. Per capita food production also rose in South America during the 1960s and 1970s, with a gradual increase in dietary energy supply and a fall in the proportion of the population with inadequate access to food from about 9 percent in 1970 to 8 percent in 1980. Per capita energy supply grew steadily in the 1960s and 1970s, remained static at about 2600 in the early 1980s, and reached 2670 by 1990.

Overall growth of per capita calorie supplies was negative during the 1980s in five LAC countries (Bolivia, Haiti, Nicaragua, Peru and Jamaica); it was positive in Ecuador, Costa Rica, Guatemala and Honduras, but not sufficient in the latter two to meet the 2300 calories minimum cut-off established in the new U.S. food aid legislation. Recent national estimates (van Haeften, 1992, USAID, 1992) indicate that per capita energy supplies in six countries of the LAC region (Bolivia, Peru, Haiti, Nicaragua, Guatemala and Honduras) remain below the 2300 calories food security cut-off (Figure 1). This means that there is not enough food in these countries, even if it were equally distributed, to ensure each person access to sufficient calories. The per capita calorie supply in three additional countries (El Salvador, the Dominican Republic and Ecuador) is less than 10 percent above 2300 per day, which places them also at high risk of food insecurity with even minor shortfalls in food production and/or imports. Energy supplies in four countries (Panama, the Dominican Republic, El Salvador and Ecuador) have oscillated above and below the cut-off point from one year to another.

In the 1980s, per capita food production declined in nine of the ten food insecure countries (except Bolivia), with a 40 percent drop in Nicaragua (Figure 2). The decline in production has been partially compensated by food imports and food aid, both of which account for an important share of national calorie supplies in many AID-assisted LAC countries. About 30 percent of the calorie supplies available are imported in Haiti, Panama and the Dominican Republic, and more than 50 percent in Jamaica. But food imports also declined in seven countries, to a great extent due to scarce foreign exchange, with serious implications for El Salvador, Guatemala, Honduras, Nicaragua and Peru. As a result of declining domestic food

production and inability to compensate with food imports, a number of countries have become increasingly dependent on food aid, particularly El Salvador, Guatemala, Honduras, Jamaica and Bolivia with more than half of the imported calorie supplies coming from food aid.

The total population of the ten generally food insecure countries (in aggregate terms) amounts to about 80 million, half of it in Central America. The high degree of income inequality in the LAC region is likely to lead to widespread food insecurity not only in those ten countries but also, to a variable extent, in the apparently food secure countries, particularly among the rural population[1]. Practically all low-income countries and many middle-income countries have substantial numbers of food-insecure households and individuals. National food supply figures provide only aggregate information on overall supply with no indication on actual distribution, availability and consumption by socio-economic strata and individual households. This information, in addition to food supplies, is required for assessing the extent of food insecurity in the population, but it is not usually available. Household food consumption data are badly needed but unfortunately are not often collected, presumably due to feasibility and cost considerations. However, the need for household food expenditure and consumption data is critical for assessment, monitoring and identification of food insecure households, and may prove to be cost-effective.

B. ANTHROPOMETRIC INDICATORS OF CHILD MALNUTRITION

Significant progress in the nutritional status of children occurred in the region as a whole throughout the 1960s and 1970s, as indicated by declining prevalence of retarded growth (low weight and/or height for the age) among children younger than five years (United Nations, 1992; UNICEF, 1993). As shown in Table 1 and Figure 3, a positive trend was observed up to 1985, which was more pronounced in South America. In the late 1980s, some deterioration was observed both in Central and South America. In part as a result of population growth, between 1985 and 1990 the number of malnourished children increased in Central America from 2.8 to 3.5 million, in South America from 2.9 to 3.0 million, and in the Latin American region as a whole from 5.7 to 6.5 million. Recently (United Nations, 1992), it has been estimated that if the LAC trend of improvement seen in the 1970's were restated in the 1990s, the problem of underweight children would be solved before the end of the century. However, given the relatively low levels of malnutrition already achieved in the region as a whole, further reductions will be more difficult and will require additional measures targeted to sub-groups of the population at the highest risk, particularly in certain population groups and geographic areas (e.g. indigenous populations in Guatemala, Peru, Bolivia and Ecuador, and specific regions in Haiti and Northeast Brazil). The ability of most LAC countries to deal effectively with malnutrition, will depend as much on real political commitment and investments for nutrition improvement as on continued political stability and economic growth.

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[1] It has been shown, for instance, that rural households at a given income tend to consume less calories per capita than urban households at comparable income levels.

Table 1. Trends in global prevalence and numbers of underweight children (weight-for-age lower than -2 S.D. of the reference population) in the LAC region, 1975-1990.

	1975	1980	1985	1990
Central America & Caribbean				
Percent prevalence	19.3	17.7	15.2	18.0
Million children	3.4	3.1	2.8	3.5
South America				
Percent prevalence	15.7	9.3	8.2	8.4
Million children	4.8	3.1	2.9	3.0
Total LAC region				
Percent prevalence	17.0	12.2	10.6	11.9
Million children	8.2	6.2	5.7	6.5

Source: United Nations, 1992; De Onis et al, 1993.

Most recent surveys of the nutritional status of children under five years of age in the region (Figures 4 and 5) show that four AID-assisted countries (Guatemala, Haiti, Honduras and Ecuador) have the highest prevalence rates of malnutrition (low weight-for-age) in the region (above 15 percent) and six (Guatemala, Haiti, Honduras, Bolivia, Peru and Ecuador) have the highest rates of stunting (low height-for-age): above 30 percent. The lowest rates of underweight (under 8 percent) are seen in Chile, Paraguay, Costa Rica, Brazil, Panama, Jamaica and Uruguay. Haiti and Guatemala have shown by far the highest rates of both underweight and stunting. In contrast with other regions of the world, wasting (low weight-for-height) has not been found to be a significant problem among children in the LAC region. A recent WHO report (1993) estimates LAC regional prevalences of 11.9, 22.2 and 2.7 percent for low weight-for-age, stunting and wasting, respectively. The total number of children affected is estimated to be 6.5, 12.1 and 1.5 million, respectively. Even in the relatively better off countries, surveys highlight large disparities between regions and socio-economic groups, and the prevalence of malnutrition (and infant/child mortality too) continues to be consistently associated with the level of mother's education[2].

[2] Besides socioeconomic status, the single most important predictor of child's health, nutrition and infant mortality has been found to be the level of mother's formal education. Recent studies suggest that maternal education has an effect on child health, nutrition and survival which is to a large extent independent from that of other socio-economic factors (Barrera, 1990; Thomas, Strauss, and Henriques, 1990).

C. BREASTFEEDING

Breast-feeding, a natural resource offering sustainable food security, adequate nutrient supply and protection against morbidity for children up to at least six months and partially afterwards, has been declining in a number of countries as a result of multiple forces including urbanization, women's work, health care/hospital practices and the marketing of breast milk substitutes. Some modest improvements associated with specific breast-feeding promotion efforts, especially changes in pre and perinatal practices in maternity services and/or communication campaigns, have been recently reported (Sharma et al, 1990). Perhaps more important, because of the early introduction of supplementary foods, the duration of exclusive breast-feeding, which is critical to take full advantage of the health and nutrition benefits of breast-feeding, remains low even in countries where total duration is relatively long. The proportion of children 3-5 months exclusively breast-fed found in Demographic and Health Surveys (DHS) recently conducted in Colombia, the Dominican Republic, Ecuador, Mexico, Paraguay and Peru ranged from 0.3 percent to 22.2 percent, with estimated median durations of only 0.2 to 1.1 months (Sharma et al, 1990). Between 46 percent and 75 percent of children 0-5 months were bottle-fed. The highest frequency of exclusive breast-feeding at 3-4 months (42.7 percent) was found in Bolivia (DHS, 1989).

Regardless of total duration, inappropriate breast-feeding practices, including too early or too late supplementation, are known to have significant negative consequences on child's health, nutrition, morbidity and mortality, with important economic implications for the countries. Poor breast-feeding practices are only part of inappropriate infant feeding practices in general, especially during the critical weaning period. Both too early introduction of supplementary foods, which tends to be more frequent in urban areas, and too late introduction, which is more common in rural populations, are part of inadequate feeding practices leading to deficient child nutrient intake during and after the weaning period. Prevalent weaning diets have low nutritional density and are often contaminated. Thus measures to improve food security need to be complemented with effective health and nutrition education for dietary behavior modification and hygienic practices.

D. MATERNAL NUTRITION

Maternal undernutrition has been recognized as a significant problem in the region, although there is no direct quantitative evidence available. Despite some progress, maternal mortality remains exceedingly high in most countries. There is a remarkably high prevalence of low birth weight (LBW) in some countries. LBW is an indicator of intrauterine growth retardation to a great extent attributable to inadequate nutrition before and during pregnancy; unfortunately, there is scarce information on trends in the prevalence of LBW. Children born with low birth weight are at higher risk of malnutrition, infection and developmental disabilities; they are likely to remain malnourished long into childhood, and are twice as likely to die from diarrheal and other diseases. High prevalence of LBW is likely to significantly contribute to resilient rates of malnutrition in some countries, where further significant reductions in child

malnutrition may only be achieved through improved maternal nutrition. Recent estimates of the rate of LBW are higher than 10 percent in Bolivia, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico and Nicaragua (World Food Council, 1992). Modest improvements in the prevalence of LBW have been reported, declining from 15 to 12 percent in Central America and from 12 to 10 percent in South America (United Nations, 1992). Poor maternal nutrition, however, remains a significant problem in a number of countries, as indicated by inadequate weight-for-height, poor dietary intake and deficient weight gain during pregnancy, and a high prevalence of iron deficiency anemia.

E. MICRONUTRIENTS

Micronutrient deficiencies of vitamin A, iron and iodine, as well as other micronutrients, are widespread in the region. Even though clinical evidence of **vitamin A deficiency** has not been commonly found, recent studies showing a significant relationship of marginal (sub-clinical) deficiency and increased risk of morbidity and mortality have pointed to the need for more systematic attention to marginal vitamin A deficiency. In the 1960s, INCAP's dietary and biochemical studies in Central America generated some concern about sub-clinical deficiency as a potentially significant problem, and some measures began to be implemented: legislation on sugar fortification with vitamin A was passed (although not always systematically enforced) in Costa Rica, Honduras, Guatemala and Panama. Sugar fortification is currently implemented in Guatemala, Honduras and El Salvador, with variable coverage. More recent assessments have confirmed the presence of significant countrywide or pocketed marginal vitamin A deficiency in El Salvador, Nicaragua, Guatemala, Honduras, Bolivia, the Dominican Republic, Mexico, Panama (indigenous population) and Peru. WHO (1992) estimates that the number of pre-school children affected by clinically manifested vitamin A deficiency (xerophthalmia) in the LAC region amount to 0.1 million, with 18 million at risk, most of them probably suffering from marginal deficiency (Mora, 1993).

The aggregate supply of vitamin A estimated from FAO's food balance sheets indicates an improving trend in the LAC region in the last 20 years, with per capita levels greater than average requirements by the late 1980s, assuming equal distribution by socio-economic strata (United Nations, 1992). However, vitamin A consumption has been found consistently low, particularly among disadvantaged populations whose demand for vitamin A rich foods behaves differently to that of calories, protein or iron, with little response to changes in either income or food prices. In addition to seasonal fluctuations in the availability of the limited number of significant food sources of the vitamin, the low elasticity may be attributed to the relatively low status frequently assigned to green leaves and other vegetable sources of the vitamin, which points to the potential of nutrition education to improve consumption.

Iron deficiency anemia is widespread in the region, affecting mainly young children (with highest rates in the first two years and progressive decline thereafter) and women of reproductive age, particularly pregnant women. As expected, sub-clinical iron deficiency has been found to be much more prevalent than clinical deficiency. The severity of the problem has

been known for many years, and data on at least iron deficiency anemia are available in most countries. However, little has been done to address it, except for some iron supplementation to pregnant women and children in a few countries. WHO (1992) estimates that about 94 million people in the LAC region are iron deficient or anemic. The prevalence of anemia in the 1980s was reported to reach 31-34% among pregnant women and 21-27% among non pregnant women 25-49 years old (United Nations, 1992). A recent review (Mothercare, 1992) reports rates of anemia in pregnant women ranging from 14 to 74% in South America and from 60 to 90% in the Caribbean, and in non pregnant women from 37 to 55% in South America. While rates for children under 5 years average 20 to 25%, exceedingly high rates have been reported in young children in Ecuador (Freire et al, 1988) and in other countries. Overall per capita supply of iron has remained static or slightly declined in the region, with great predominance of vegetable sources of low bioavailability, and the iron density in the diet, expressed as mg iron/1,000 calories, seems to be deteriorating (United Nations, 1992). A great deal on interest in iron fortification of foods has been generated in a number of countries of the region, and some have already passed pertinent legislation.

Iodine deficiency and its most common clinical manifestation, endemic goiter and cretinism, were highly prevalent in a number of LAC countries, especially in the Andean region. Endemic goiter has been significantly reduced in many countries through mandatory iodination of salt, which, unfortunately, is deficiently implemented and poorly monitored in many countries (UNICEF, 1991). Control of iodine deficiency has been particularly difficult in countries where salt iodination is complicated by the existence of multiple salt producing plants, such as in Bolivia, Peru, Ecuador and, to a lesser extent, Honduras. Significant progress in reducing iodine deficiency has been reported in Bolivia and Ecuador, but there is some indication of increased prevalence in others (Paraguay, Colombia). According to WHO (1992), about 30 million people in the LAC region may be affected by endemic goiter and 55 million more would be at risk of sub-clinical iodine deficiency with serious developmental implications. including overt cretinism in 0.5 million.

F. MATERNAL, INFANT AND CHILD MORTALITY

Maternal mortality declined in South America from 290 per 100,000 live births in 1983 to 220 in 1988 and in Central America from 237 to 180 in the same period (United Nations, 1992). The declined may be partly explained by the increase in the proportion of women receiving prenatal and delivery care by trained personnel. Infant and child mortality, hence life expectancy, have shown a more sustained pattern of improvement throughout the region. Overall child mortality rates (annual deaths of children under five years of age per 1,000 live births) dropped by 40 percent from about 100 in 1970 (1.1 million deaths) to 60 in 1990 (0.9 million deaths). Infant mortality rates dropped in Central America from 68 per 1,000 live births in 1975 to 47 in 1990, and in South America from 75 to 55 in 1990. Reductions in child mortality have been mostly attributed to significant progress in immunization coverage and in the use of oral rehydration therapy for diarrhea. Contrary to expectations, however, progress in infant mortality in countries that three decades ago had the highest rates has not been

proportionally greater than in those with relatively low rates: from 1960 to 1990, infant mortality was reduced by more than 65 percent in Chile, Costa Rica, Jamaica and Panama, compared with less than 50 percent in Bolivia, Haiti and Peru (Table 2). Over the past decades, Chile, Cuba, Costa Rica and Jamaica have experienced the most remarkable improvements in infant mortality and life expectancy, as well as in the nutritional status of children, which has been to a great extent attributed to sustained political will and commitment to social equity (Horwitz, 1987).

G. POPULATION GROWTH

The initially very high rates of population growth have generally slowed down in the region, although only ten of twenty-three countries have achieved annual growth rates below 2 percent. Population growth is still greater than 2.5 percent in Bolivia, El Salvador, Haiti, Honduras, Guatemala, Nicaragua and Paraguay. By 1990, ten LAC countries still had total fertility rates above 4 per woman. Fertility rates have generally declined, although to variable extent by country, and contraceptive used has usually increased. DHS surveys carried out in the 1980s found total contraceptive prevalence ranging from 30 percent to 66 percent of which 12 to 57 percent were modern methods (Rutenberg et al, 1991). High population growth rates continue to place increased pressure on scarce resources needed for jobs, housing, sanitation, education, health care, nutrition and social services in general in a number of countries.

H. ECONOMIC GROWTH AND SOCIAL DEVELOPMENT

Most LAC countries experienced significant and consistent economic growth throughout the 1960s and 1970s, followed by a severe crisis in the 1980s (the "lost decade"). The economic decline of the 1980s, which affected all countries to some degree, was reflected in a reduction of per capita income levels in nineteen countries. The region's domestic product in 1989 was almost 10 percent below that of 1980 (World Bank, 1991). According to United Nations estimates (1992), between 1981 and 1990, real GDP per person in the region fell by 1.2 percent annually which, compounded with an extremely unequal distribution, resulted in increases in the incidence of extreme poverty (from 8 percent to 9 percent) and in the absolute number of extremely poor (from 50 to 53 million). In Central America, the average GNP per capita fell to a 1990 level of $ 1700 from a peak of $ 2300 in 1982. The substantial increases in economic output of the earlier decade sharply changed in the region. The decline in GNP, together with macroeconomic structural adjustment measures in many countries, a dramatic increase in the external debt (from around $240 per capita in 1975 to $ 1000 in 1990) and a growing debt service ratio curtailed available capital for domestic investments and stalled economic growth. A similar deterioration of previously positive trends occurred in South America in the first half of the decade, with some recuperation thereafter.

The impact of the crisis varied by country and, very likely, by socio-economic strata. Given the exceptionally high degree of income inequality in the region, the average per capita income decline may have been borne disproportionately by the poor. Economic adjustment and

recession in the LAC region have carried large social costs in terms of falling social expenditures and availability of social services, reduced living standards and unemployment. A 1988 study on social spending in nine countries of the region (Grosh, 1990) found that during the 1980s marked GDP declines led to substantial reductions in per capita expenditures, despite the fact that on average the social sector's share of government's spending suffered only small losses and government's share in GDP was about constant. This reduction in expenditures was in part compensated in some countries by increased efficiency of public services. In general, health care coverage was reported to have been relatively protected during the crisis, with coverage levels increasing or remaining high in some countries due in part to increased donor funding (PAHO, 1990).

The unprecedented economic dislocations of the 1980s and the adjustment programs responding to those problems exacerbated structural disequilibria and distributive inequities that have long existed in most countries. This situation resulted in general deterioration in the quality of life of large segments of the population, particularly poor women and children. However, despite the severe economic shocks in the 1980s, national prevalence of child malnutrition and mortality rates showed remarkable resilience and, where effective policies and programs were instituted during the 1980s, progress against malnutrition continued.

Regional figures tend to hide wide disparities in levels of development, food security and nutritional status within the region, as national figures hide large inequalities within countries. As an example, countries such as Chile and Costa Rica have achieved remarkable progress in improving the nutritional well-being of their population over the past decades and also, to a lesser extent, Brazil, Colombia, Jamaica, Panama and Venezuela, all of which showed relatively high prevalence rates of malnutrition in the 1960s (Figure 1). Improvements, if any, have been modest in other countries (Bolivia, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Peru, the Dominican Republic), and there is no recent information from Argentina[3]. Even in countries where significant progress has been made, the benefits have not occurred evenly among geographic areas and population groups. As food insecurity and malnutrition are reduced, they tend to cluster in specific geographic and socioeconomic pockets that require more targeted and concentrated attention. Regardless of sustained economic growth, food insecurity and malnutrition remained unchanged in variable proportions of the population in a number of countries, particularly among indigenous groups that are kept outside the main stream of development thus increasing the gap created by persistent overt inequalities.

III. ECONOMIC GROWTH (GNP) AND NUTRITION IN THE LAC REGION

Poverty is clearly an important determinant of food security and nutritional status, and economic growth has been generally seen as essential for achieving nutritional improvement. However, increasing income may not be enough to improve nutrition, just as household food

[3] Plans for a national nutrition survey are under way in Argentina.

security may not necessarily translate into improved nutritional status of household members (Marek, 1992). The general relationship between the prevalence of underweight children and GNP per capita was recently analyzed by the United Nations (1992). The regression line, shown in Figure 6, indicates that the income effect is strongest at the lower end of the GNP range, with a strong relationship in the range between $ 200-1000 per capita, and is substantially reduced beyond the $ 1000 income per capita level. Also noticeable is that some countries have lower than expected rates of malnutrition given their level of income (Chile, Jamaica, Costa Rica, Zimbabwe, Egypt), while others are performing poorly (Mexico, Indonesia). The United Nations contend that this may be to a great extent attributed to the significant role of public expenditures for social support: good performers tend to spend 13 percent to 19 percent of the GNP in the social sector, compared with only 3 percent to 4 percent of poor performers.

As shown in Figure 6, GNP per capita in the majority of the countries in the LAC region lies just above the $ 1000 cut-off, thus little effect would be expected in these countries of increased economic growth alone (as measured by the GNP) on malnutrition rates. In Haiti, Honduras, El Salvador and Nicaragua, with GNP per capita under $900, some significant impact of economic growth on malnutrition rates would be expected. However, even among these low-income countries, Guatemala and Honduras (as well as Ecuador and Mexico in the upper range) are performing worse than expected given their income, whereas Bolivia and the Dominican Republic (as well as Chile, Costa Rica, Paraguay and Jamaica in the upper range) have lower malnutrition rates than the expected for their GNP. Actual rates of malnutrition do not largely differ from the expected for their income in Peru, Colombia, Uruguay, Brazil and Venezuela.

Chile, Costa Rica and Jamaica have been usually regarded as show-case examples of countries achieving dramatic improvements in the nutritional status of their population, whereas Haiti, Guatemala and, to a lesser extent, Ecuador and El Salvador, are often cited as negative examples. Contrasting case-studies of successful and unsuccessful countries may provide information about the specific policies and programs, as well as other characteristics leading to success or failure. In the mean-time, it is known that successful countries have for a long time: (1) assigned high political commitment and relatively high priority to social equity; (2) managed to increase or at least protect their level of social expenditures and/or their equity and efficiency, and (3) effectively established a "safety net" of social services to protect the poor, particularly in times of economic hardship, e.g. during structural adjustment periods. In summary, successful countries appear to have been able to design an appropriate mix of nutrition-related sectoral policies and interventions that have been effectively implemented.

IV. SOCIAL AND ECONOMIC RATIONALE FOR INVESTING IN NUTRITION

Initial attempts to address the nutrition problem have historically focused on a biological (medical) orientation, with a strong focus on recuperation of malnourished children (e.g. nutrition recuperation centers and supplementary feeding for malnourished children). Nutrition research was also aimed at ascertaining the immediate causes and consequences of malnutrition (e.g. the relationships between malnutrition and infection, cognitive development, school

performance or labor productivity). This approach failed to explore effective options for policies and interventions to address malnutrition at the national and community levels. The results of such research, however, not only allowed a better understanding of the major determinants and consequences of malnutrition, but also provided a strong rationale for investing in nutrition, not only for humanitarian reasons, but also as a critical input into socioeconomic development.

In a recent extensive review of studies on the functional and economic consequences of malnutrition and productivity gains of improved nutrition, Behrman (1992) explores the issue of nutrition as an input into socioeconomic development and concludes that investing in nutritional improvements is an effective and efficient means of achieving the broad goals of development. Behrman summarizes the broad goals of economic development as (1) increasing **productivity** to expand consumption of goods and services and (2) distributing such goods and services among members of society, i.e. improving **equity**. Investments in nutrition contribute to the productivity goal of economic growth and development directly through increased labor productivity, and indirectly through enhanced cognitive achievement, which ultimately translates into improved school performance and adult labor productivity gains. Furthermore, improved nutrition contributes to the equity goal through immediate improvements in consumption among the poorest groups from targeted resource transfers, and also because the benefits of increased productivity from better nutrition accrue disproportionately to the poor and undernourished. As increased productivity leads to higher labor incomes, the poor again benefit disproportionately as they spend a greater share of incremental income on food.

Behrman reports on a growing body of evidence showing that improved nutrition (through increased calorie and protein or micronutrient intake) has a direct positive effect on labor productivity, at least for poorer individuals. This effect is observed both in the short term, in the form of greater energy from increased nutrient intake, and in the longer term, through greater strength and endurance from increased body size, particularly height. Protein-calorie and iron supplementation are shown to have significant effects on labor productivity in numerous studies, though the associations are less clear with respect to wages. Height and weight-for-height, however, are shown by several studies not only to affect productivity, but also to be strongly associated with wages for both men and women. The evidence that height is a significant determinant of labor productivity is contrary to the "small but healthy" hypothesis, which suggests that stunting does not have functional consequences. The relationship between improved nutrition and labor productivity has been found in studies carried out in under-developed economies where the linkage between productivity and wages may be relatively weak. Its relevance is expected to be much greater in the LAC region due to the significant trend towards labor market economies where greater productivity leads to higher wages, thus increased labor productivity is more likely to benefit the poor's income.

Evidence also suggests that important gains in productivity in education can be realized from improved nutrition, which will in turn increase labor productivity and incomes over the longer term. Improved protein-energy as well as micronutrient nutrition have been found to have significant impacts on cognitive development and preschool ability, as well as on school attendance and performance. Anthropometric indicators also have significant positive

associations with school enrollment, grade level attained, and performance on achievement tests. Conversely, infant and pre-school malnutrition is linked to reduced cognitive ability, which may be irreversible.

Short-term hunger is also a significant factor in attention span, interest and "active learning capacity,"[4] which have important implications for schooling and the efficiency of investments in education. Levinger (1992) presents evidence from several recent studies showing that current energy levels are important determinants of learning and performance, even holding nutritional status and ability constant. Children who are also clinically malnourished, however, are more susceptible to disruptions in the learning process from current energy deprivation (Grantham-McGregor et al, 1989). There is also evidence indicating that alleviation of temporary hunger through school-feeding can have immediate effects on behavior as well as subsequent effects on attendance and test scores (Pollitt, 1990).

With regard to micronutrient deficiencies, the relationship between iron deficiency anemia and cognitive development and school performance is well established (Oski and Horning, 1978; Pollitt et al, 1983; Walter et al, 1983; Walter, 1989; Lozoff, 1987). Perhaps more important are the impacts of sub-clinical micronutrient deficiencies, particularly vitamin A deficiency on the risk of morbidity and mortality (Beaton, 1993), and iodine deficiency on brain development and loss of energy due to hypothyroidism. Several studies have shown significant effects of iron supplementation of deficient school-age children on standardized intelligence tests and learning achievement tests; however, recent evidence from both Walter (1989) and Lozoff et al (1991) suggests that the negative impact on child development of iron deficiency anemia in infancy, even when corrected, may persist well into the school period.

Levinger (1992) reports that iodine deficiency, which is thought to affect large segments of the population in the LAC region despite the relatively low prevalence of endemic goiter in many, can reduce educational achievement by causing reduced cognitive development, psychomotor retardation, mental and neurologic damage, and cretinism. Bautista (1982) found that iodine fortification of oil led indirectly to improved intelligence test scores through goiter reduction. Levinger (1992) concludes, however, that although the negative impacts of iodine deficiency on cognitive ability and school achievement are well-documented, the evidence on the effectiveness of supplementation in improving school performance is not as yet conclusive. There is, however, some evidence of a direct relationship between intellectual impairment caused by iodine deficiency and labor income. A substantial increase in labor income in a Chinese village was observed after a salt iodination program (Levin, 1987), and moderately iodine deficient agricultural workers in Ecuador were paid consistently less than non deficient laborers (Greene, 1977).

Behrman (1992) concludes that the evidence of the links between nutrition and cognitive achievement and school performance is convincing. In addition, the relationship between

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[4]Levinger (1992) defines active learning capacity as "the child's propensity and ability to interact with and take optimal advantage of the full complement of resources offered by any formal or informal learning environment."

educational achievement and labor productivity and wages has also been well established in the literature. Thus, there are significant indirect effects of nutrition on labor productivity through improved schooling productivity. Behrman suggests that the World Bank estimate of the social rate of return to primary schooling[5] in low-income countries of 26 percent could be substantially increased by improving cognitive achievement through nutrition, which will in turn induce more schooling.

In addition to the productivity argument for investing in nutrition, the demonstrated links between malnutrition and increased risk of morbidity and mortality must also be reiterated here. Not only does malnutrition, including micronutrient deficiencies, cause enormous social costs in terms of human suffering, but the financial costs to the health care system and the general economy from excess (and more severe) morbidity and mortality due to malnutrition are also substantial. McGuire and Austin (1987) estimate that undernutrition is associated with a 10 to 45 percent increase in the incidence of diarrhea and a 30 to 55 percent increase in duration. In Guatemala, each year more than two million excess episodes of diarrhea and acute respiratory infections (ARI) among children under one year of age are associated with inappropriate breast-feeding practices (Mora, 1991). McGuire (1990) reports that vitamin A deficient children are two to four times more likely to suffer from respiratory disease and twice as susceptible to diarrhea. The financial costs to the health care system as well as to the households of the excess morbidity from malnutrition and inappropriate breast-feeding are enormous. Mora (1991) estimated the annual excess costs to the health system in Guatemala to reach about US $19 million or 12.8 percent of the total health budget. INCAP estimates that the costs to the family per episode of infant morbidity range from $0.28 to $3.88 (Immink et al., 1987).

McGuire (1990) reviewed recent studies on malnutrition and mortality and reports that low birth weight babies are 40 times more likely to die in the first month and five times more likely to die between 1 and 12 months of age than normal weight babies. Furthermore, infants born with a low birth weight have a higher risk of future growth retardation, morbidity and mortality than other infants. In addition, micronutrient deficiencies may increase the risk of infant and child mortality either directly or indirectly through an interactive effect with diseases such as measles and respiratory infections. From recent studies it is estimated that programs to reduce vitamin A deficiency in areas of high prevalence may result in about a 23 percent decrease in mortality among young children (Beaton et al, 1992). The available information overwhelmingly indicates that investments made in health care cannot be fully effective if the beneficiary population is not adequately nourished.

From the evidence cited by Behrman and others, it is clear that, in addition to the humanitarian rationale, investing in nutrition and food security is arguably an **efficient** use of socioeconomic development resources. Not only do nutrition improvements generate significant savings to the health care system and translate into higher productivity through enhanced human

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[5]Behrman defines the social rate of return to schooling as the private economic return, in terms of productivity, earnings and health, to public and private resources devoted to schooling. See Behrman (1990) for further explanation.

capital, but investments in nutrition and food security also serve to increase the productivity and social benefits of other socioeconomic investments. Better nutrition has a catalytic effect, increasing the return on investments in agriculture, education, and of course health. In addition, investing in food security and nutrition contributes to the pursuit of **economic growth with equity**, as the poorest groups receive the greatest benefit.

V. CURRENT NUTRITION ACTIVITIES IN THE REGION

After initial attempts by the health sector to address malnutrition from a biological perspective, increasing concern and involvement of planners, economists and social scientists reinforced the conviction that the multiple causality of malnutrition called for more integrated approaches with active participation of different sectors. This stimulated the design and implementation of "integrated applied nutrition programs" in the 1960s, and the emergency in the early 1970s of "multi-sectoral nutrition planning" as a central component of overall development planning, which was thought to provide a comprehensive, systematic and cost-effective approach to the problem of malnutrition. After the disenchantment caused by failure of the multisectoral nutrition planning approach to secure integrated sustainable actions in the absence of a suitable institutional base to meet its ambitious organizational requirements (Field, 1987), emphasis has been placed on sectoral policies and careful planning of coordinated inter-sectoral options.

It has now become clear that, although the basic rationale for a multi-sectoral approach is right, there is always a need for high level political and institutional commitment, as well as appropriate planning and coordinating mechanisms to ensure the implementation of specific actions from different sectors towards the common goal of improving nutrition. Countries that have succeeded in reducing malnutrition to levels of no public health significance have undergone a long-range process triggered by sustained explicit political commitment to social equity and relatively high priority assigned to health and nutrition-related policies and programs. In these countries, clusters of activities from different sectors have proceeded simultaneously, although not necessarily in accordance with an integrated plan designed to benefit from their synergism (Horwitz, 1987). Rather than adopting a comprehensive multisectoral planning approach, a well defined set of inter-sectoral policy and intervention initiatives, mostly but not limited to the health and agricultural sectors, have been implemented that are simple in design and operational requirements, and more compatible with existing government structures.

In the 1980s, despite the economic crisis, some countries began to reorient their economic development policies and programs, with more emphasis on maintaining or increasing priority and budgetary allocation to the social sector, and improving efficiency, as well as increasing efforts for improved nutrition programming, management and implementation. Other countries continue operating under the old schemes or were constrained by the budgetary cut backs associated with structural reforms. More recently, significant progress has been made, to a large extent as a result of the initiative of international organizations, in conceptualizing nutrition both as a key output of economic growth and as a critical input into socio-economic

development. At the same time, examination of the successes and failures of past efforts have revealed important lessons on how macro-economic and other development policies, including specific sectoral policies, as well as programs and interventions in health, population, agriculture, education and other sectors, may affect nutrition and food security. Although much work is still to be done, a great deal of practical knowledge is available from recent experience in a number of countries with regard to the nutrition and food security implications of macro-economic development policies (including structural adjustment policies) and sectoral policies, programs and interventions, particularly in health, agriculture and education (Berg, 1987; Gillespie and Mason, 1991; United Nations, 1991).

Currently, a variety of nutrition programs and interventions are implemented in LAC countries, including supplementary feeding programs (some times in conjunction with growth monitoring and health/nutrition education), breast-feeding promotion measures, micronutrient supplementation and fortification, and nutrition education. Substantial efforts have been made to integrate nutrition interventions within primary health care and to develop more effective communications strategies for behavioral modification. However, by far the most visible, and in some cases practically the only, nutrition intervention implemented on a large scale in most countries continues to be **supplementary feeding**, to the extent that it is often referred to as "the nutrition program" (World Bank, 1989; Musgrove, 1991). The number of this type of programs grew substantially in the 1980s. An inventory and review carried out by the World Bank in 1990 (Musgrove, 1991) identified 104 food distribution programs in 19 countries: 53 of them were MCH programs typically operated by, or associated with, health institutions; 23 were school feeding programs, and the remainder were a mixture of food subsidies, community kitchens or other feeding programs. Overall, they covered close to 100 million beneficiaries (about 24 percent of the total population of the region): 5 million mothers, 24 million infants and pre-school age children, 42 million school children, and 29 million other beneficiaries. More recently, targeted "food-coupon" and income transfer "bono" programs have been promoted as potentially effective means to improving food security/consumption among vulnerable groups. Such programs, which avoid the logistic burden involved in direct food distribution, are often proposed to be supported by the proceeds from "monetization" of food aid commodities.

Breastfeeding promotion activities are being implemented in a number of countries with variable coverage, mix of interventions and effectiveness, often without significant government political commitment and support. Although sustainability of apparently successful pilot or demonstration projects has been problematic, the experience has highlighted the need for a combination of institutional measures (e.g. changes in prenatal care and perinatal care hospital practices) and community support actions to protect and promote breast-feeding, in addition to communications and education, and improvement, enforcement and monitoring of legislation on marketing of breast-milk substitutes. Significant efforts have been made in providing in-service training in lactation management and motivation to health care personnel; however, strengthening the curricula of professional and other health care personnel would prevent expensive in-service remedial training from being needed forever. It has also become clear that, in order to take full advantage of the health and nutrition benefits of breast milk as a natural resource widely

available, a major goal to be attained is substantial increase in the frequency and duration of exclusive breast-feeding and not just in overall duration.

Greater awareness of the magnitude and public health significance of **micronutrient deficiencies** has been recently generated in the region as a result of international meetings, and information dissemination and other field support activities, such as the AID/ISTI Vitamin A Field Support Project (VITAL), and PAHO and UNICEF initiatives. Some **micronutrient interventions** are being implemented in a number of countries, particularly supplementation and fortification activities, and there is a growing interest in long-term measures (dietary diversification) and integrated approaches for comprehensive control of micronutrient deficiencies rather than isolated single nutrient interventions. Vitamin A supplementation has been implemented in some countries (Haiti, Guatemala, Bolivia, El Salvador, Honduras); sugar fortification has been resumed in Guatemala and Honduras after years of interruption, and is being initiated in El Salvador. Iron supplementation of pregnant women and young children is part of MCH norms in most countries although often not systematically implemented; iron fortification of food staples such as wheat and corn flour is beginning to take shape, and there is increasing interest in iron fortification in a number of countries. Mandatory salt iodination is operational in a number of countries (although monitoring systems are often ineffective); it is unfortunate that, as a result of decreased political commitment and deficient monitoring, iodine deficiency has apparently resumed as a public health problem in Colombia and Guatemala, where it had already been eradicated through salt iodination. Small scale food production and preservation activities (including some home gardening projects) are being implemented in some countries, mostly by non-governmental organizations (ONGs). However, communication and education activities on micronutrients are still weak and not systematic.

In 1988, PAHO and UNICEF formulated an Expanded Program for the Control of Iodine Deficiency Disorders, which called for closer inter-agency coordination. Recently (1992), PAHO/WHO prepared a Plan of Action for the Elimination of Vitamin A Deficiency from the Americas. UNICEF, FAO and the World Bank are also giving increasing priority to assistance in prevention and control of vitamin A and other micronutrient deficiencies, particularly iodine. AID, UNICEF and the World Bank are currently preparing agency's micronutrient strategies.

In contrast to specific nutrition intervention programs, much less has been done to promote overall and sector specific nutrition and food security-related policies. Some international donors (e.g. the World Bank, UNICEF) have been more active in increasing national concern for nutrition and food security, and in promoting the design and implementation of nutrition-related policy reforms, programs and projects, often to compensate for the potentially negative impact of structural adjustment. UNICEF has actively promoted the notion of structural adjustment with a human face to emphasize the need to protect those segments of the population that are most likely to be adversely affected by economic reforms. While UNICEF's advocacy in nutrition is mostly based on social equity, ethical and human rights concerns, the World Bank has taken the lead in advocating nutrition on the basis of economic (cost-effectiveness) rationale. Both equity and economic rationale are compelling enough to support the need for greater priority to direct nutrition action, including both nutrition-related

economic and sectoral policies and program interventions; therefore, regardless of the underlying rationale, international agencies placing nutrition high in their portfolio priorities are likely to increase their commitment to promoting action to directly or indirectly contribute to improving equity, and social and economic development.

The World Bank has been most active in promoting policy reforms, including structural adjustment policies to restore stability and restructure the economy, with specific attention to protecting the most vulnerable groups (Selowsky, 1991). Such policies have included restructuring of the public sector, improvement of tax systems and reallocation of government expenditures and functions to release resources toward targeted social programs for the very poor. Policies are often complemented by specific projects to strengthen the capability of the country's institutions and delivery systems to efficiently use the additional resources released to provide social services to the most vulnerable groups of the population. Using this approach, the World Bank has been able to incorporate agreements on reforms and resource reallocations toward targeted food programs as part of its adjustment operations, and at the same time increase lending for nutrition projects (fourfold between 1990 and 1992), in addition to nutrition components in other sector projects or adjustment operations. The Inter-American Development Bank (IDB) has been interested in investing in nutrition as part of its strategies for promoting social and economic development, and is willing to make important contributions in this field in the near future.

AID is also committed to nutrition improvement in the region. A major A.I.D./LAC Bureau objective is to "support the achievement of broadly-based, sustainable economic growth by encouraging economic opportunities for the disadvantaged". Indicators of A.I.D.'s performance towards such an objective include "priority given in public expenditure to investment in human capital development and related institutional infrastructure, and improved access to primary health care services, including increased child survival and diminished malnutrition within the overall context of reduced population growth". The LAC Bureau recently developed a programmatic framework for the accomplishment of broad-based economic development with the assurance of social equity in A.I.D.-assisted countries, which should be reflected in Missions' portfolios. This goal is expected to be achieved through both macro-economic and sectoral policies and sector specific interventions in the areas of health, population, nutrition, agriculture, education, and natural resources. Policies designed to promote employment generation, investment and export-led diversification are encouraged, together with efforts to increase private sector involvement, promote greater participation of historically disadvantaged segments of the population and minimize potentially adverse impacts on the environment.

An important LAC strategic objective is "increased Mission capacity in selected Health, Population, and Nutrition program and policy areas facilitating improved accessibility, effectiveness and sustainability of HPN programs". However, Missions' tendency to focus and concentrate on a limited number of objectives and actions have resulted in some cases in relatively low priority to directly addressing social objectives due to competing sectoral demands and a trend towards greater priority to short-term economic growth, and hence, to sectors other

than the social sector (health, nutrition, education). Major emphasis has been placed on promoting economic stabilization and increased democratization. The end result some times appears to be an emphasis on economic growth by itself, with little concern for equity, in the hope that aggregate income growth will trickle-down to secure the distributional dimensions of the agency's development goals. But waiting for economic growth alone to reduce poverty and malnutrition will take a long time (decades, perhaps generations). In the meantime, economic growth without equity and efficient provision of social services is not likely to prevent social unrest, promote democracy, protect democratic institutions and secure political stability in the LAC countries, particularly in view of the potentially negative social impact of structural adjustment policies.

Data from the AID Health Projects Data Base (HPD) show that LAC/AID funding for nutrition in child survival almost doubled from 1989 to 1992 ($ 6,909 to $ 12,678); however, most of the increase is accounted for by breast-feeding promotion (from $ 889 to $ 2,126), which is encouraging, and by growth monitoring (from $ 1,633 to $ 6,640) that, in itself, is not a direct nutrition intervention; allocations to maternal nutrition have declined from $ 1,543 to $600. Besides mission portfolios, AID also supports nutrition-related activities and projects in the region through centrally or regionally-funded projects such as: Food Security and Nutrition Monitoring (IMPACT), Nutrition Education and Social Marketing Field Support, Expanded Promotion of Breast-feeding (EPB), Vitamin A for Health, Women's and Infant's Nutrition, Food Technology and Enterprise for Development, Maternal and Neonatal Health and Nutrition (Mothercare), Multisectoral Food and Nutrition IQC, Food Aid IQC, the LAC Health and Nutrition Sustainability and Lactech Projects, and the new Opportunities for Micronutrient Interventions Project (OMNI). There is clearly a need for AID missions in the region to reconsider priorities, assign greater importance to the social sector, including health and nutrition, as well as to engage in nutrition and food security policy dialogue and program planning and implementation, taking advantage of centrally and regionally available resources.

VI. POLICY AND PROGRAM OPTIONS

As it was discussed above, there is strong evidence to support the notion that proper nutrition is a critical input into socio-economic development and that, beyond equity and humanitarian considerations, investing in nutrition as an integral part of investments in human capital formation is a cost-effective long-term development strategy (World Bank, 1993). Most governments, national planners and decision-makers in developing countries are well aware of these facts, yet political commitment for nutrition action is still weak. In a variety of recent international meetings, such as the World Summit for Children and the International Conference on Nutrition (FAO/WHO, 1992), they have expressed their determination to eliminate hunger and reduce all forms of malnutrition, and agreed to put nutrition at the forefront of development issues. Nutrition goals for the 1990s have been established, which include the reduction of moderate-to-severe protein-energy malnutrition in children under five years of age by one half of the 1990 levels, of low birth-weight to less than 10 percent prevalence, and of iron deficiency anemia among women of child-bearing age by one third of the 1990 levels, and virtual

elimination of vitamin A and iodine deficiency. To achieve this goals, stronger political commitment and immediate action should be generated, and follow-up to ICN speeded up.

The question that decision-makers and planners usually confront is what to do, that is, what are the available and affordable options to improve nutrition within existing financial and political constraints. Given the strong and consistent relationship between economic growth, particularly in the lower GNP per-capita range, and a number of welfare indicators (nutrition, health), it may be inferred that economic growth may improve overall nutrition in the long term; indeed, trickle-down effects, if any, would take long to filter to the poorest segments of the population, and even when broad-based growth is secured, short-term improvements in nutrition are not likely to occur. It is now widely recognized that sustainable nutrition improvement can only be achieved through the combination of (1) consistent economic growth, (2) nutrition-related macroeconomic and sectoral policies, and (3) specific sectoral intervention programs in health, population, nutrition, agriculture and education. Some of these programs are also needed as a safety net to protect the poor and most vulnerable (not certainly a minority in LAC countries) in times of economic hardship (e.g. structural adjustment). Clearly, nutrition objectives can be reached by policy decisions on resource allocations, both to sectors and to areas within them, and hence to effective activities. Key policy decisions have to do with allocation of resources between sectors and to different activities within sectors, e.g. re-allocating and improving the management and efficiency of public expenditures. Also, a number of effective, affordable, specific sectoral interventions can be considered. Not everything, however, needs to be done at the same time, and it is often possible to decide on a single or a few number of effective interventions.

The nutrition policy and implementation guidelines preceded by this concept paper are intended to provide national decision-makers and planners with detailed information about concrete nutrition-related policy and intervention options that can be implemented cost-effectively to improve nutrition in the LAC countries. Although empirical evidence on cost-effectiveness of nutrition-related sectoral policies is more scarce, reasonable estimations can be made based on available data, as well as on the well documented linkages between sectoral policies and household/individual well-being (e.g. nutrition, food security) through changes in income, prices and the provision of services. Relevant information on cost-effectiveness of different nutrition interventions, although by no means complete, is more readily available from project and program evaluations and special studies carried out in the region and elsewhere, including ongoing AID/LAC HNS special studies. This section outlines different policy options and alternative specific interventions that will be discussed in detail in the guidelines.

A. MACROECONOMIC POLICIES

Economic growth has commonly been viewed as the primary means of reducing poverty and improving social indicators, including malnutrition, in developing countries. Thus, rapid growth has been advocated and pursued by national governments and international donors as the main instrument for achieving social progress. The strategy for achieving economic growth that

is followed by a country, however, has enormous implications for how the benefits of growth are distributed throughout the economy and ultimately effect the nutrition, health and welfare of the poor. Macroeconomic policy decisions may have food security and nutrition as a sub-objective, but are seldom primarily driven by this. Macroeconomic policies (monetary and fiscal policies, exchange rates, wages, price structures, and trade policies) may adversely affect the poor if, for example, they are biased against the agricultural sector or create instability in the availability and prices of food commodities. It is therefore critical to pursue a path of economic growth that ensures the participation of the poor and provides for their protection if welfare is threatened by economic measures in the short term.

1. Economic Stabilization and Structural Adjustment

The severe economic crises experienced by many LAC countries throughout the 1980s were rooted in unfavorable international economic conditions, as well as inappropriate domestic policies that encouraged large fiscal deficits, dependence on international loans, rapid inflation, and numerous other impediments to broad-based, sustained economic growth. In an effort to emerge from the recessions of the 1980s and to redress longstanding economic imbalances, many LAC governments have had little choice but to implement macroeconomic stabilization or structural adjustment programs. These programs, which aim to reduce excess demand and restore equilibrium in the economy through monetary and fiscal policy and trade reforms, should promote export-led economic growth in the long run. Economic stabilization and structural adjustment programs, however, often cause immediate hardships, particularly for the poor. High unemployment, reduced incomes, cuts in government services, and higher prices for food and other necessities brought about by the economic adjustment policies may cause increased food insecurity and nutritional risk in the short term (Pinstrup-Andersen, 1987).

As discussed in previous sections, international donors are increasingly concerned with the distributional impacts of structural adjustment measures on the welfare of the poor, and several (e.g., UNICEF, World Bank) advocate a "dual approach" to economic adjustment that provides protection for the most vulnerable groups during the transition to broad-based economic growth. The World Bank (1990) has recommended three broad steps that should be taken in order to reduce the short-term suffering of the poor during structural adjustment, and to ensure their future ability to share in the benefits of economic growth: (1) protect consumption; (2) maintain physical and human capital; and (3) facilitate future investment. These actions require public resources, which are squeezed by structural adjustment measures. It is therefore important to alter public spending priorities and select cost-effective mechanisms by which to target scarce resources to the poor and marginalized.

2. Poverty-Reducing Economic Growth

While many countries of the LAC region are constrained in their choices of economic growth strategies by the need for significant restructuring of their economies, the policies can be selected and implemented so as to ensure that the food security and nutrition of the vulnerable

groups are protected, and that the poor share in any short- and long-term benefits of growth. The World Bank (1990) reports that the countries that have been successful in reducing poverty have adopted policies that have promoted investment in improving human resources and encouraged rural development and urban employment by increasing the returns to small-farm production and wage labor. Pursuing labor-intensive, efficient economic growth by promoting income and employment opportunities for the poor can be achieved through a variety of economic policy measures that will be discussed below.

For the poor to be able to effectively participate in economic growth and development, they must have access to productive resources. Policies and programs should focus on increasing the poor's access to **land**, **infrastructure** and **credit**. Policies directed at redistributing land or securing property and tenancy rights are rarely successful when sweeping changes are sought. More modest land tenure reform, however, has been successful in transferring land to small farmers and encouraging them to adopt new technologies. **Infrastructure**, such as roads, irrigation and electricity, is typically not directed to the poorest geographical areas and population groups. Appropriately designed, labor-intensive public works programs can provide employment in low-income areas while producing enduring physical infrastructure that increases future productivity and access to markets.

Credit is not readily accessible to small-scale entrepreneurs or farmers, who lack collateral and do not receive the preferential treatment often accorded larger businesses or farmers producing for export. Without access to credit, it is difficult for the poor to stabilize their consumption during times of economic stress, and small farmers cannot assume the risk of adopting new, productivity-enhancing technologies. Credit subsidization schemes have been implemented in numerous countries to make borrowing less costly for the poor, though corruption and cheaper credit for the middle and upper classes have generally resulted instead (World Bank, 1990). Other innovative options show more promise for reaching the poor, such as lending cooperatives and local level programs administered through non-governmental organizations that combine credit with technical assistance and institutional support.

Tax policies are a mechanism by which the sectors of the economy in which the poor participate, primarily agriculture and the urban informal sector, can be either undermined or supported. In many countries direct and indirect taxes on agricultural production and exports have imposed a serious bias against rural incomes and wages. The informal sector, which employs a large proportion of the urban poor in many LAC countries, has also been thwarted by excessive taxes, licensing fees, and regulations. Tax policies can be reoriented to reduce the burden on these sectors of the economy, and to remove the distortions in the factor markets that often subsidize capital and therefore discourage labor-intensive development necessary to create employment for the poor.

Price structures, which are influenced by broad macroeconomic policies as well as direct price controls and subsidies, are crucial determinants of real incomes and purchasing power. As in the case of tax policies, price controls often create market distortions that are unfavorable to the poor. For example, government price policies often discriminate against the agricultural

sector in order to maintain "cheap food" policies to subsidize industrial development. Such policies may increase food insecurity for poor households who are net producers of food or landless agricultural laborers (Alderman, 1986).

To promote household food security through altering price structures, many countries have implemented some form of consumer **food price subsidies** (general subsidies, rations, etc.). The subsidies often account for a significant proportion of the real incomes of the poor who spend the majority (often 60 to 80 percent) of their household budgets on food (Pinstrup-Andersen, 1988a). While general subsidies have proved to be too costly and inefficient, the costs to the government of subsidy programs can be considerable, and problems of administration, leakage, and corruption often undermine cost-effectiveness. Food price subsidies, when properly targeted and administered, however, have been successful in increasing household food consumption among low-income consumers (Pinstrup-Andersen, 1988b).

In order to pursue poverty-reducing economic growth, the government must support, through policies and budgetary allocations, the sectors of the economy that provide employment for the poor, as well as providing services needed to maintain and improve human resources and productivity. It is clear that **government expenditures in support of the social sector** must be accorded a high priority, even in the face of fiscal austerity measures. As discussed earlier, countries that have succeeded in achieving improvements in food security and nutrition while following economic growth-oriented macroeconomic policies have reoriented their government spending to protect and support the social sector. Such policies often encounter political obstacles as the preferential treatment for upper and middle classes must be reduced, though there are examples of countries in the LAC region that have been successful in this regard. For example, in Venezuela general government subsidies, which tend to benefit the middle and upper classes, were replaced with health in nutrition programs targeted to the most needy. Chile, which is one of the few countries of the region to achieve sustained social sector improvements through the 1980s, has been successful in protecting services for the poor while reducing overall public expenditure on goods and services (World Bank 1990).

B. SECTORAL POLICIES AND PROGRAMS

1. Health

Health policies have been defined as "the set of principles by which governments seek to organize health systems to meet the health needs of the population and to promote their physical, mental and social well-being" (FAO/WHO, 1992). Such policies, and the intervention programs derived from them, have a wide rage of nutritional effects. Important objectives of health policy are to increase coverage and efficiency of health services, and to reduce disparities in health and nutritional status and inequities in access to health and nutritional services (FAO/WHO, 1992). One of the key underlying factors contributing to persistent malnutrition is inadequate access to preventive and curative health services by the populations at risk, thus expanding the coverage of primary health care services, particularly to the lowest income areas

and communities, should be a high priority policy concern. Explicit policies targeting social expenditures, particularly expenditures in nutrition and primary health care, are likely to increase cost-effectiveness of interventions while improving equity. A specific conclusion in previous sections of this document is the need to incorporate more explicit nutritional objectives into health and other sectoral policies and programs in the LAC region. Nutrition in health policies, as all sectoral policies, should be translated into allocation of human and financial resources, and eventually into intervention programs (e.g. delivery of health and nutrition services), without which policies are likely to remain ineffective.

a. Primary Health Care

From the several policy options in the health sector, full endorsement of the **primary health care (PHC) strategy** may carry the greatest potential for nutrition improvement. PHC is the universally accepted strategy for attaining health for all, and it is being implemented to a variable degree in LAC countries. The strategy encompasses two major distinct but complementary elements: (1) the "developmental dimension", which implies a reorientation of the whole health system in such a way as to enable people to take responsibility for their own health by fostering a process of redistribution of resources and community empowerment; and (2) the "efficiency dimension", which emphasizes the provision of health services at the periphery of the health system through expanded coverage of cost-effective community health care programs and use of effective low-cost technologies. Current implementation modalities of the PHC strategy differ in the relative importance given to each of these elements; the general tendency in the LAC region has been to emphasize the efficiency dimension, yet PHC coverage is still low in many countries (e.g. Guatemala, Haiti, Bolivia), and the government concern for equity has not been strong enough to reduce inequities in access to health and nutritional services.

Regardless of the PHC implementation modality, a key policy decision has to do with the **incorporation of nutrition activities within PHC and child survival strategies.** Experience from a number of small-scale integrated PHC nutrition projects, as well as from some large-scale efforts, shows that such integration is feasible and effective in improving nutrition of the target population within a reasonable period of time, at an annual cost of US$10 to $ 30 per recipient. The PHC strategy is a suitable vehicle for implementation of basic health and nutrition interventions targeted to at risk mothers and children, and also for promoting community organization and involvement in nutrition planning and decision-making. Unfortunately, public endorsement of PHC by governments does not always translate into explicit policies and resource allocation priorities, thus not even the potential of PHC as a programmatic strategy for greater efficiency of service delivery has been fully utilized, let alone its developmental potential.

Some **PHC nutrition interventions** with demonstrated short-term impact that can be efficiently delivered to high risk groups are:

(1) Promotion, protection and support to breast-feeding.

(2) Nutritional care of the sick child, e.g. treatment of severe malnutrition and other major causes of infant and child mortality, including appropriate dietary management of common illnesses and vitamin A supplementation for xerophthalmia, moderate-to-severe energy-protein malnutrition, measles, prolonged diarrhea and pneumonia.

(3) Health and nutrition education for behavioral change (e.g. improved child feeding practices) through child's growth and development monitoring.

(4) Maternal nutrition services (prenatal check-ups, nutrition education, supplementary feeding and iron/folate supplementation).

(5) Vitamin A supplementation of children under 5 years and women immediately after delivery, and iron supplementation of pregnant women and young children.

(6) Targeted supplementary feeding programs, through various modalities: direct on-site feeding, take-home food rations or food stamps. Income transfer (bonus programs) may be implemented through PHC systems thus securing greater service coverage.

(7) Eventually, household food production activities (e.g. home gardening), as well as education on food preservation, preparation and consumption.

If systematically implemented, basic **PHC/child survival interventions** are likely to have some nutritional impact, even in the absence of specific nutrition interventions. The following PHC/child survival interventions affect nutrition through prevention and/or improved management of infectious disease, and related behavior modifications: (1) diarrheal disease control (prevention, oral rehydration therapy and adequate dietary management of diarrhea); (2) immunization against the major communicable diseases of childhood; (3) birth spacing/family planning interventions; and (4) health education in general. For short-term sustained nutritional improvement above and beyond economic growth and other sectors nutrition-related policies, complementarily between child survival and specific nutrition interventions is required. These are needed also to increase effectiveness of child survival interventions, improve the quality of life of the survivors, and prevent replacement mortality. The present trend is to integrate nutrition activities into ongoing health activities at the local levels including hospitals, health centers and communities. Critical aspects of effective PHC nutrition interventions are discussed in the guidelines.

Health policies and programs aimed at **prevention and control of communicable diseases** have a measurable impact on nutrition. Nutrition improvement in some countries may be attributed at least in part to reduced incidence and/or improved management of infectious morbidity through child survival interventions. This is the case with the Expanded Program of Immunizations (EPI) and Oral Rehydration Therapy (ORT) for diarrhea. Paradoxically, however, the mortality reduction effect of isolated preventive or disease management measures for communicable diseases, such as EPI and ORT, without concomitant nutrition improvement actions, may result in an increased number of malnourished survivors at high risk of "replacement mortality" from other diseases (Huffman, 1990).

b. Health Communications/Education

Health communication policies and interventions can also affect nutrition through their influence on the socio-cultural environment. Health improvement to a great extent requires behavioral change that is achieved by social communication processes focused on health and /nutrition education, formal education, information dissemination and advocacy. Policy decisions and a concerted effort by the health sector are still needed in most LAC countries for development and implementation of social communication strategies and interventions using both inter-personal and mass communications channels. The focus should be on primary health care/child survival and mother/infant feeding, with the purpose of achieving critical health and nutrition (breast feeding, infant feeding) behavior modifications.

The use of modern communication techniques in health and nutrition, including social marketing approaches for the design and testing of effective messages and materials, if affordable, properly planned and implemented, is likely to be more effective than some traditional approaches emphasizing transmission of technical information. Besides health and nutrition education, more information dissemination is required at all levels, as well as formal education, that is, incorporation of basic nutrition components into the educational curricula at the primary and secondary level, and at health and nutrition-related professional schools.

c. Environmental Sanitation

Health policies and programs affecting the **quality of the physical environment**, such as water supplies, basic sanitation, food safety (e.g. appropriate legislation) and housing policies, may also have nutritional benefits. Priority in resource allocation to **water, sanitation and hygiene education** programs, for instance, is likely to improve nutrition by diminishing exposure to the risk of diarrheal diseases. Food legislation ensuring quality, both nutritional and sanitary (food safety), if properly designed, enforced and monitored, may have nutritional benefits. Water and sanitation programs are relatively expensive, and this may account for the relatively poor progress made in many countries of the region except in some of those affected by cholera epidemics; but they can not be ignored. Comprehensive food legislation with adequate enforcement and monitoring may turn to be too complex and expensive under certain

circumstances, particularly when infrastructure and other resources are not readily available, but it is a mid to long-term need together with environmental protection policies.

d. Micronutrient Fortification of Staple Foods

A specific type of policy, legislation and intervention that may have significant nutrition implications is **micronutrient fortification** of staple foods, particularly fortification of **salt with iodine, sugar with vitamin A, wheat and/or corn flour with iron,** and other mass consumption foods with one or more micronutrients (Bauernfeind and Arroyave, 1986; Bauernfeind, 1991; Nestel, 1992). Some countries have made significant progress in single nutrient fortification of a few staple foods, but fortification is still not implemented in the region to the extent it should, despite the fact that it is probably the most cost-effective way to eliminate specific micro-nutrient deficiencies. Food fortification is socially acceptable, requires no change in food habits, can be introduced quickly, has readily visible effects, can be legally enforced, is relatively easy to monitor and is sustainable. The potential of fortification will expand with ongoing urbanization trends and increased consumption of centrally produced or processed foods.

Simple, low-cost fortification technology for practically all micronutrients is readily available. It could easily be adapted to local conditions and implemented at such a remarkable low cost that could be fully or partially transferred to the consumer. The government cost of fortification may be restricted to quality monitoring. The challenge is to identify staple foods that are consumed almost universally by the population (salt, sugar, wheat and corn flour, rice, vegetable oil), to develop and implement proper legislation through a concerted action between the public and private sectors (legislation without food industry responsible commitment is not likely to succeed), to foster quality assurance and industry competition for quality to secure sustainability, and to put in place a functional enforcement and monitoring system. Legislation compliance by consensus and quality competition could be developed and has shown to be more effective than mandatory enforcement. This may be facilitated by the current trends towards economic and trade integration in the region.

e. Population policies and programs

Population policies and programs aimed at modifying the demographic situation may indirectly improve nutrition by diminishing the nutritional risks associated with close birth spacing and maternal nutritional depletion resulting from multiple closely spaced pregnancies, and by reducing family size, thus integrated maternal and child health and family planning services are nutritionally beneficial in the long-term. The well proven interaction between breast-feeding, birth spacing and nutrition calls for the integration of nutrition, including breast-feeding, and family planning activities (Lofti and Mason, 1991):

(1) breastfeeding promotion and protection improves infant health and nutrition (reduced risk of morbidity, mortality and malnutrition), increases birth spacing (longer post-partum

amenorrhea and reduced fertility) and improves maternal health and nutrition (diminished reproductive health risk and nutritional demands for several pregnancy and lactation periods);

(2) birth spacing policies and interventions improve maternal health and nutrition (reduced reproductive stress from both pregnancy and lactation), and lactation performance; and

(3) mothers's health and nutrition interventions enhance mother and child nutrition and lactation performance, and reduce infant mortality and associated pressure on fertility and family planning services.

f. Human Resource Development

Human resource development policies and programs in health and nutrition are key to ensure that planning and implementation of program activities are efficient and effective. Reviews of successful community nutrition programs have highlighted the importance of the quality of human resources for program success (INPF, 1990; United Nations, 1991; World Bank, 1993). Health sector staff at all levels need to be adequately trained in nutrition, that is, nutrition should be an integral component of human development policies in the health sector. Such training should enable health workers not only to deal with the technical issues but, perhaps more important, develop adequate managerial skills.

Management training is essential for health programs in general. Poor management has been identified as one of the key reasons for project of program implementation failures. Strengthening the technical and managerial capability of health workers at all levels, from top management positions to the district and local levels, is a key nutrition-related health policy element, as it is training of private sector personnel in nutrition-related skills (e.g. food fortification technology). Human resource development policies in health and nutrition should include formal (primary, secondary and university) education as well. Policies should define the relative importance of technical and managerial components of task-oriented training in nutrition for health personnel.

g. Food and Nutrition Surveillance

Timely and appropriate information is essential to make informed decisions regarding nutrition-related health policies and interventions. Such information must be made available at proper decision-making levels in understandable ways, and should include timely periodic data on the magnitude and characteristics of the nutrition problems and related factors. To accomplish this goal, **food and nutrition surveillance systems** have been proposed, and have been implemented in some countries, rather than relying on costly periodic national nutrition surveys. Their usefulness is beyond dispute, provided that there is firm political commitment for action based on surveillance information, and that policy and intervention options exist and a functional decision-making process is established. In the absence of a clear political

commitment for nutrition action, food and nutrition surveillance systems are likely to be useless. Individual and household food consumption and nutrition indicators also provide a means to track the distributional effects of macro-economic and sectoral policies and programs on the nutritional well-being of the poor.

h. Inter-Sectoral Linkages

Finally, nutrition-related health policies need to take into account **inter-sectoral linkages.** This is important for health policies in general, but perhaps more for nutrition-related health policies, due to the inter-sectoral relationships and the known impact on nutrition of other sectoral policies, e.g. agriculture and education, and vice-versa. While multisectoral nutrition planning and action is often difficult and perhaps unrealistic, adequate planning is essential, and functional coordination mechanisms are required to ensure effective sectoral collaboration toward common objectives. This would be best achieved at the national planning level through inter-sectoral coordination groups or committees, such as the National Council for Economic and Social Development in some countries.

2. Agriculture Policies and Programs

Agricultural sector policies and programs have direct and indirect impacts on household access to food and nutritional well-being. Explicit nutrition considerations within agricultural policies and programs are an important mechanism by which to improve, or at least protect, household food security and nutrition. Agricultural polices/programs affect household food security and nutrition primarily through impacts on both the supply and demand for food, which are influenced by agricultural productivity, on- and off-farm employment and real incomes (level, fluctuations, source, and control), and food prices. In addition, household level impacts of agricultural policies/programs also occur through time use (particularly of women), nutrient composition of commodities, and energy expenditure. Agriculture-related policies and programs may have positive or negative impacts on the food security and nutrition of poor households depending on a wide variety of factors. The distribution of income and assets, institutional capacities (land tenure, credit markets, information, extension, etc.), price structures, and demand for commodities, are all key elements, only some of which are under the control of policy-makers (Von Braun et al, 1992).

Agricultural policies in the LAC region have largely focused on increasing aggregate production and maintaining low food prices for urban consumers, and goals of improving the food consumption and incomes of the rural poor are rarely made explicit. Increases in aggregate agricultural output do not ensure improved food security for all segments of the population, and the pursuit of policies designed specifically to increase production may put low income farmers and landless laborers in danger of increased food insecurity and nutritional risk if certain institutional and distributional factors are not taken into consideration. What is produced and by whom, where and how it is produced, and how the output is processed and distributed are more important to rural incomes, food security and nutrition than increased agricultural

production per se (FAO/WHO, 1992). These factors are determined by the existing distribution of assets and institutional and economic conditions, as well as by consequences and explicit provisions of the policies and programs themselves.

a. Production-Oriented Policies

There are numerous options for agricultural policies and programs that may increase production, raise real incomes and create employment, and among those options much emphasis has been placed on **agricultural research and technological advancement.** Modern technologies such as mechanization, high yielding crop varieties, irrigation technologies, and the development of other modern inputs (fertilizers, herbicides, pesticides, etc.) have clearly led to improved productivity of the agricultural sector in many developing countries over the past several decades. In many cases food security in these countries has improved from increased food availability and expanded farm and non-farm employment, and it is argued that low-income farmers and landless agricultural workers have shared in the income and food security benefits.

The positive food security effects of technological advancement, however, have been mitigated by varying access to technology and inputs. In addition, specific information on nutritional consequences is limited, but women have tended to benefit less in terms of income than men from technological advancements (Mebrahtu et al, 1993). The ability of women to control income and food has been identified as a crucial linkage in the relationship between changes in agricultural production and household food security and nutrition because, in general, women tend to spend a greater proportion of the income they control on food and health related expenditures (Holmboe-Ottensen et al, 1989). On the other hand, demand for women's time and energy expenditure may be reduced from technological advances, which are also important factors in child care and other nutrition-related activities, for which women are almost exclusively responsible.

Technological advancement to increase agricultural production has been most successful for improving food security and nutrition when policies have favored technologies that are appropriate for and easily accessible to low-income farmers, and that protect women's control over resources and increase their productivity for agricultural as well as domestic labor (Von Braun et al, 1992). In addition, technologies to improve the yields, storage, processing and utilization of **traditional food crops** has the potential to stabilize food supplies and incomes for the most vulnerable groups and reduce the demand for imported food. Traditional crops, which include grains, roots and tubers, legumes, fruits and vegetables, and oilseeds, are particularly important to the food security of low income households, not only as a stable source of calories and protein, but also as the primary source of micronutrients and minerals in the diets of many households (FAO/WHO, 1992). Furthermore, the expanded production, processing and marketing of traditional food crops may have particular benefits for women, who are often primarily responsible for these crops (FAO/WHO, 1992). The promotion of higher yielding, more resistant varieties of traditional crops and technologies for improved processing and

preparation requires explicit policy initiatives to direct resources toward research and to provide adequate extension and technical assistance.

In addition to technologies for increasing agricultural production, research has also been directed toward **improving the nutrient content** of food commodities. Efforts have mainly focused on improving the protein content of basic grains such as maize and wheat, motivated by the notion that the world nutrition problem was caused largely by inadequate protein in the diets of the poor. When the characterization of the nutrition problem was modified to include protein-energy deficits, the solution was seen to be an increase in overall food consumption, and the rationale for research to improve the protein quality of basic grains was essentially eliminated. Efforts to improve the quality of the diets of the poor have since focused on increase yields and improved nutritional value. More information is needed on research to improve nutrient content.

Another set of agricultural policy/program options that has important implications for food security and nutrition is the **commercialization of agriculture** and the **production of crops for export** (both traditional and non-traditional crops). Many of the issues are similar to those of agricultural research and technological advancement. The effects on household food security depend on the effects on the real incomes of poor farmers and landless laborers (level, stability and gender control), food prices and availability (particularly of staple crops), and women's time use and energy expenditure.

The evidence of the effects of cash cropping on food security is often contradictory or suffers from methodological weaknesses; however, current reviews of the available literature are beginning to define under what circumstances commercialization of agriculture and export promotion may be expected to have negative or positive consequences for the food security of the poor (Kennedy et al, 1992; DeWalt, 1993a,b). For example, a major problem that has been identified with the commercialization of agriculture is that while cash incomes may rise, real income may not rise or may even decline if the cost of purchased food of a quality similar to food produced by households is greater than the value of food previously produced for home consumption. Subsistence farmers, however, typically retain a significant portion of land for food production for household consumption. Staple food production is also often increased as technologies and inputs for cash crops are applied to subsistence crops (FAO/WHO, 1992; von Braun et al, 1989). Thus, the protection of subsistence production within agricultural commercialization policies and programs is crucial for preserving food security and nutrition for small farm households. This is particularly important when the cash crops are non-food or non-traditional crops.

The effects of agricultural commercialization and export promotion on nutrition depend not only on changes in real income of poor households, but also on women's time use, employment opportunities, income and control over household resources (Von Braun et al, 1986). The studies that exist show a tendency for women to gain employment opportunities (particularly in the case of non-traditional agricultural export promotion), but the decision-making and resource control is typically retained by the men. In addition, commercialization

may increase the time women allocate to poorly rewarded economic tasks such as harvesting and processing, shifting time away from child care and other household tasks. Haddad and Bouis (1991) argue that the nutrition impact of gains in income and increases in the food availability to households in a sugar cane scheme may have been offset by an increase in illness among children as a result of a shift in time allocation of women from child care to agricultural production.

Given the potential for negative food security and nutrition consequences of the **production-oriented** agricultural policy options discussed above, specific policy measures may be necessary to protect or improve the nutritional well-being of the rural poor. Policies enhancing the potential for small holders to successfully adopt new technologies and to participate in cash cropping should be promoted. The increased availability of **credit, insurance** and **extension**, as well as effective **marketing mechanisms** are particularly important. In addition, effects of new technology and cash cropping on land tenure and access to land for small producers should be monitored, and agricultural commercialization should be accompanied by policies that protect subsistence production for household consumption and innovative schemes to increase women's control of income.

In order to protect and improve household food security and nutrition, agricultural production policies and programs must be carefully designed in full consideration of the factors that will determine household level impacts, and nutritional concerns must be explicitly and effectively incorporated into policy/program design, implementation and evaluation. When particular policies/programs are considered to be desirable but adverse nutritional consequences cannot be avoided, mechanisms to protect those who will be negatively affected should be provided (FAO/WHO, 1992).

b. Food Price and Availability Stabilization Policies

In addition to the production-oriented agricultural policy options discussed above, policies designed to **stabilize food availability and prices** are particularly important for national and household food security, and ultimately for nutrition (Pinstrup-Andersen, 1985). **Food price stabilization** policies, discussed previously, are used in some form by virtually every government to minimize the variability in food prices. In addition, **trade, storage,** and **production diversification** policies are important tools available to governments for reducing food availability and price fluctuations. Von Braun et al (1992) recommends a "minimalist" approach to price stabilization that primarily relies on market mechanisms to the extent possible, avoid direct physical handling of the commodities, and maintain prices as close as possible to those that would be established by an undistorted free market.

Food aid has contributed significantly to stabilizing food prices and availability in many LAC countries. During the 1980s food aid increased as a proportion of total available calories in nine A.I.D.-assisted countries (Van Haeften, 1992). New food aid legislation recently enacted as part of the Agricultural Development and Trade Act of 1990 contains major revisions of U.S.

food aid policy. The new legislation places greater emphasis on using food aid specifically to promote food security. In addition, private voluntary organizations (PVOs) will have an increased role in ensuring that food aid is used more effectively as a resource for socioeconomic development.

King (1992) presents the new legislation as an opportunity for A.I.D. and PVOs to develop food security strategies that integrate food aid with other socioeconomic development activities, while providing a safety net for the economically disadvantaged. The effectiveness of programs for distributing food aid in the LAC region (distribution through MCH centers, food for work, income supplements, school feeding and feeding centers) has not been maximized for a variety of reasons, and King (1992) recommends several important programming improvements:

- improving targeting to the most economically and nutritionally vulnerable populations;
- transferring programs to indigenous agencies and governments; and,
- gradually phasing out long-term programs that lack development potential and have fostered dependencies.

Excessive dependence on food aid has been criticized as inhibiting local food production and distorting domestic price structures. Von Braun et al (1992), however, argues that the empirical evidence does not necessarily support this contention, and the actual affects of food aid on the domestic agricultural markets is determined by the recipient country's food and agricultural policies. Thus, in order to contribute to sustainable economic growth in which the poor are participants and beneficiaries, food aid must be utilized in concert with labor-intensive development that increases both the supply and demand for food in the long run (Von Braun et al, 1992).

3. Education

Education policies may focus on the quantity (coverage), quality and equity of education. They may have direct and indirect nutrition effects. Increased levels of education are critical for economic growth through better quality of the labor force and greater per-capita income, as well as for improving social well-being, and even for contributing to democracy and political stability. Women's education, in particular, is positively related to child nutrition, child survival and life expectancy (reduced malnutrition and infant mortality rates), and to child spacing (decreased fertility) which, in turns, has a nutritional impact.

A central policy decision refers to the proportion of GDP that is invested in education (it may range between 3 and 5 percent in the LAC region). Perhaps more important for nutrition is **equity in education**. This can be achieved through: (1) policies assigning higher

priority to primary education over secondary or university education; (2) increased coverage of primary education through greater geographical, social and financial accessibility for the poor rural and urban populations; (3) greater opportunities for practical training to low income groups; and (4) by removing gender disparities, and encouraging and facilitating women's accessibility to education at all levels. Policies and programs providing child care services for working mothers in poor communities, in addition to allowing the provision of infant and child health care and nutrition services, may facilitate women's productive work and income control, as well as girls' access to education by relieving them of child care duties.

Specific **school nutrition programs** may enhance returns from investments in education, especially primary education. Two types of school nutrition programs should be considered: (1) integration of specific health and nutrition contents (e.g. breast feeding, infant feeding, dietary management of disease, micronutrients) into primary and secondary school curricula, to improve health and nutrition knowledge and feeding practices, and (2) school feeding programs, eventually including micronutrient supplementation, to improve school enrollment, attendance, learning ability and academic performance. Until recently, school feeding programs were advocated and implemented on the basis of nutritional objectives. The 1990 World Bank review (Musgrove, 1991) identified 23 large-scale school feeding programs in 19 countries of the region, covering more than 42 million beneficiaries. Recent evidence suggest that, if properly implemented and targeted to populations at risk, school feeding programs may have a more significant impact on educational outcomes such as greater school enrollment, attendance and retention rates, improved learning capacity and increased school performance, thus enhancing the efficacy and, in the long-run, the rate of return from investments in primary education. This, in turn, may have long-term economic, social and nutritional benefits.

4. Environment

Concern for environmental degradation and its potentially negative impact on health and nutrition is a relatively new but increasingly important policy issue. Much is still to be developed in this area, and the role of research and technology development is crucial. There is clearly a need for grater integration of nutritional, health, economic and environmental considerations in international and national policy making. FAO and WHO (1992) suggest that the first step is to identify the areas where environmental policy objectives will need to be meshed with the nutritional, health and economic goals. For example, alternative agricultural systems and technologies may need to be developed if environmental concerns were to be reconciled with the need to increase the supplies of food and other agricultural commodities to meet growing needs. A key issue deserving policy consideration in the LAC region is the over-exploitation of natural resources by the rural poor in order to survive and meet their immediate food security needs.

Environmental policies should address a number of poverty related environmental issues by increasing the access by the poor to adequate resources and technologies or alternative opportunities for livelihood. Social communications should be used to generate awareness at all

levels on the need to protect the environment to reach short and long-term health and nutritional objectives, and to promote behavioral changes in life-styles and consumption patterns that are consistent with ecological sustainability. Sustainable food production systems for various types and qualities of land and water resources, and food handling and processing technologies reducing the risk of food-borne diseases need to be developed, together with environmentally-related health and food legislation effectively enforced.

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APPENDIX

Table 2. Basic Socioeconomic Indicators for LAC Countries

	Estimated Population (million) 1992[1]	Infant Mortality 1992[1]	Child Mortality 1992[1]	Prevalence of Malnutrition/ Stunting[2] (year)	Calorie Availability Per Capita 1989-1991[3]	GNP Per Capita $US 1991[1]	GNP Growth Rate % 1980-91[4]	Human Development Index 1992[1,5]
A.I.D.-Emphasis Countries								
Bolivia	7.5	86	125	13.3/38.3 (1989)*	2,000	650	-2.01	0.530
Dominican Republic	7.5	57	75	10.4/19.4 (1991)	2,310	940	-0.2	0.638
Ecuador	11.1	58	75	16.5/34.0 (1986)	2,402	1,010	-0.6	0.718
El Salvador	5.4	46	60	11.2/22.8 (1993)	2,313	1,090	-0.3	0.543
Guatemala	9.8	49	75	33.5/57.9 (1987)*	2,261	940	-1.8	0.564
Haiti	6.8	87	125	33.9/40.6 (1990)	1,995	380	-2.4	0.354
Honduras	5.5	61	80	19.3/39.4 (1992)	2,246	590	-0.5	0.524
Nicaragua	4.0	53	75	11.9/23.7 (1993)	2,212	400	-4.4	0.583
Peru	22.5	77	100	10.8/36.5 (1991)	1,955	1,070	-2.4	0.642
Other Countries								
Argentina	33.1	29	33	--/--	3,103	3,970	-1.5	0.853
Brasil	154.0	57	75	7.0/15.5 (1989)	2,736	2,920	0.5	0.756
Chile	13.5	17	20	0.8/ 9.6 (1989)**	2,565	2,360	1.6	0.848
Colombia	33.4	30	38	10.1/16.6 (1989)	2,473	1,250	1.2	0.813
Costa Rica	3.2	14	16	2.8/ 7.8 (1990)**	2,711	1,870	0.7	0.848
Guyana	0.8	49	65	24.3/ -- (1993)	2,454	300	-	0.580
Jamaica	2.5	14	18	7.2/ 8.7 (1989)	2,549	1,380	0.0	0.749
Mexico	88.2	36	43	13.9/22.3 (1988)	3,037	3,080	-0.5	0.804
Panama	2.5	21	28	7.1/ 9.4 (1992)	2,256	2,130	-1.8	0.816
Paraguay	4.5	47	55	3.7/16.6 (1990)	2,675	1,270	-0.8	0.679
Uruguay	3.1	20	23	6.5/14.6 (1989)**	2,690	2,880	-0.4	0.859
Venezuela	20.2	33	40	8.2/17.0 (1992)**	2,660	2,720	-1.3	0.820

[1] Human Development Report. UNDP, 1994.
[2] Percent below 2 standard deviations weight-for-age and height-for-age.
* = DHS Survey, 3-36 months.
** = Health Services
[3] The World Food Day Report. USAID, 1993.
[4] The State of the World's Children. UNICEF, 1994.
[5] Human Development Index based on life expectancy, adult literacy, mean years of schooling, educational attainment, and adjusted income.

Figure 1

Calorie Availability in LAC Countries
1989 - 1991

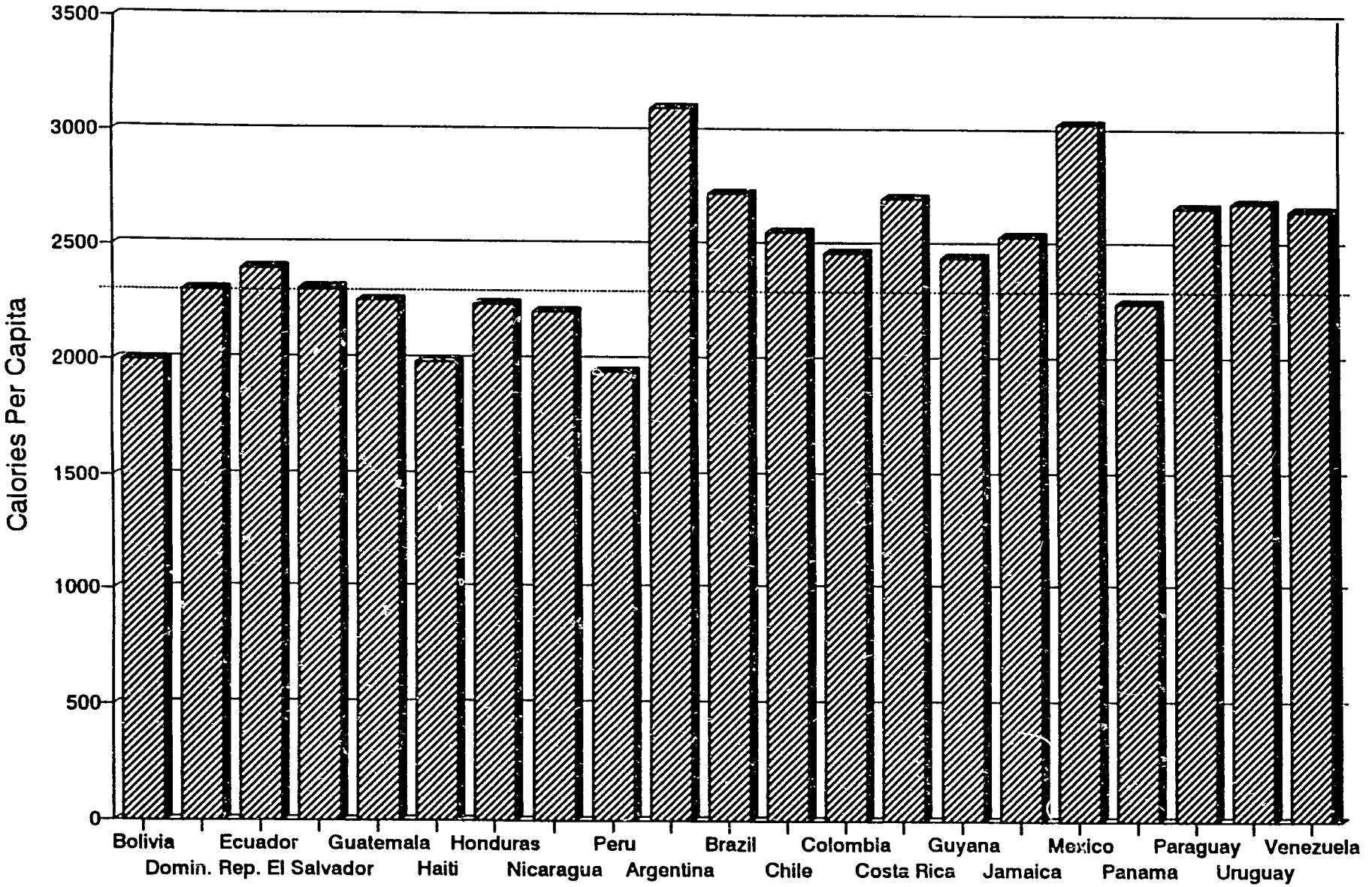
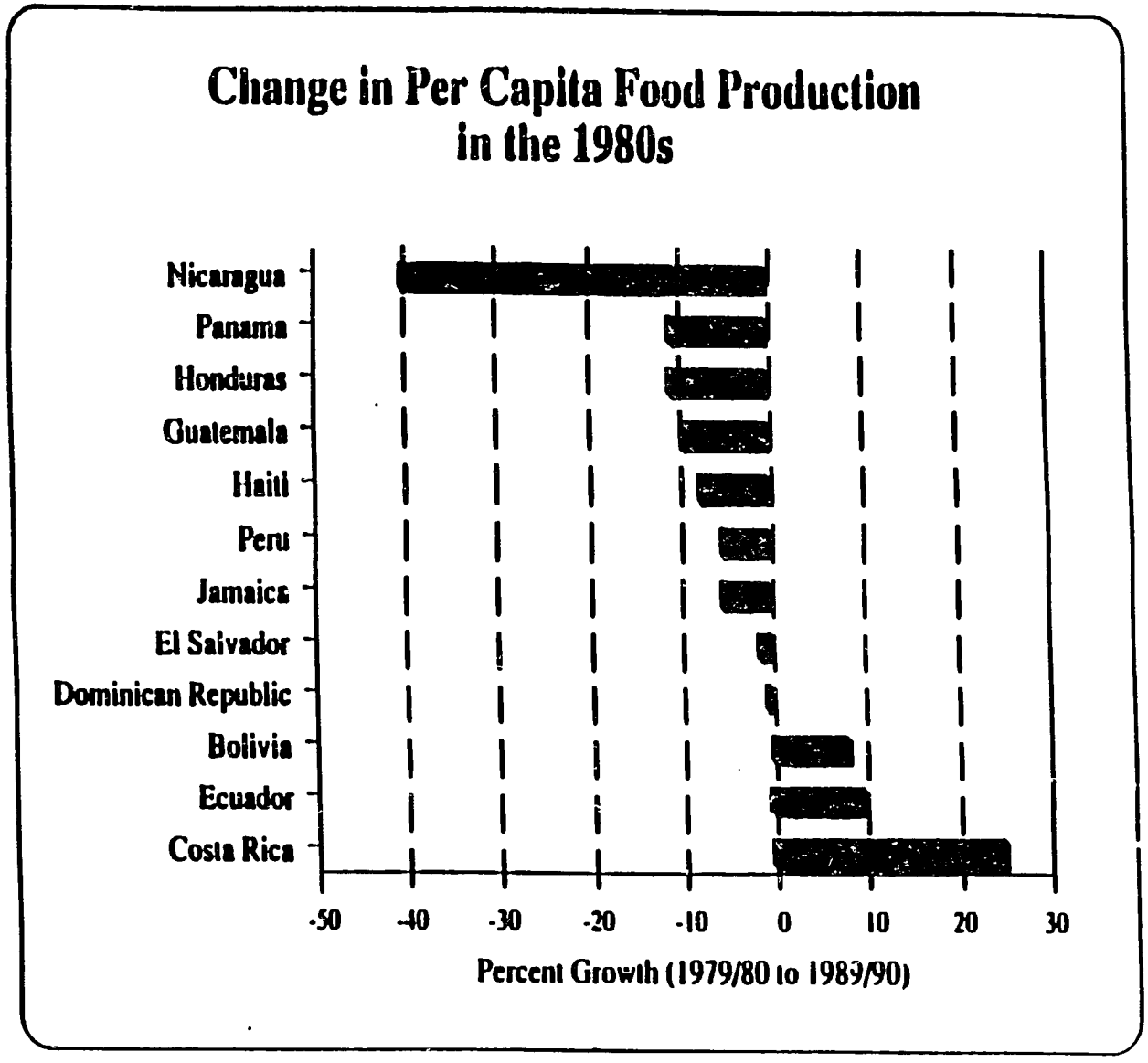


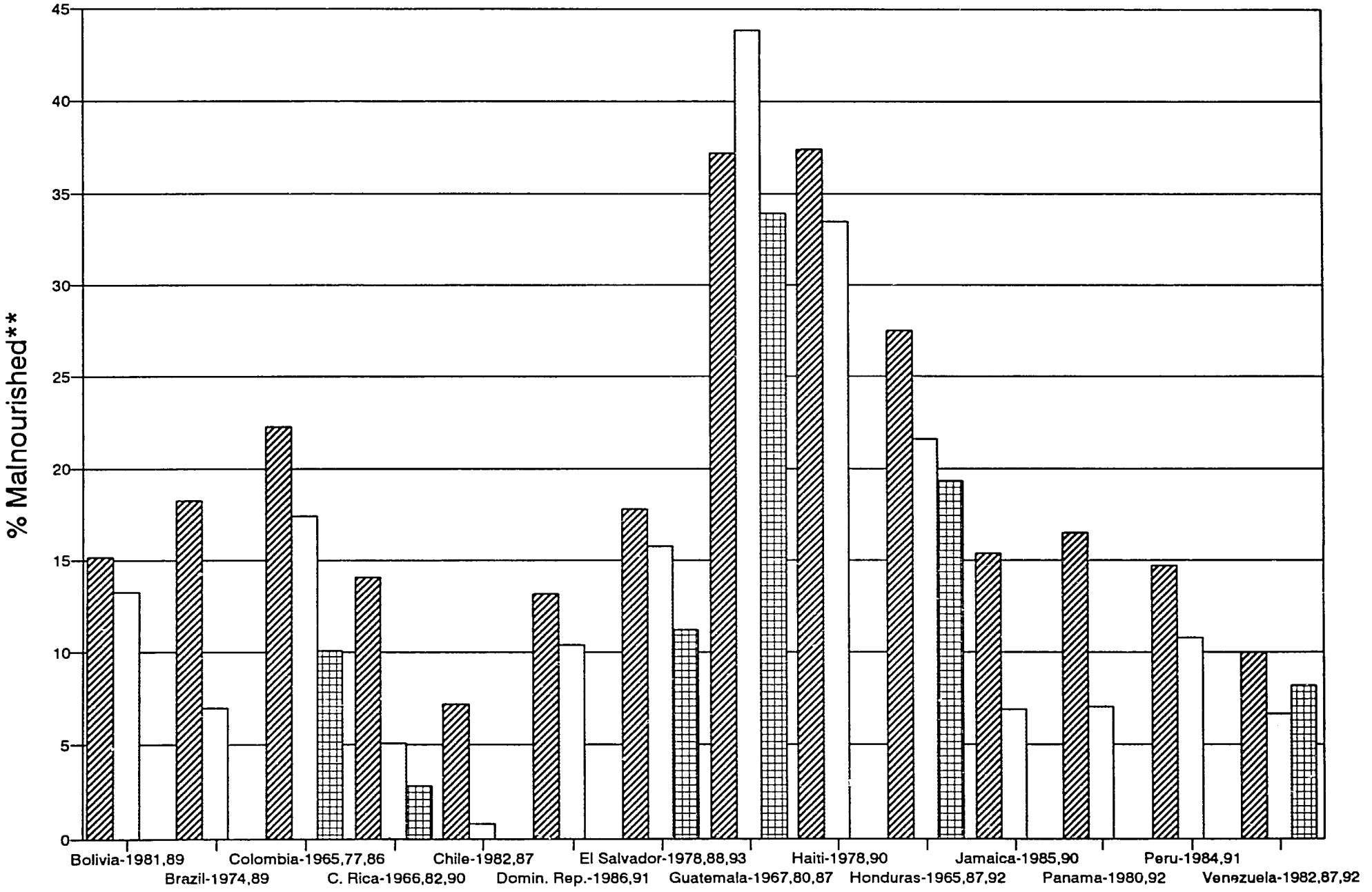
Figure 2 **Change in Per Capita Food Production in Selected LAC Countries in the 1980's**



Source: **LACTECH Bulletin, December 1992**

Figure 3

Trends in the Nutritional Status of Children Under 5 Years in LAC Countries

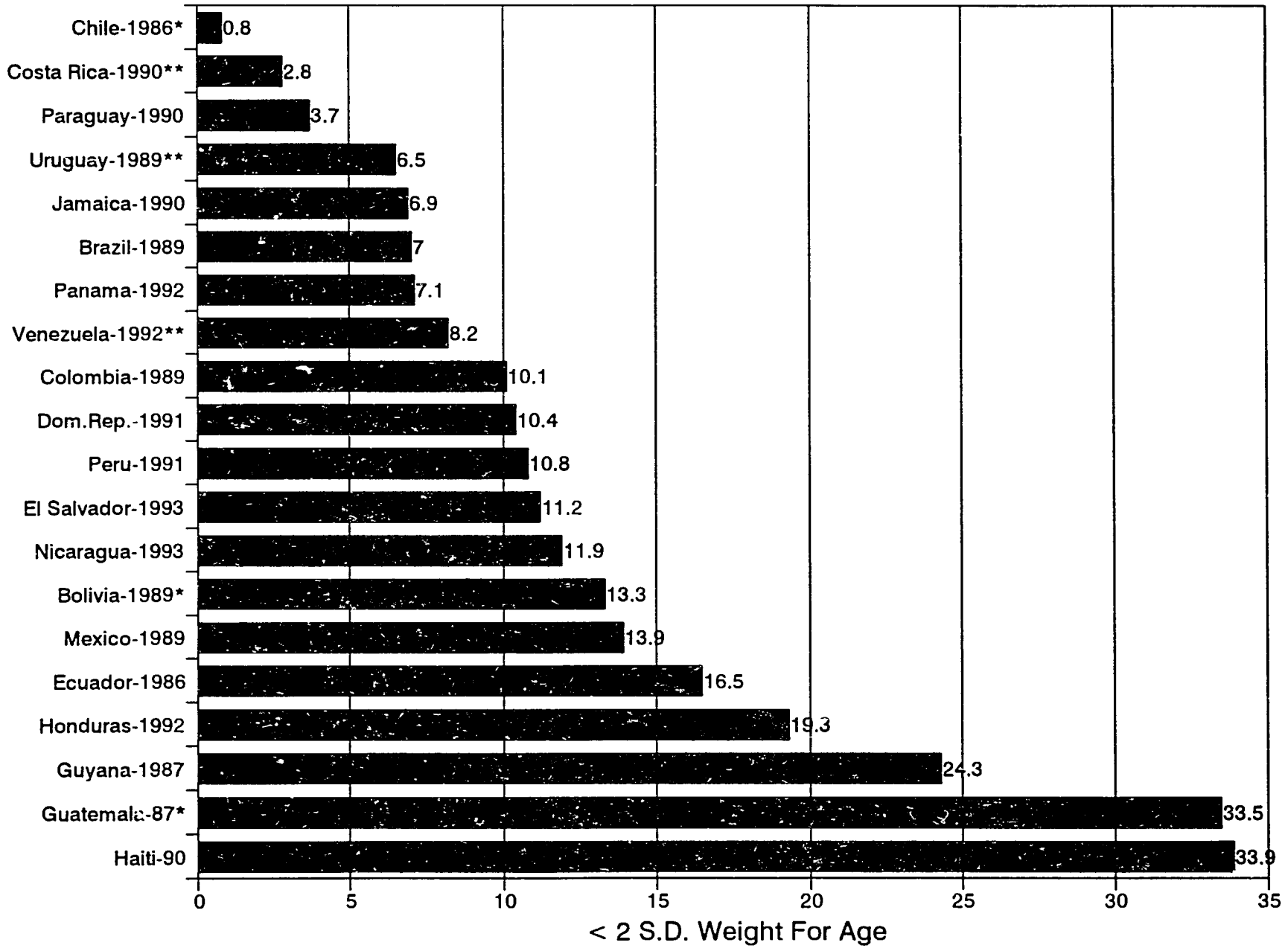


*Countries with national data from repeated surveys

**Percent below 2 S.D. weight for age.

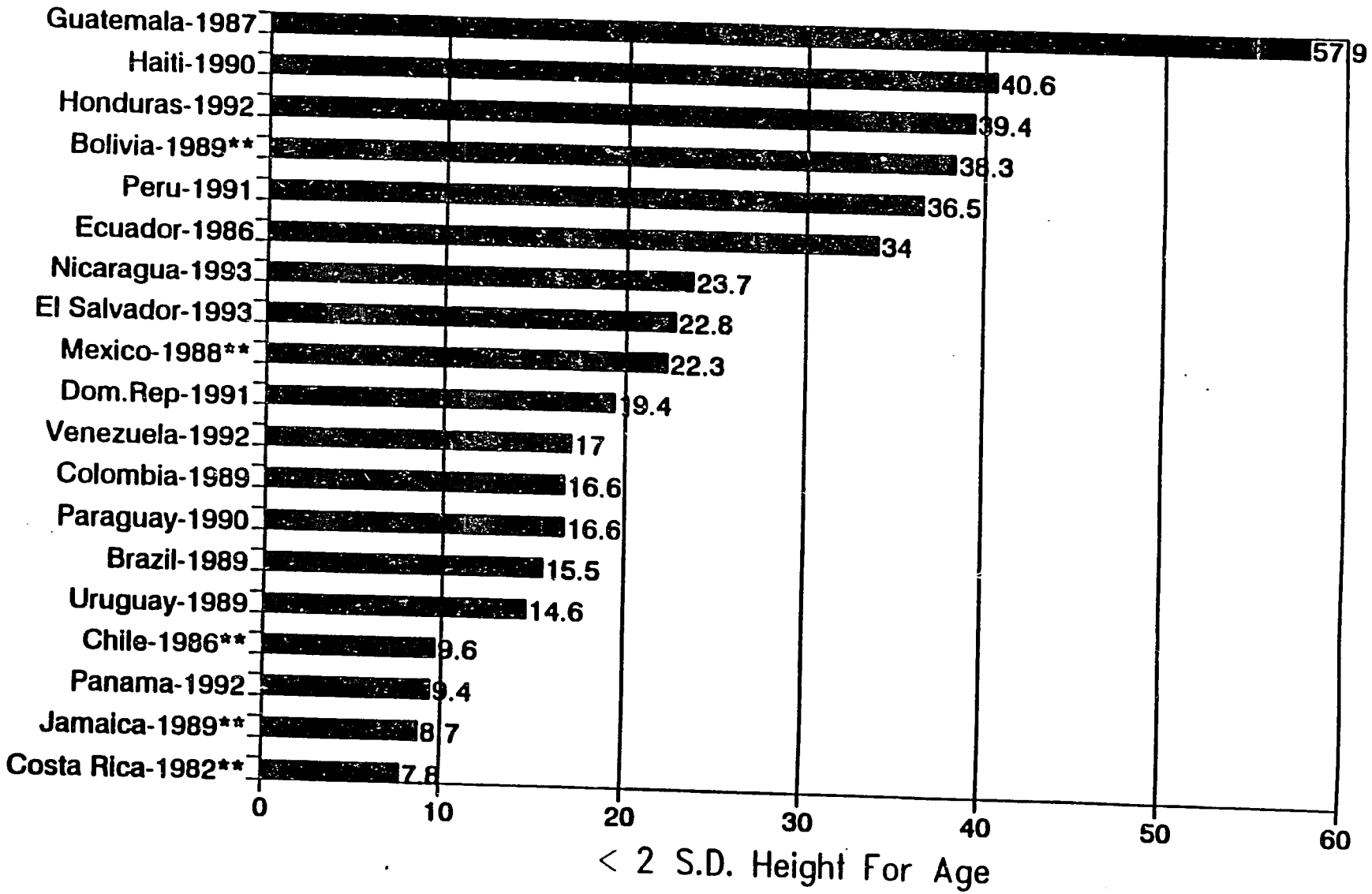
Figure 4

Prevalence of Malnutrition in Chidren Under 5 Years in LAC countries



*DHS Survey, 3-36 months of age ** Data from Health Centers

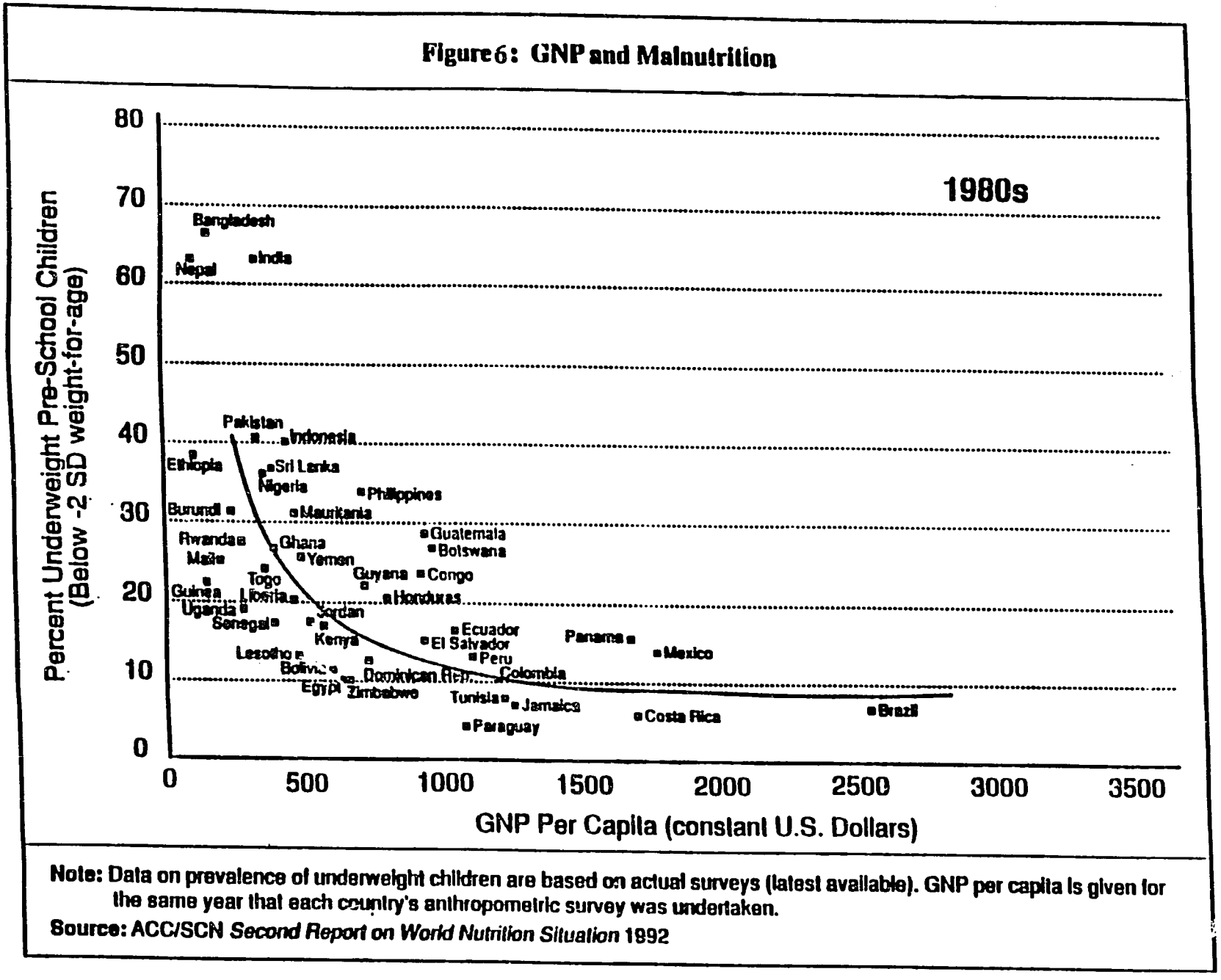
Figure 5 **Prevalence of Low Height for Age in Preschoolers Under 5 Years in LAC Countries**



* DHS Survey, 3–36 months of age

** Data from Health Centers

Figure 6 Relationship Between Malnutrition and Per Capita GNP



Note: Data on prevalence of underweight children are based on actual surveys (latest available). GNP per capita is given for the same year that each country's anthropometric survey was undertaken.

Source: ACC/SCN *Second Report on World Nutrition Situation* 1992